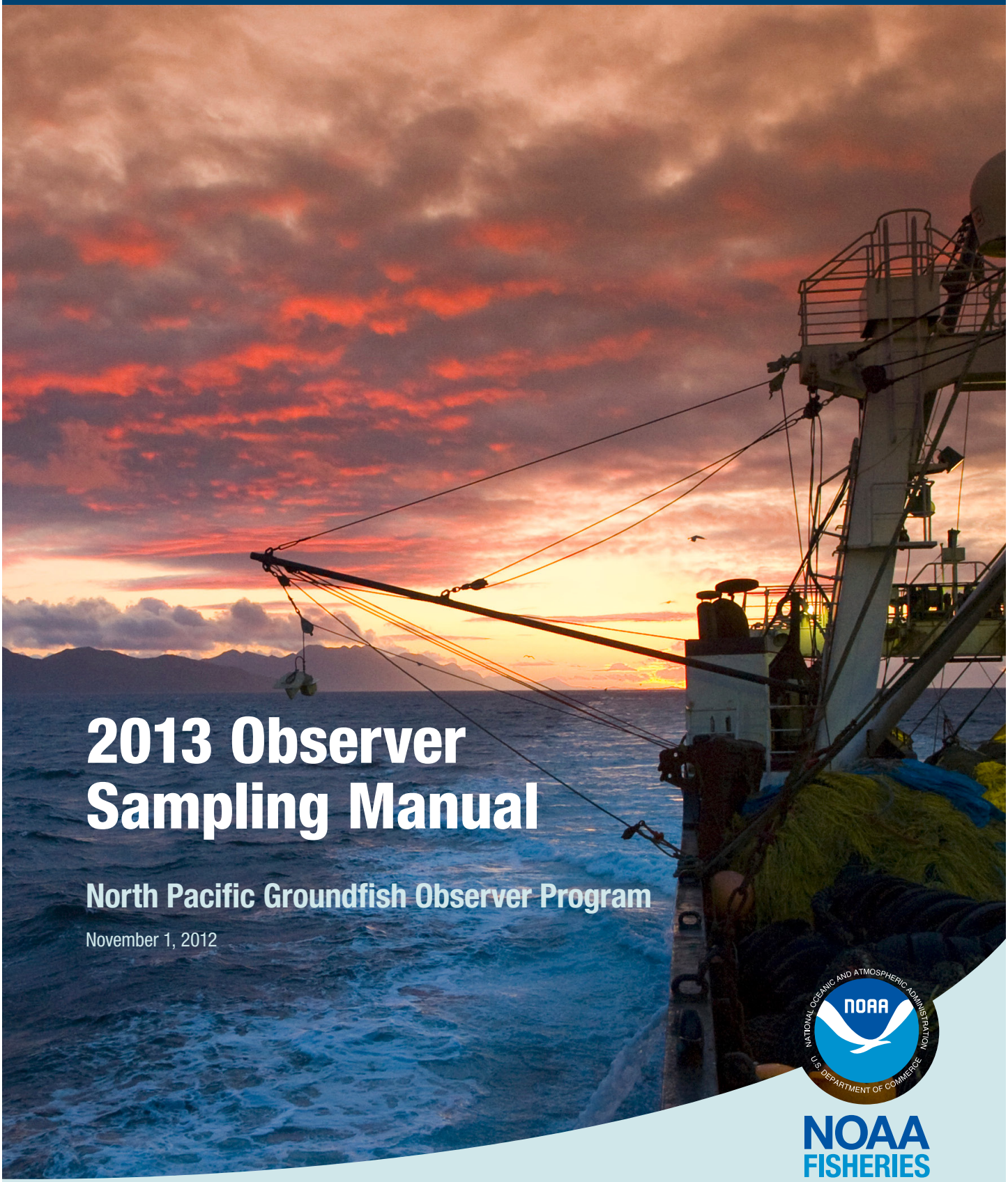
Alaska Fisheries Science Center | Fisheries Monitoring and Analysis Division



2013 Observer Sampling Manual

North Pacific Groundfish Observer Program

November 1, 2012

NOAA FISHERIES

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Observers: Keep this manual throughout the 2013 fishing year

Cover photo by Samuel Zmolek

PAPERWORK REDUCTION ACT STATEMENT:

Information collected through the observer program will be used to: (1) monitor catch and bycatch; (2) understand the population status and trends of fish stocks and protected species, as well as the interactions between them; (3) determine the quantity and distribution of net benefits derived from living marine resources; (4) predict the biological, ecological, and economic impacts of existing management actions and proposed management options; and (5) ensure that the observer programs can safely and efficiently collect the information required for the previous four uses. In particular, the observer program provides information that is used in analyses that support the conservation and management of living marine resources and that are required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), Executive Order 12866 (EO 12866), and other applicable law. Most of the information collected by observers is obtained through "direct observation by an employee or agent of the sponsoring agency or through non standardized oral communication in connection with such direct observations." Under the Paperwork Reduction Act (PRA) regulations at 5 C.F.R. 1320.3(h)(3), facts or opinions obtained through such observations and communications are not considered to be "information" subject to the PRA. The public reporting burden for responding to the questions that observers ask and that are subject to the PRA is estimated to average 60 minutes per trip, including the time for hearing and understanding the questions, 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 this collection of information, including suggestions for reducing this burden, to: National Marine Fisheries Service, Alaska Fisheries Science Center, Fisheries Monitoring and Analysis Division, 7600 Sandpoint Way NE, Seattle, WA 98115. Providing the requested safety information is mandatory under regulations at 50 C.F.R. 600.746; however, providing the other requested information is voluntary. All information collected by observers will be kept confidential as required under Section 402(b) of the MSA (18 U.S.C. 1881a(b)) and regulations at 50 C.F.R. Part 600, Subpart E. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. This is an approved information collection under OMB Control No. 0648-0593, expires 11-30-2015.

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INTRODUCTION

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THE OBSERVER PROGRAM

The Fisheries Monitoring and Analysis Division's (FMA) Observer Program collects, maintains, and distributes data for scientific, management, and regulation compliance purposes in the Gulf of Alaska (GOA) and the Eastern Bering Sea/Aleutian Islands (BSAI). The FMA is a component of the Alaska Fisheries Science Center (AFSC) of the National Marine Fisheries Service (NMFS). The parent agency for NMFS is the National Oceanic and Atmospheric Administration (NOAA), and NMFS is often referred to as NOAA Fisheries.

The FMA deploys over 300 certified groundfish observers each year on a variety of commercial fishing vessels. These observers, in turn, provide the Observer Program with over 37,000 data collection days annually.

An observer's job is unique, challenging and constantly changing. This manual is an indispensable tool both for trainees and experienced observers. It should be used as both a text book for trainees and a field reference manual for observers at sea. It contains the background, procedures, and protocols on how to collect the wide variety of information requested, and some ideas on how to cope with specific situations. The methods described in this manual have been tested and modified throughout the twenty years of the domestic groundfish Observer Program and will continue to be refined with observer feedback and suggestions.

HISTORY OF THE FISHERY

Commercial fishing has occurred in the eastern Bering Sea since the early 1930s. Over time, the countries harvesting this resource have changed, as have the target fisheries. Prior to the 1960s, Japan and Russia dominated this industry, focusing predominantly on yellowfin sole. In the mid-1960s a decline in the flatfish stocks caused the Russians and Japanese to move toward walleye pollock as their main target species. During the 1960s and 1970s other countries, including Taiwan, the Republic of Korea, and Poland, began fishing in these profitable waters.

In 1973 NOAA Fisheries began placing observers on foreign vessels operating off the Northwest and Alaskan coasts, creating the North Pacific Foreign Fisheries Observer Program. The primary goals of these observers were to determine bycatch rates of Pacific halibut in groundfish catches and to verify catch statistics in the Japanese crab fishery. Later,

ABC- Acceptable Biological Catch	MRA- Maximum Retainable Amounts (was Maximum Retainable Bycatch)
ADF&G- Alaska Department of Fish and Game	MSFCMA- Magnuson-Stevens Fishery Conservation and Management Act
AFA- American Fisheries Act	MSY- Maximum Sustainable Yield
AFSC- Alaska Fisheries Science Center	NMFS- National Marine Fisheries Service
ALT- Alaska Local Time	NMML- National Marine Mammal Laboratory
BBL- The Bird Banding Laboratory of the U.S. Geological Survey	NOAA- National Oceanic and Atmospheric Administration
BSAI- Bering Sea & Aleutian Islands	NORPAC- North Pacific database (Observer Program database)
CP- Catcher/Processor	NPFMC- North Pacific Fishery Management Council
CDP- Community Development Plan	NPGOP- North Pacific Groundfish Observer Program (FMA)
CDQ- Community Development Quota	NSR- Non-Specific Reserve
CFR- Code of Federal Regulations	OFL- Over Fishing Limit
CPR- Cardiopulmonary Resuscitation	OHF- Observer Haul Form
CPUE- Catch Per Unit Effort	OY- Optimum Yield
DCPL- Daily Cumulative Production Logbook	PFD- Personal flotation Device
DMSO- Dimethyl Sulfoxide	PLT- Pacific Local Time
EEZ- Exclusive Economic Zone	PRR- Product Recovery Rate
EPIRB- Emergency Position Indicating Radio Beacon	PSC- Prohibited Species Cap
FCC- Federal Communications Commission	PSQ- Prohibited Species Quota (for CDQ)
FMA - Fisheries Monitoring and Analysis Division (formerly NPGOP)	RBT- Random Break Table
FMP- Fishery Management Plan	RKCSA- Red King Crab Savings Area
FUS- Fully Utilized Species	RST- Random Sample Table
GOA- Gulf of Alaska	RSW- Refrigerated Sea Water
GPS- Global Positioning System	SSB- Single Side Band radio
IFQ- Individual Fishing Quota	TAC- Total Allowable Catch
IPHC- International Pacific Halibut Commission	USCG- United States Coast Guard
IR/IU- Improved Retention/Improved Utilization	VHF- Vessel Haul Form (or Very High Frequency radio)
IRCS- International Radio Call Sign	
LOA - Length overall	
MARPOL- Marine Pollution	

Figure 1-1: Commonly Used Abbreviations and Acronyms

observers collected data on bycatch of other commercially important species including king crab, Tanner (snow) crab, and salmonids.

The flatfish and pollock fisheries remained largely foreign-harvested, off-shore fisheries until passage of the Magnuson Fishery Conservation and Management Act in 1976. This act was re-authorized in 1996 as the Magnuson-Stevens Fishery Conservation and Management Act. With this Act, the U.S. declared management authority over fish resources within 200 nautical miles from their shores - the Exclusive Economic Zone (EEZ). The goals of the Magnuson Act were to Americanize the fishery, implement fishery management plans, and to maintain optimum yield (OY) of the resource while rebuilding depleted groundfish stocks.

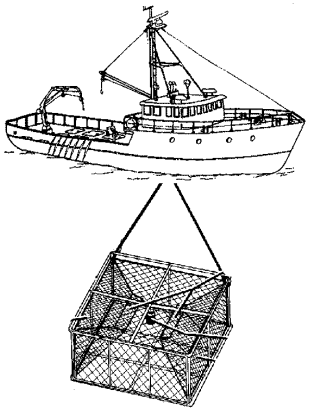
Additionally, the Magnuson Act established eight regional councils to manage the nation's fisheries. The North Pacific Fishery Management Council (the Council) has jurisdiction over the 900,000 square mile EEZ off the coast of Alaska.

When the Magnuson Act was passed, American fishers had little knowledge of how to harvest or process the groundfish species found in the North Pacific. To encourage investment in this resource, the American Fisheries Promotion Act was passed in 1980. This act required fish quotas be given preferentially to nations which contributed heavily to the development of the U.S. fishing industry. Instituting joint-venture fisheries, with American catcher vessels delivering their catch to large foreign floating processors, allowed foreign countries to continue receiving their quota, while developing the domestic fleet. By 1991 all foreign commercial fishing within the 200 mile EEZ was terminated, leaving an entirely domestic fishery. As the fisheries changed, so did the Observer Program. The Council implemented the domestic North Pacific Observer Program to gather data needed to manage the wide variety of fisheries off the coast of Alaska.

VESSEL AND PLANT DESCRIPTIONS

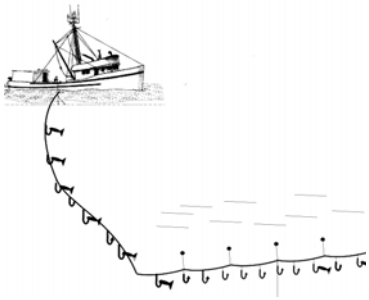
The North Pacific groundfish fishery today is harvested by a variety of vessel types, but most observer trips occur on one of three types: pot, longline or trawl. Within these three vessel types, there are catcher vessels (CVs) and catcher processors (CPs). Catcher vessels are generally small boats that do not process their catch. Fish are caught, brought aboard, and stored in tanks until the vessel delivers to a processing plant. The majority of catcher boats use refrigerated sea water (RSW) to keep their catch fresh until delivery, but a few use ice. Catcher processors have factories and freezers aboard. They make a preliminary or finished product, and store it in large freezer holds. It is the ability to freeze fish that differentiates CPs from catcher boats, and a vessel which freezes whole fish is still considered a CP.

Pot Vessels



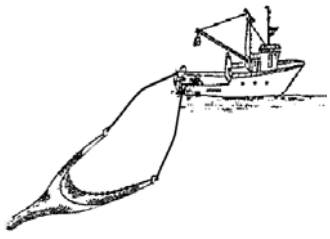
Pot vessels fish with fixed steel traps, or "pots." The pots work much the same way as a lobster pot. The fish enter the pot in search of bait, and become trapped inside. Most pot vessels are catcher boats, but there are a few CPs, producing mainly headed-and-gutted product. Pot boats are used to harvest Pacific cod and, to a much lesser extent, sablefish (black cod).

Longline Vessels



Longline vessels fish with fixed hooks strung along a ground line. The longline can be several miles long, and can have thousands of baited hooks attached. The longline fleet is composed of both catcher boats and CPs. Longliners target Pacific cod, Pacific halibut, sablefish, turbot, and some rockfish species.

Trawl Vessels



Trawlers fish with a net towed behind the boat. The net is shaped like a large funnel. At the end of this funnel is a bag, called the codend, which collects fish caught by the net. Trawlers make up the largest portion of vessels which carry observers and include both CPs and catcher vessels.

Processing Plants

Processing plants accept fish from catcher vessels, and make preliminary or final products. Catch is transferred from boats to the plant using a large pump, or Trans-Vac. There are two types of processing plants, shoreside and floating. Shoreside processors are on land and floating processors, or "floaters," are anchored vessels which do not fish for themselves, but rather accept deliveries of pumped fish.

MANAGEMENT PLANS

Management programs have been implemented to allocate quotas among areas, seasons, gear types, vessel types, cooperatives and even individual fishers. Observer data are used in part for assessing, allocating and monitoring these fish stocks and quotas. This information is used by the Council to write fishery management plans (FMPs) for each of the commercially important species it manages. FMPs must comply with standards laid out in the Magnuson Act in that they must:

- prevent overfishing,
- achieve optimum yield,
- achieve efficiency and utilization of the resource,
- base management on the best scientific data available,
- manage the fishery throughout its range, and
- be fair to all fishers.

Time-Area Closures

Time and area closures are used in all groundfish FMPs. These are closures which pertain to specific management areas over specific dates. A time and area closure may be used to protect a different resource, or to stop directed fishing in an area. An example of some of these time-area closures are shown in Figure 1-2 on page 1-5. FMPs call for an annual total allowable catch (TAC) to be set for each species, and parts of the TAC are often allocated to particular management areas or user groups. Once an allocation is reached, the area or a specific group's access to this area closes, while the fishery may remain open in other areas. Once the entire TAC has been harvested, the fishery closes. In open access fisheries, removal amounts for each statistical area are calculated using mostly observer data.

The data you send to NMFS inseason are immediately used by the Regional Office for fishery management purposes.

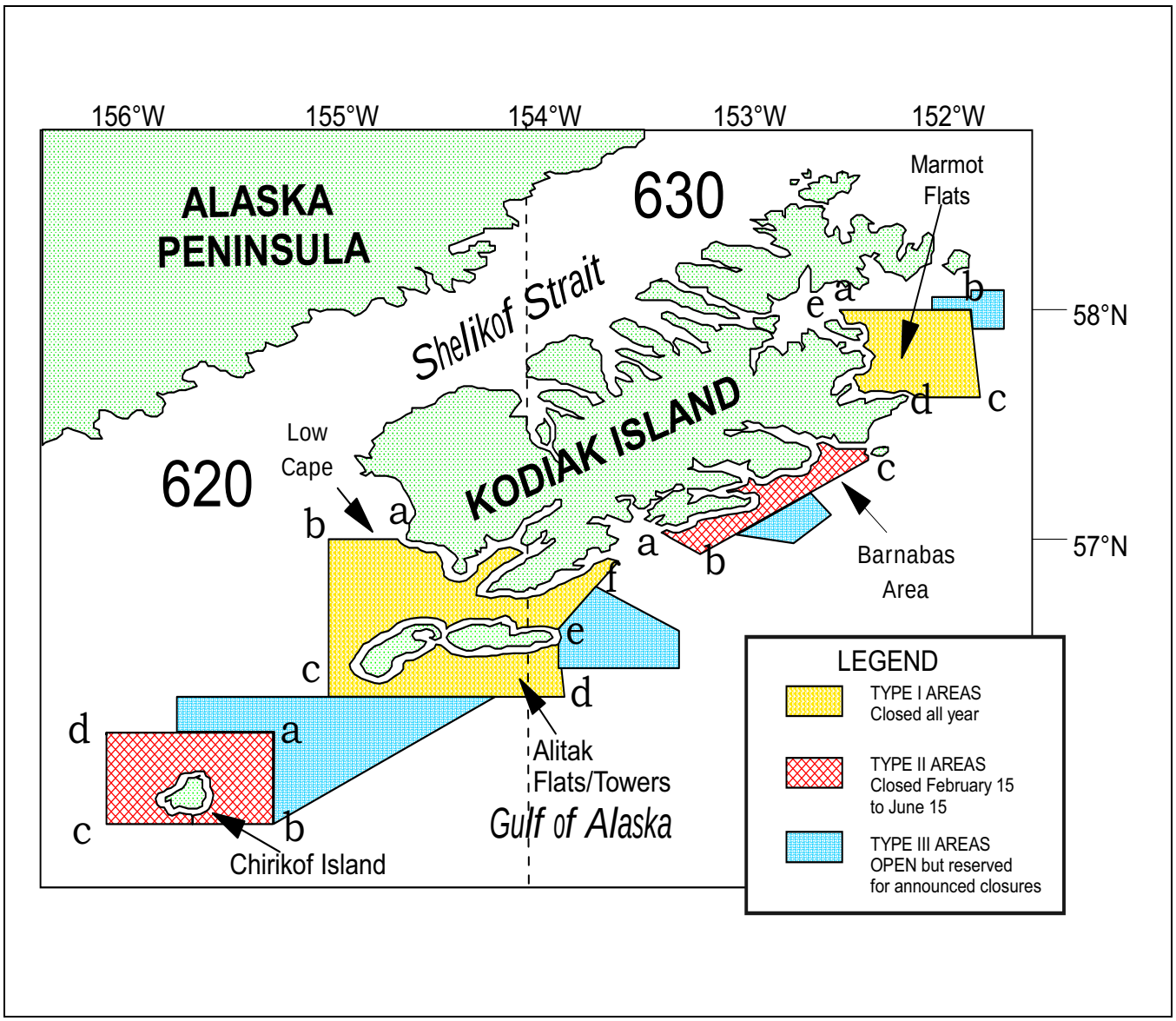


Figure 1-2: Example of Kodiak Island Time-Area Closures for Non-pelagic Gear

Area closures can be mandated by other management measures, such as the Marine Mammal Protection Act (MMPA), which closes areas surrounding critical sea lion and walrus habitat at certain times of the year, and the Red King Crab Savings Area (RKCSA), which closes this area to bottom trawling when female red king crab are gravid. Observer data are used to determine the catch rates for each vessel. Each vessel's bycatch affects the fishery, so those with bycatch rates beyond established limits risk prosecution for exceeding them.

Limited Access Privilege Programs

Limited Access Privilege Programs (LAPPs) are limited access systems whereby permits are issued to individuals or communities to harvest a quantity of fish representing a portion of the TAC. LAPPs can be given to individuals, partnerships, corporations, cooperatives, and fishermen's organizations. The Magnuson Act provides specific requirements for implementation of LAPPs. Examples of LAPPs in the North Pacific fisheries are Individual Fishing Quotas (IFQ) and Community Development Quotas (CDQ).

OTHER MANAGEMENT AGENCIES

The FMPs for some species delegate the management to other agencies. The commercial king and Tanner crab fisheries are managed by the Alaska Department of Fish and Game (ADF&G), with Federal oversight. The ADF&G has a Shellfish Observer Program, which collects catch and bycatch data from these fisheries. The fishery for Pacific halibut is managed by the International Pacific Halibut Commission (IPHC), although the Council can also develop regulations to manage this fishery. Groundfish observers may be deployed on halibut IFQ vessels.

CERTIFICATION AND ENDORSEMENTS

Certification and endorsements for observers are granted and maintained by successful completion of four steps: 1) training, 2) demonstrating proficiency during each cruise, 3) receiving satisfactory performance evaluations and 4) briefing and being deployed at least once every 18 months.

Training

A three-week training is required of all new observers, and for prior observers who have not been to sea in more than 18 months. Training takes place at the Alaska Fisheries Science Center in Seattle.

Trainees must be sponsored by an observer provider. A list of these companies can be found on page A-85.

The purpose of the training is for trainees to gain an understanding of how to collect fishery data which can be used to manage the groundfish stocks in Alaska. Trainees learn and demonstrate the proper techniques of data collection and recording through a variety of in-class and take home practices. Most importantly, trainees learn how to work efficiently under the strenuous conditions of commercial fishing vessels.

Specific requirements for the successful completion of the training course will be provided by your trainer. In general, the training consists of an intensive overview of commercial fishing, sampling protocols, safety at sea, and fish, invertebrates, birds, and mammals of the North Pacific. Trainees must pass a series of tests with a minimum score of 80 percent. Additionally, several homework assignments will be given which must be completed accurately and on time. Through the exams and homework, trainees will demonstrate their understanding of, and ability to apply, the following concepts:

- observer priorities and duties,
- methods of independent catch estimation,
- proper recording of catch data,
- methods of sampling and recording species composition data,
- fish identification and use of dichotomous keys,
- gender determination and measurements of fish and crab,
- procedures for collection of age structures,
- applications of volume, weight, density,
- safety and survival skills.

In order to receive a certification training endorsement, trainees must attend and participate in every training session, pass exams, complete all the homework and make any corrections requested by the trainer. Trainees must also pass a safety test including an on-land and in-water test of immersion suit and life raft use. Additionally, trainees must be able to demonstrate to the instructor that they have the attitude and ability required to perform a difficult job independently, and to act professionally in stressful situations.

DEPLOYMENT

Observers are deployed to vessels and processing plants in either the full coverage category or the partial coverage category. Your employer will tell you the category for your deployment.

The logistical arrangements of your travel, assignments, and debriefing appointments are made by your employer. Often, you will receive your assignment prior to leaving your training location and you may be deployed directly after passing the training class. During one of your last days of training, you will be issued some of the equipment needed to complete your sampling tasks. You are responsible for providing your personal equipment while NMFS will supply your sampling equipment.

Personal Equipment

Observers are responsible for providing their own raingear. This is your first and most important protection from wind, spray, inclement weather, and fish slime. Your raingear should be heavy, brightly colored PVC, lined with cotton for strength and warmth. Grundens, Cofish International, Helly-Hansen, and Eriksens are brands that are frequently used by fisherman and observers. You will need a hooded jacket and "bibs." Dark colors should be avoided, since they are difficult to see on deck, especially at night. You will also need several pairs of gloves and glove liners. Fishing supply stores stock a variety of gloves of different weights and materials. You should choose a pair that are heavy enough to withstand harsh conditions, but flexible enough to allow you to write. Waterproof boots should be warm and sturdy, with a non-slip sole. The Xtra-tuff brand is the standard boot for Alaskan fisherman, processors, and observers.

A list of clothes and belongings you may want to bring to sea is provided in Figure 1-3. If you have questions on what to bring to sea ask prior observers or NMFS staff. Generally, first time observers bring too much with them. In one deployment you are likely to be on four airplanes, four vessels, and in any number of cabs and hotel rooms. Throughout this you will need to carry both your personal gear and sampling equipment! Rather than taking a lot of clothes, focus on bringing items which can be layered. Working on deck or in the factory of a vessel in Alaska is cold and wet and layering will help protect you from the elements. Synthetic or wool materials are recommended and will keep you warmer than cotton. Inexpensive clothes are also recommended, since the smell of fish is difficult to remove from fabric. While you are at sea, you may store extra belongings at NMFS in Seattle. Please note that this service is only for observers while they are at sea, and cannot be used between contracts.

Sampling Equipment

Sampling and safety equipment is supplied by NMFS. The equipment you receive may not be new, but it will be in good working order. It is your responsibility to maintain your equipment and return it in the best condition possible. You may be charged for misuse or neglect of sampling equipment. It is best to make cleaning and maintaining your equipment part of your everyday routine, since you will rely on this equipment to complete your duties. Some suggestions on how to care for your equipment are:

1. Keep your equipment in a secure place aboard the vessel. Avoid leaving equipment on the vessel's deck. If there is no alternative to leaving it out on deck, be sure that it is well secured. Keep only weather proof equipment on deck!

2. Keep forms, books, pencils, pens, and unused equipment in a ***dry*** safe place, such as your room or a secure lazarette. Leave only what you regularly use in the factory or on deck.

3. Keep all equipment as clean as possible. This will make it much easier for you to clean your equipment when returning it. Use deck hoses to rinse slime, scales, and blood off your baskets, Deck Forms, length boards, clipboards, scalpel, and knife after each use. Most CPs and shoreside plants have high pressure hoses which are excellent for cleaning equipment.

4. Keep metal parts clean and well oiled. The NMFS-issued lubricant oil is food-grade and can be kept in the factory or out on deck. Do not put weighing scales, scalpels, knives, thumb counters, measuring tapes or other metal objects in plastic bags or boxes when they are wet. They will quickly rust.

5. If something does happen to your issued equipment, document what happened and notify NMFS staff. Obtain replacement equipment as soon as possible.

6. Keep your equipment centralized; you will be less likely to forget something when disembarking.

NMFS will also issue you some safety equipment, including an immersion suit and strobe light, a Personal Locator Beacon, a life vest and whistle, a hard hat and ear plugs. These are provided in order to reduce your reliance on vessel equipment. Keep your immersion suit in a safe place, such as your bunk. It is not a good idea to keep your suit with the crew's, since it may not be easily accessible and may be forgotten when you are disembarking. Both your immersion suit and life vest have zippers on them, which need to be kept waxed to prevent sticking.

The majority of your equipment will be issued to you at your training or briefing location. Additional equipment may be obtained from the NMFS field

This list of items is approximately what you will need for a 60-90 day deployment. The amount and type of heavy clothing will depend on your personal preferences, the vessel type you are assigned to, and time of year you are working. Items you bring should be old, or inexpensive, since the smell of diesel and fish is difficult to remove. Items which **can** be hand washed are recommended, but items which are so delicate that they **must** be hand washed should be avoided.

Work Clothes

Raingear- brightly colored bib overalls and jacket with hood (1 set)
Boots- Xtra-tuff brand highly recommended (1 pair)
Boot insoles- wool or felt insoles made for Xtra-tuffs (2 pairs)
Gloves- heavy rubber gloves- strong enough for work, but flexible enough to write (6-8 pairs)
Glove liners- polypropylene, wool, or poly/cotton blend (3-5 pairs)
T-shirts- cotton, polypropylene, or light wool (3 shirts)
Sweatshirts- cotton or polypropylene fleece (3- two for work, one for inside)
Pants- cotton or polypropylene sweat pants, or wool work pants (2 pairs)
Shorts- to sleep in (1 pair)
Jeans- a pair of pants for wearing in town (1 pair)
Sandals/Crocs- flip-flops for shower use (1 pair)
Hiking boots- lightweight but waterproof boots for town (1 pair)
Teva/Birkenstock type sandals or Crocs- for wearing inside on the vessel (1 pair)
Long underwear- polypropylene or other thermal (2 pairs)
Socks- wool, polypropylene, or blend (5 pairs)
Neck gator- Fleece or smartwool for wearing on deck (2 gators)
Ball cap/bandana- Tie long hair up/keeps slime out of your hair
Hat- wool or polypropylene cap that will fit under a hood (2 hats)
Gloves and hat for town - also fleece ear and neck bands are useful (1 each)
Jacket- any warm jacket for town that will resist rain and heavy winds (1 jacket)
* If you are purchasing a jacket to wear at sea, Stormy Seas, Mustang or another brand of float coat is suggested.

Other Items

Sleeping bag- lightweight, but warm
Pillowcase- some observers carry a flat sheet with them as well
Towel- medium sized terry towel (1-2 towels)
Toiletry articles- these are available in port or in ship stores but are often expensive
Seabag- an old or inexpensive duffel bag (a full length zipper helps). Some observers use Army surplus duffles
Padlock- for your duffel bag, also useful if there is a locker on the vessel
Backpack- suitable as an airline carry-on bag for fragile items and useful as a day-pack in town
Glasses or contacts- bring an extra pair/bring enough pairs of contact lenses to last your entire contract
Cash or traveler's checks- observer providers often provide cash advances, many ports do not have an ATM
Credit card - and/or pre-paid calling card
Camera -plus film/extra memory card
Sewing kit- needle, thread, and safety pins. Duct tape is also useful, and common on vessels.
Watch - and /or travel alarm clock
Seasickness medication- Bonine and Dramamine are common brands used by observers
First Aid kit- small, you may want some cold medicine, pain reliever, etc. and any prescription medications
Vitamins and/or nutritional supplements- especially if you have a restricted diet (*i.e.*, vegetarian)
Stationary -plus envelopes, stamps, and a small address book
Books - and/or a journal
Music - and mp3 player
Water bottle - for keeping water near your bunk

Figure 1-3: List of Personal Equipment

Treat your equipment like the important asset it is! Without it, you cannot complete your duties!

offices in Dutch Harbor and Kodiak. Even if you are deployed from these ports, you may be in town for a very short period of time and it is best to take all the equipment you will need from Seattle. If your vessel assignment changes at the last minute, you may need to pick up additional thumb counters, baskets, a Mustang suit or a flatbed scale from the field offices. Let your employer know your needs so they can arrange the logistics with the vessel.

Assignments

NMFS has a 90-day limit for each observer cruise. Additionally, observers may not be assigned to more than four vessels and/or plants during one cruise. Finally, observers may not be deployed to the same vessel for more than 90 days in any 365-day period. These limitations were created in order to protect observers from "burn-out," and to allow NMFS to finalize your data in a timely manner. Observers may work less than 90 contiguous days because of fishery closures, weather, and erratic vessel schedules.

Observers working in the full coverage category enter into contractual agreements to provide observer services for a NMFS-permitted observer provider. These contracts are generally written for 90 days, but may change dependent on provider and union agreements. If you need to complete a deployment by a specific date tell your employer's logistics coordinator and get this date written into your contract.

Observers working in either the full coverage or the partial coverage categories should have a written understanding of payment and reimbursement agreements prior to leaving, since traveling in Alaska can be unpredictable and expensive.

When you begin a new assignment, take time to adjust to your surroundings before the vessel leaves the dock. Present the "Letter of Introduction" to the vessel operator. Make yourself available to answer any questions the vessel may have. Familiarize yourself with the safety equipment using the check list on on page 19-3. Do not board the vessel if you circled "N" for any of the "no go items. Read "Sample Station Requirements" on page 2-27 for information regarding what to look for in a basic sample station. Ask the captain how many hauls are expected each day to determine your sampling schedule.

If you know your first assignment prior to leaving your training location, you may get specific information about the vessel or plant from a NMFS staff member.

Communications

You will be communicating with the Observer Program daily, weekly, or on a trip by trip basis depending on your vessel. Some vessels have the ATLAS communications system. This computer software was designed to allow you to enter your data on the vessel's computer and transmit it to NMFS. It also allows you to send email messages to Program staff. The email you send is read and responded to by a member of the FMA's debriefing staff who is knowledgeable about the boat. They will also be able to look at your data and troubleshoot problems while you are still at sea. If you are on a vessel that does not have ATLAS, you will fax in your data periodically. For more details refer to "Sending Data" on page 2-32.

If you are ill or injured and cannot work for more than one day, you must contact NMFS. If you are on a vessel with ATLAS, contact your inseason advisor. If you are not on a vessel with ATLAS, use an available means of communication (phone, fax, email, radio) as soon as possible. You also must inform your captain of this impediment. If you cannot work for more than three days, you must contact your employer.

You must contact NMFS each day an illness or injury entirely prevents you from sampling.

Vessel operators are required by law to allow observers free access to communication systems for work purposes. Their communication systems are not usually for personal use. If they allow you to use the phone or fax for personal use, you may be responsible for the charges incurred.

Mid-cruise and Field Support

The FMA has field stations in Anchorage, Dutch Harbor, and Kodiak to provide staff support for observers. When you are in these ports, you should meet with a staff member for a "mid-cruise" debriefing. The mid-cruise allows NMFS staff to

review your sampling procedures, calculations and paperwork, and ensure that all is going well. It is an opportunity for you to ask questions and receive suggestions on how to solve any problems you may have encountered.

All observers must complete a mid-cruise during each deployment, until they receive an exemption. Although it is termed a mid-cruise, this interview does not necessarily have to take place during the middle of your cruise. It should be completed early enough to allow you to incorporate suggestions and make improvements on your data collection efforts.

When coming into a field station for a mid-cruise, calling ahead will help ensure that a staff member will be available to work with you at a specific time. More information on mid-cruises can be found on page 21-5.

In-person mid-cruises can be done in Anchorage, Kodiak, and Dutch Harbor.

Observer Provider Responsibility

Federal regulations stipulate that observers working in the full coverage category must have a signed contract with your employer prior to deployment. The contract must contain the provision that each "…observer completes in-person mid-deployment data reviews, unless: (i)...specifically exempted by the Observer Program, or (ii) the observer does not at any time during his or her deployment travel through a location where Observer Program staff are available for an in-person data review." The contract must require that an observer who is not able to complete an in-person review complete a mid-deployment review as described on on page 21-6.

Debriefing

When you complete your deployment, you will debrief with an FMA staff member. The main components of debriefing are:

- complete a survey for each assignment
- describe the methods used to collect your data
- inform FMA staff of problems you encountered
- make corrections or changes to your data
- get recommendations for future cruises
- receive a written performance evaluation

Debriefing is generally done in Seattle or Anchorage.

Your debriefing is a vital part of your observer responsibilities because it allows the NMFS to get feedback from you. It is an opportunity for you to discuss your methods and ask for suggestions if you encountered problems in the field. The debriefing process is your chance to demonstrate your understanding of the methods you learned in training and your proficiency at applying them in the field. At the end of your debriefing your debriefer will give you a performance score for each vessel, a written evaluation for your entire cruise, and a briefing recommendation. Your briefing recommendation is the level of training you will need prior to your next cruise.

The last step in the debriefing process is another computer survey. This is an anonymous questionnaire about your training, deployment and debriefing experience. This is a chance for you to tell FMA how well you feel you were prepared to do your job and let us know what would have made your experience better. This survey only takes about fifteen minutes and is extremely helpful to our staff.

Briefing

Prior to each subsequent cruise, you will attend a briefing to inform you of any policy changes and to review the priorities and duties on different vessel types. All observers are required to complete a four-day briefing prior to observing in each new calendar year. Upon successful completion of an annual briefing you will receive an "annual general endorsement" to your observer certification. An additional one-day, two-day tutorial, or four-day briefing must be completed prior to each additional cruise within the year. Upon completion of these briefings you will receive a "deployment endorsement" to your certification.

ESSENTIAL INFORMATION

Table of Contents

INTRODUCTION

You will need to refer to this manual frequently to complete your duties. For many topics, you can refer directly to the chapter that addresses a task or vessel type. Some topics pertain to all observers on all vessel types. ***This chapter contains information essential to all observers.***

RESPONSIBILITIES AND PRIORITIES

Deployment Responsibilities

As an observer, you have specific responsibilities that must be met throughout your deployment. These responsibilities are all important and all must be met during each deployment. Contact FMA if you are having problems or if you have any questions.

- Safety is always your first responsibility! You must receive a safety orientation and you must complete your Vessel Safety Checklist before the vessel leaves the dock. For instructions on recording safety drills in your logbook see "Emergency Drills and Date(s) Conducted" on page 19-6.
- Monitor for and document compliance infractions and suspected violations in your logbook and complete written statements.
- Maintain your logbook. This includes, but is not limited to, having an entry for every day in your Daily Notes, recording all calculations and formulas, your sampling techniques, documentation of scale tests, and sample area diagrams.
- Maintain your sampling equipment to ensure your data are collected properly. See "Using Your Scales" on page 2-24 for specific information regarding scales.
- Complete species identification forms.
- Complete your mid-cruise and final debriefing requirements; see "INSEASON ADVISING, MID-CRUISE AND FINAL DEBRIEFING" on page 21-1.

Data Collection Priorities

Observer data collection duties are listed below in order of priority. Use this list to remind yourself of the different tasks that need to be accomplished for each haul, and recognize which are of a higher priority. There will be times when you cannot accomplish all that you should do in a day, and the lower priority duties should be reduced first. If you find that you cannot complete all the duties listed, concentrate on those with higher priority. Contact FMA if you are having problems or if you have any questions.

1. Record takes of marine mammals. Collect snouts or heads from pinnipeds (except walrus), and tissue samples from cetaceans.
2. Record incidental takes of short-tailed albatross and other seabird species of interest. Collect seabird species of interest specimens. Rehabilitate injured short-tailed albatross and other species of interest if possible.
3. Record fishing effort and catch information. Make an independent estimate for as many hauls as possible. Record all calculations for your independent catch estimates in your logbook.
4. Collect Salmon Retention Data.
5. Sample for species composition per protocols in this manual.
6. Send your data to the Observer Program in Seattle.Collect additional biological data on prohibited species.
7. From hauls sampled for composition, collect otoliths from the appropriate species.
8. From hauls sampled for composition, collect sexed length frequency samples from the appropriate species.
9. From hauls sampled for species composition, record seabird specimen and tag information.
10. Collect data and specimens for standard projects.
11. Record sightings of marine mammals.
12. Record sightings of seabird "species of interest."
13. Complete research projects as assigned.
14. Record sightings of interactions with other seabird species.

Managing Your Time

Your time and effort given to each task should be proportional to its priority. For example, if your vessel catches a killer whale, you should spend as much time as required to gather all the pertinent information and

collect a tissue sample, as that is your highest priority. A few suggestions on how to reduce the time and effort you spend on lower priority tasks are:

- Write sightings of seabirds and mammals on your Deck Form so this information can be transcribed onto the appropriate forms during a non-fishing period.
- Collect otoliths and record all necessary data while taking lengths. Avoid measuring a fish twice!
- Write notes regarding potential violations on your Deck Form as you witness them, so this information can later be transferred to your logbook.
- Prepare paperwork at least daily and maintain your logbook at the same time; this will allow you to be ready to send your latest information to NMFS when needed.
- If the vessel has ATLAS, send a test message soon after you board to ensure it is functioning properly. Doing this early will save you time later if there are any problems.

SAFETY ORIENTATION

The very first thing you will need to do upon boarding a new vessel is to ensure the US Coast Guard Commercial Fishing Vessel Safety Examination Decal (see page 19-2) is valid based on the information noted on the face of the decal. ***You may not board a vessel that does not have a current decal***. If the vessel does not have a current decal, inform the captain that you are not able to board the vessel without one and immediately inform your employer. Document the decal information in your logbook. *(Please note that the mothership Ocean Phoenix is not required to have this safety decal.)*

Before boarding your vessel ensure the embarkation point is safe and free of obstacles, and that someone is around to watch you. Always wear a PFD when embarking and disembarking a vessel. Upon boarding the vessel, introducing yourself to the captain should be a priority. Present to the captain the "Letter of Introduction" and use it as a tool to answer any questions the vessel may have. It's important at this meeting to set the tone for a friendly but business-like working relationship. If the captain is receptive, take this opportunity to mention the following points:

- Tell the captain that it is important for you to routinely see the ship's fishing logs.
- Ask to be informed, in advance, of changes in the fishing schedule so that you may adjust your schedule accordingly.
- Ask to be notified if any marine mammals or short-tailed albatross are found in the catches, regardless of time of day. Request that these animals be held for your examination. Ask to be notified, if possible, of marine mammal and short-tailed albatross sightings.
- Ask how you will be notified of haul backs. Devise a plan with the captain and/or mate.

Observers are to be notified at least 15 minutes before fish are brought onboard, unless the observers specifically request not to be notified.

- Before leaving the dock you must be given a safety orientation and you must complete the Vessel Safety Checklist in your logbook. After this, if you have any questions or concerns that have not been addressed, ask the captain. Notify your employer and report in your log any unresolved safety problems.

Remember, while the vessel is in port, the captain is usually busy and may not be receptive at this time. Do not be discouraged. Ample opportunity should be available to discuss your issues and concerns with the captain while steaming to the fishing grounds.

Vessels are required to provide observers with accommodations equivalent to those provided for officers or other management level personnel of the vessel.

STANDARDS OF OBSERVER BEHAVIOR

As an observer, you are placed in a unique situation of responsibility. The image you present and your integrity in the field affects the views of the industry towards you as an individual and towards the Observer Program in its entirety. The data you collect is critical to the effective management of the marine resources in the North Pacific. Therefore, you must adhere to the following rules:

1. You must perform your assigned duties as described in the Observer Manual or other written instructions from the Observer Program Office.

2. You must accurately record your sampling data, write complete reports, and report accurately any observations of suspected violations of regulations relevant to conservation of marine resources or their environment.

3. You must not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or processing facility, an authorized officer, or NMFS. See "Observer Information" on page 20-5.

Any behavior contrary to these standards, or the intent of these standards, is grounds for decertification. Falsification of data is grounds for decertification, and may be a basis for prosecution.

You must follow your employer's conduct and behavior policy.Your behavior must be in accordance with these standards from the moment you enter a briefing until you have completed your debriefing. ***Your behavior when deployed as a NPGOP observer not only affects you, but also the observers that follow you in the future and the image of the Observer Program as a whole.*** It is the expectation of the Observer Program that you will conduct yourself in a professional manner and that you refrain from actions that could negatively affect your image as a professional and/or the image of the Observer Program.

Limitations on Conflict of Interest

In addition to the standards of behavior the following limitations on conflict of interest apply to all NPGOP observers.

"Observers:

1. Must not have a direct financial interest, other than the provision of observer services, in a North Pacific fishery managed pursuant to an FMP for the waters off Alaska, including, but not limited to:

- any ownership, mortgage holder, or other secured interest in a vessel, shoreside or floating stationary processor facility involved in the catching, taking, harvesting or processing of fish.
- any business involved with the selling supplies or services to" ("...or any business involved with purchasing raw or processed products from...") "any vessel, shoreside or floating stationary processing facility participating in a fishery pursuant to an FMP in the waters off the coast of Alaska.

2. May not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who conducts activities that are regulated by NMFS, or who has interests that may be substantially affected by the performance or non-performance of the observers' official duties.

Note that this standard restricts observers from accepting home-packed fish without purchase.

3. May not serve as observers on any vessel or at any shoreside or floating stationary processing facility owned or operated by a person who previously employed the observer.

4. May not solicit or accept employment as a crew member or an employee of a vessel, shoreside processor, or stationary floating processor in a North Pacific fishery while employed by an observer provider.

Confidentiality

Only the vessel/plant owner or operator, NMFS staff, and you are allowed to see the data you collect. ***Never allow crew from one vessel/plant to see any data from another vessel/plant. Sharing another vessel/plant's data, even inadvertently, can be grounds for decertification.*** Be particularly discreet when discussing problems, "fishing stories," or assignments in public places, on other vessels, or through email. You may inadvertently give more information than you mean to. Keep all of your data, including "goldenrod" copies from a vessel logbook, paper forms, deck forms, specimens, fish tickets, and thumb drives, in a safe and secure place for every boat and plant at all times: see page 20-4 for more information regarding observer information.

Providing Data to the Vessel/Plant

The vessel/plant owner or operator may ask to see your data for his vessel/plant. ***Never share data from your logbook, with the exception of the vessel safety checklist! You may provide the vessel owner or operator with one of the logbook's black and white copies of the safety checklist or make a copy yourself.*** All other data you collect may be shared with the vessel/plant owner or operator or, with the vessel/plant owner or operator's permission, the officers of the vessel/plant.

Vessel/plant personnel may want this information on a daily basis for their own use. You should provide these data ***when it is convenient for you and only at their request.*** It may be easiest to give the vessel/plant owner or operator the data when you are sending it to NMFS. This will allow you to give him completed data on a regular schedule. Providing data is a courtesy that is recommended but not required. It is a low priority and should not prevent you from accomplishing any of your duties. Contact your inseason adviser or NMFS if you have questions or if you feel pressured by vessel/plant personnel. NMFS will not tolerate harassment or intimidation directed toward an observer for the data provided or timeliness of providing it.

ADF&G Fish Ticket and Landing Report Information

The information on the ADF&G Fish Ticket and NMFS Landing Report is confidential and cannot be shared with anyone except the delivering vessel's observer. Fax (do not e-mail) fish tickets for vessel observers only to an FMA office. ***Do not*** fax fish tickets to contractors or to other processing plants!

Vessel/plant owners or operators are often intensely secretive of their operations. They count on you to be discrete when discussing their vessel/plant.

Photos and Videos

Any photos or videos taken by an observer while assigned to a vessel or plant are the property of the National Marine Fisheries Service as defined by the Magnuson-Stevens Fishery Conservation and Management Act. This includes any photos or videos that are taken with a personal camera. Photos or videos that can be used to identify a vessel, crew, fishery, or any other potentially sensitive images are of special concern. You must protect the pictures that you take as if they were written data. For example, posting photos to the internet is not an authorized use of observer data. If you have concerns about your use of any photos taken during an assignment, contact FMA staff.

Additionally, some vessels and plants may discourage the use of cameras on their vessels. On these vessels you do not have the right to take photos for any non work related reasons. You should only take photos for the purposes of fish identification and for marine mammal specimens.

All observer information must be kept confidential. Observers must not post observer information on the internet including, but not limited to, social networking sites and other file sharing sites. **See page 20-5.**

Use of Vessel/Plant Equipment

The vessel/plant is required to allow their assigned observer access to equipment (*e*.g., computer, phone, radio, fax machine) for official work purposes only (see page 20-11). If you wish access to this equipment for personal use you must seek permission from the vessel/plant operator.

Using the Vessel's Email System

Some vessels may grant you permission to use the onboard email system for personal communication. ***The messages you send and receive on these systems are not secure nor confidential!*** Communications through vessel email are not private even if you are accessing your own email account! Do not discuss catch, vessel design or any other "shop talk" that could be considered a breach of confidentiality.

Personal Gain

The limitations on conflict of interest and the confidentiality requirements restrict observers from using specimens or data collected while deployed as a North Pacific Groundfish Observer for personal gain. This includes, but is not limited to, conducting personal research projects, publishing articles, or the sale of jewelry made from fish or fish parts.

Signing Statements

Vessel or processing personnel have occasionally requested that observers make written statements, or sign prepared statements, regarding observer duties, safety issues, validity of their data or compliance issues. You may discuss these topics with industry

members, but it is critical that you ***do not sign any forms that you have not previously seen in a training or briefing.*** Additionally, written statements should be prepared only for NMFS staff. Currently, there are two forms that observers are expected to sign. This is the Record of Daily Scale Tests form for motion compensated flow scales and the Vessel Safety Checklist in your observer logbook. If vessel personnel want more information, please have them contact the Observer Program Office (see "Contact Addresses and Numbers" on page A-51).

COMPLETING AND ORGANIZING FORMS

During an average day on a vessel, you will fill out at least four different forms. If you are entering your data into ATLAS, you are required to maintain some paper forms; see Figure 21-1 on page 21-3. The following is a list of data form types available with a synopsis of each form's use:

- **Trip Form:** All vessel observers fill out this form. It captures additional information not provided by the vessel and observer haul forms. The paper version of this form must be completed by all observers, even if they are using ATLAS.
- **Plant/Vessel Offload Form:** All plant observers and all observers on catcher vessels delivering to a shoreside processor or floating processor must fill out an Offload Form. The paper version of this form must be completed by these observers, even if they are using ATLAS. The Offload Form captures delivery weight information in addition to other data useful to management.
- **Vessel Haul Form:** All vessel observers, whether entering data into ATLAS or faxing it, must complete this paper form. It captures position data at the haul level.
- **Observer Haul Form:** All vessel observers, whether entering data into ATLAS or faxing it, must complete this paper form. It captures haul specific weight data and other haul specific data critical to management.
- **Deck Form:** ***The Deck Form is used to capture all raw data.*** All observers, whether entering data into ATLAS or faxing it, use this form. It is used to capture species composition data, specimen collection data, and all other sample specific information.
- **Hook Count and Spacing Form:** All observers on longline vessels, whether entering data into ATLAS or faxing it, must complete the paper Hook Count and Spacing Form. It captures hook count information that is critical to longline fisheries management.
- **Salmon Retention Data:** Observers on CP trawlers, motherships, and at processing plants targeting or receiving pollock enter Salmon Retention Data to ATLAS. There is not a paper version of this form.
- **Species Composition Form:** Only vessel observers faxing their data must complete the paper Species Composition Form. It contains the same information as the Deck Form, but must be completed for vessels without ATLAS because the Deck Forms do not fax well.
- **Length and Specimen Form:** Only vessel observers faxing their data must complete the paper Length and Specimen Form. It contains the same information as the Deck Form, but must be completed for vessels without ATLAS because the Deck Forms do not fax well.
- **Marine Mammal Interaction and Specimen Form:** Only vessel observers faxing their data must complete the Marine Mammal Interaction and Specimen Form. This form captures single event information for marine mammal interactions and specimens. Observers on ATLAS vessels enter mammal interaction and specimen data and send it electronically.
- **Bird Interaction, Activity, And Species Form**: Only vessel observers faxing their data must complete the Bird Interaction, Activity, and Species Form. Observers on ATLAS equipped vessels enter bird data into ATLAS; however interactions with short-tailed albatross must be entered to ATLAS and recorded on the paper forms (both the Bird Interaction and Specimen Form and the Bird Specimen and Tag Information Form).

- **Bird Specimen and Tag Information Form**. Only vessel observers faxing their data must complete the Bird Specimen and Tag Information Form. Observers on ATLAS equipped vessels enter bird data into ATLAS; however interactions with short-tailed albatross must be entered to ATLAS and recorded on the paper forms (both the Bird Interaction and Specimen Form and the Bird Specimen and Tag Information Form).
- **Marine Mammal Sighting Form**: All observers complete Marine Mammal Sighting Forms. These forms capture information regarding the species seen (if known), behavior of the mammal, and location sighted. The form is turned in at debriefing. These data are entered to ATLAS and the form is not faxed.
- **Species Identification Form:** All observers must fill out Species Identification Forms for each new species they see. The form captures in-hand characters of described species and is used to verify observers' species identifications.

Specific directions on how to fill out each form can be found in the following chapters. ***Always have your manual with you when you are filling out paperwork.*** Refer to the instructions for the form type you are working with when filling out that form. This will save you time by allowing you to complete the form correctly and completely the first time, rather than returning to it much later to fix errors or complete entries that were missed.

Legibility

Your data and logbook entries must be clear and legible. If your writing is unclear, incorrect data may be entered into the inseason database used to manage the fishery. During debriefing, these errors need to be fixed, and if the debriefer is unsure of a number, he or she will need to have you present to interpret your data. This will lengthen time spent debriefing, and if questions cannot be resolved data may– be lost.

To ensure that your data are legible:

- Write carefully in clear, dark writing.
- Check the forms for stray marks or incomplete erasures before faxing.
- Record the data in an organized manner.
- ***Use arrows only in the "species name" column of the Length and Specimen Form.***

Pay particular attention to your handwriting when preparing paper forms for faxing. Faxing degrades the legibility. Illegible data cannot be entered into the inseason database!

Cruise Numbers

The Observer Program refers to the time between training and debriefing as a "cruise." A five-digit cruise number is used as the identifier for the data you collect during this time and it must be recorded on every form. Your cruise number will remain the same throughout your cruise. You will receive your cruise number at the end of training or briefing.

Organization of Data

Keep a separate set of data for each vessel or plant assignment. Additionally, for any assignment, you may have extra forms associated with standard or research projects. ***Fill in the header information on every page of every form type for every assignment.***

Observers on vessels or at shoreside processing plants with ATLAS need to keep data backed up and/or archived on their observer issued flash drive for each vessel or plant. ***Individuals on assignments with ATLAS must also keep paper copies of specific forms; see "Forms Required by Assignment" on page 21-3.***

Page Numbering

With the exception of Species Identification Forms, all data forms are numbered separately by form type. Page numbers must be entered at the top of each form type in the "page_ of_" fields. Put the number of the page in the first blank as you complete the forms at sea. At the end of your deployment, put the total number of pages in the second space. For example, "Page 3 of 40," indicates that this is the third page of forty for this form type.

Vessel Haul Forms and Observer Haul Forms

Vessel Haul Forms and Observer Haul Forms are two different form types, so they must be numbered separately. To keep these forms orderly, you must have one Vessel Haul Form for each Observer Haul Form and you must be consistent with haul documentation between forms. For example, if you record hauls 1-9 on

page number 1 of your Vessel Haul Form, record only these haul numbers on page number 1 of your Observer Haul Form even if more space is available.

Deck Forms

You will be issued waterproof Deck Forms so that you can record your data on deck. The Deck Form is specifically formatted to allow for documenting sample and subsample data on all vessel types.

Deck Forms must be used on all assignments to record all raw data. Your original raw data must be submitted at debriefing.

Following these tips will help you organize your data.

- On vessels with ATLAS, the data entered in ATLAS must exactly match the data on the Deck Form. If individual basket weight data are summed for entry into ATLAS, show this summed value on the Deck Form.
- All data forms ***must*** contain the following header information: cruise number, vessel permit, haul or offload or delivery number, date of haul, offload or delivery, and a page number. ***This includes blank forms that may be used for additional information.***
- Use the open space on the form to record bin measurements, codend measurements, trawl alley heights, hook counts, specimen collection notes, marine mammal and seabird notes, etc.
- Write as large as needed to be able to read your data.
- Rinse off the Deck Forms often while you are sampling. If you write on top of scales and blood your writing will rinse away with them!
- Write as dark as possible with a pencil. With rinsing, your writing will fade.
- When there are two or more observers on a boat, ***each must write their initials on the Deck Forms of the hauls they sample.***

Recording Time

Use the 24-hour clock (0000-2359) to record time. Record time using Alaska Local Time (ALT) when your vessel is in Alaskan waters. Colons are not used with the 24-hour clock.

Most digital watches can be set to a 24-hour clock. This makes tracking and recording time easier.

SPECIES IDENTIFICATION

Observers should only identify organisms to the level provided in the Rockfish Guide and Species Identification Manual issued by NMFS. Only those species or families identified in the observer ID guide should be reported by the observer in the species composition data. Those organisms that require a verification specimen are noted in the manual via an asterisk. Observers should bring back specimens for which the ID is questionable, along with specimens found outside of their known geographic range. Identification of unusual or rare species or families not found in the dichotomous keys provided will not be accepted without a specimen. Use only those species codes listed in the appendix on page A-1.

Example: You may know from experience that the fish in front of you is a kelp greenling. The ID Manual identifies this to the level of greenling, so you will record “greenling” on the Deck Form and enter “code 390 - greenling unidentified” into the Species Composition Form (paper or ATLAS).

Species Identification Forms

Species ID Forms are verification of your correct identification of species seen during a deployment. ***Complete, detailed, and correct species identification forms are required for all fish, crab, and dead non-endangered seabird species that are new to you. All species of interest seabirds, unidentified fish, and unidentified seabirds require a Species ID Form every time you encounter them.*** First time observers are required to complete Species ID Forms for the first sighting of all fish, crab and dead seabird species. Prior observers will need to complete ID Forms for species which have not had an acceptable form in the past. If a prior observer demonstrates a problem with species

identification, she or he may be required to complete ID forms for each species seen during his/her next deployment. The rules for filling out these forms are:

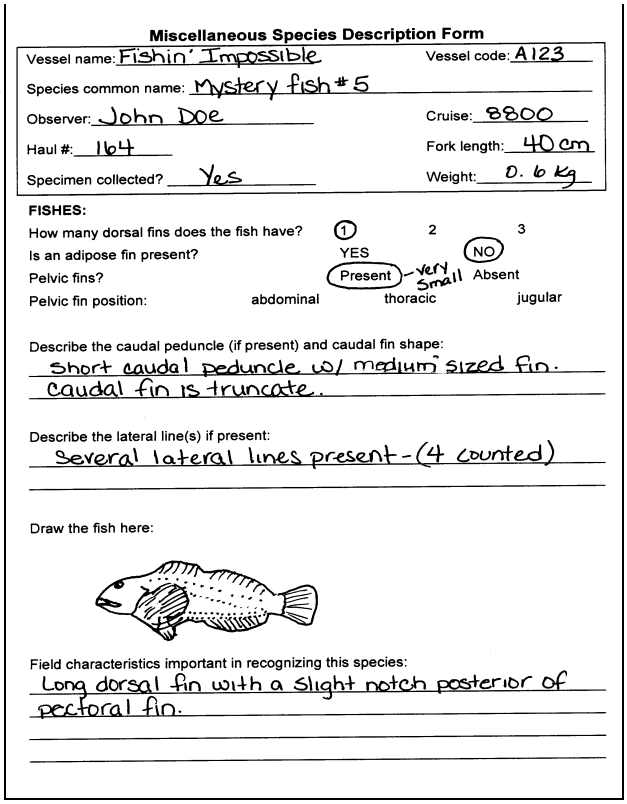
- Species ID Forms ***must be filled out with the fish in hand!***
- Species ID Forms must be complete and detailed. Incomplete ID Forms (*e.g.*, length or weight missing or lack of defining characteristics mentioned) will not be accepted and will have to be redone.
- Gill raker counts can differ from the eyed side to the blind side in flatfish. Always identify the flatfish according to the higher count (*e.g.*, a rock sole in hand has 6 gill rakers on the lower part of the first arch on the eyed side. On the blind side it has 7 gill rakers. It is identified as a northern rock sole because it has 7 gill rakers on the blind side).
- Head spine counts can differ from side to side in rockfish. Always record the higher number of head spines present on the ID Form.
- If you do not include a drawing of the specimen on your Species ID Form you may submit a photo of the specimen. The photo must be an image of the same individual that is described on your form for it to be accepted.
- If you record species ID data on a Deck Form and transcribe the information to a Species ID Form, the form with the original raw data must be submitted along with the Species ID Form. ***The Species ID Form will not be accepted without the original raw data.***
- Sharks must be identified to species using the Family Key in the Species ID Manual.
- Species ID Forms must describe in detail what you observed from your specimen. ***Do not copy information from the key.***
- Complete a Seabird Species Identification Form for all dead non-endangered seabird species encountered for the first time.
- Species ID Forms are not needed for invertebrates other than crab species.

During debriefing, you may be asked to provide a verbal description of a fish. If you are not able to provide an accurate description of a species recorded in your samples, NMFS may require you to attend a four-day briefing and pass a fish ID test. It is advisable that you complete ID forms on species that you do not encounter frequently, even if you have done so for the species already, so that you have a written record to refer to during your debriefing interview.

Failure to complete Species ID Forms is considered not meeting the expectations of the Observer Program and will be reflected in your final evaluation.

Unidentified Fish

Never guess the identification of a species. If you encounter an individual fish, crab, or bird that you cannot identify, fill out a Species ID Form with as much information as possible. You may find a more identifiable specimen of the same species later, so organize your unidentified fish descriptions with names such as “unidentified dark rockfish #1,” or “mystery fish #5.” Record all form heading information so that the data can be changed if the fish is identified later. ***Ideally, you should bring the specimen back to NMFS.*** You must include the “Bag and Tag Specimen Collection Label.” on page 2-10. If you are unable to bring the fish back, please take photographs of the specimen for ID purposes.



Miscellaneous Species Description Form

Vessel name: Fishin' Impossible Vessel code: A123
Species common name: Mystery fish # 5
Observer: John Doe Cruise: 8800
Haul #: 164 Fork length: 40 cm
Specimen collected? Yes Weight: 0.6 kg

FISHES:
How many dorsal fins does the fish have? (1) 2 3
Is an adipose fin present? (YES) NO
Pelvic fins? (Present) - very small - Absent
Pelvic fin position: abdominal (thoracic) jugular

Describe the caudal peduncle (if present) and caudal fin shape:
Short caudal peduncle w/ medium sized fin. Caudal fin is truncate.

Describe the lateral line(s) if present:
Several lateral lines present - (4 counted)

Draw the fish here:

Field characteristics important in recognizing this species:
Long dorsal fin with a slight notch posterior of pectoral fin.

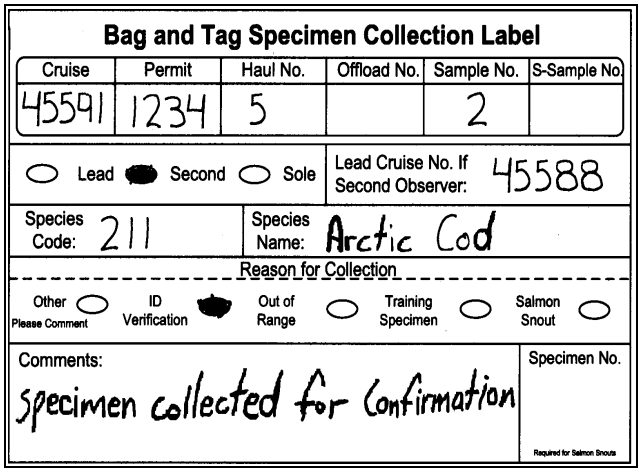
Record unidentified fish on your Species Composition forms with the most appropriate group code. For example, an "unidentified long-faced flatfish" should be recorded using the "flatfish unidentified" group code of 100 because you can positively identify it as being a flatfish. ***If you use fish unident. (901), flatfish unident. (100), rockfish unident. (300) or roundfish unident. (200) to identify fish, please contact NMFS.***

Green Sturgeon

Green sturgeon data are collected and recorded on the Length and Specimen Form; see "Green Sturgeon" on page 13-19 for more information.

Bag and Tag Specimen Collection Label.

The Bag and Tag Specimen Collection Label is designed to ensure sufficient information is provided with specimens that are frozen and returned to NMFS offices and to collect and label tagged salmon snouts.See "Tagged Salmon" on page 15-2 for information on how to collect salmon snouts and completing the label for a snout collection. Specimens are collected for various reasons such as, but not limited to, verification of species identification, range extensions, and fish collections for training. Follow these steps when collecting specimens:



Bag and Tag Specimen Collection Label

Cruise	Permit	Haul No.	Offload No.	Sample No.	S-Sample No.
45591	1234	5		2	

(Lead) (Second) (Sole) Lead Cruise No. If Second Observer: 45588

Species Code: 211 Species Name: Arctic Cod

Reason for Collection

(Other Please Comment) (ID Verification) (Out of Range) (Training Specimen) (Salmon Snout)

Comments: Specimen collected for Confirmation

Specimen No.

Required for Salmon Snouts

Figure 2-1: Example of Bag and Tag Specimen Collection Label

- Rinse the specimen to remove any extra scales, blood, and slime.
- Place and seal the specimen in a plastic bag, making sure it lays flat. Specimens should be stored one per bag to prevent the specimens from freezing together and harming the specimens.
- Place a completed Bag and Tag Specimen Label in the bag so the information can be viewed through the bag.
- Always check with the captain/plant manager for the best place to store your specimens. If additional wrapping is needed to avoid contamination with food products be as accommodating as possible.
- Bring specimens to a NMFS office as soon as possible.

Dropping Off Specimens

The specimens you collect are very important and care must be taken to ensure they are stored and transported to a NMFS office properly. Follow these protocols to store and transport your specimens:

- Keep specimens frozen or salted (salmon snouts and skate vertebrae)!
- Utilize your inseason advisor and/or observer provider to notify the field office of your pending arrival to drop off specimens.

- Record all specimens dropped off at a field office in the "Specimen Drop Off Record" in your logbook.
- See "Specimen Drop Off and Initial Data Check Procedure" on page 12-24 for specific instructions for salmon genetics specimens.

Frequently Asked Questions

Q:What do I do if the field office is not open when I am in port?

A: Find a place to store the specimens until the field office is open. Freezer space may be available on your vessel or in your bunkhouse. Contact your provider and inform them of your need to drop off your specimens. Once the field office is open follow the steps outlined above.

Q: What do I do if I disembark in a port without a field office?

A: Do your best to keep your specimens frozen. You can wrap them in paper or other insulating material to slow the thawing process. Once you arrive in a port with a NMFS office follow the steps outlined above.

Q: What if I have to board another vessel immediately?

A: Be sure you have informed your provider that you have specimens needing to be dropped off from your previous assignment. Visit the field office and follow the steps outlined above at the next available opportunity.

TRANSFERS OF GEAR IN THE FIELD

You are responsible for the gear that is issued to you. Lost gear may need to be replaced by you or your employer. During the course of a deployment you may need to pick up or drop off gear at a field office. Rarely, you may also need to exchange gear with another observer to meet your sampling needs. To ensure your gear is accounted for, all exchanges, pick-ups or drop-offs of gear must be documented in the "Changes to Gear During Deployment" section of your logbook. ***It is never acceptable to leave your gear at a field office or other location without first contacting NMFS staff for directions.***

OBSERVER LOGBOOK ENTRIES

Your logbook is probably the single most important piece of data because it contains additional information about all other data.Your logbook captures needed information about your assignments, factory/deck and plant diagrams, calculations, sampling designs, and notes regarding your sampling activities. You also record information about your sampling gear and specimen collections in your logbook.

Have your logbook with you whenever completing paperwork so you can easily record your calculations, make notes regarding your data collection, complete scale verification records, and document potential regulation issues.

Many observers make notes on their Deck Forms to remind them of particular events that happened while they were out on deck or in the factory. This is an excellent idea, but is only effective if the details of the events are filled in as soon as possible in the logbook. Remember, events which seem ordinary to you on this vessel may be unusual to the fleet or fishery, so don't hesitate to write down any information which affects your work or day-to-day life aboard the vessel.

Your logbook is your field biology notebook and must be treated as such. ***Do not use it as a personal journal.*** Although you must document any interference or inappropriate behavior toward you, avoid venting frustrations or making slanderous, derogatory or discriminatory remarks in your logbook. Your logbook must be kept private while you are on the vessel, but it is a public document and part of the data turned over to NMFS during debriefing. After this, the contents of the logbook and your name may be released.

The Vessel Safety Checklist is the only part of your logbook that may be photocopied or have a copy of it torn out and given to the vessel. Originals of the checklist must remain intact in your logbook.

Daily Notes Section

Use the Daily Notes section to document on problems that occurred while you were aboard the vessel, any illnesses or injuries you suffered, your methods for catch estimates, the reasons you chose all sampling methods, and any circumstances that affected your sampling duties or caused you to change your sampling design. The complete details of your sampling

methods should also be recorded in the "Sample Design Detail" section of your logbook. Record the circumstances surrounding any violation you witness, including harassment, mishandling of prohibited species, interference with your duties, harassing or harming marine mammals, and MARPOL (marine pollution) violations.

Set aside time every day to write in the Daily Notes section.

Make an entry for every day and describe the day's events, even if it was what you would consider an "ordinary day." The more self-explanatory your documentation is, the better. Logbooks may be referred to months or even years after your cruise is complete. Therefore, good documentation is vital to what the NMFS considers "meeting expectations" for a successful cruise.

The Logbook as Evidence

Your logbook is archived and used as a reference to provide more information about your data. It may also be used as evidence if regulatory infractions occurred. Therefore, your calculations may be recorded in pencil, but ***all other entries must be in ink.*** If you need to make a correction, draw a single line through the incorrect word(s) and continue with the correct wording. Do not completely cross-out anything, use correction fluid, or tear out pages or parts of pages! If you obscure any part of an original entry, you leave the reader wondering what was originally there. This may affect the validity of your logbook and data (see Figure 2-2).

CALCULATIONS

All calculations, no matter how small, must be documented. Long, more involved calculations such as observer estimates and delivery weights must be recorded in your logbook. If you calculate delivery weight on the fish ticket or Landing Report you do not need to transcribe it into your logbook, however you must include the fish ticket with your data during debriefing. Simple calculations such as summing basket data to enter on the paper composition forms or into ATLAS may be recorded on the Deck Forms. Write your calculations directly into your logbook. Do not transcribe calculations from scrap paper! Document all your calculations, and the formulas used, in order to make your data self-explanatory. Record and label your calculations so that another person could easily understand them without any interpretation. Be consistent with the format and location of calculations to ensure they are easy to read and edit.

DAILY NOTES - INCLUDE DATES

VESSEL/PLANT NAME *M/V Whistler continued...*

02/24 continued

So, I asked the factory ~~foreman~~ manager, John Baker, if this was always the case. He said that sorting the halibut like this was very ~~usual~~ unusual but that they did do this if the halibut catch was too large (lots of halibut in the haul) or if they had one or two very large halibut. I told him that ~~I thought there were~~ I didn't notice a lot more halibut than in previous hauls and explained to him that this was presorting and shouldn't happen if I was to

Figure 2-2: Properly Corrected Logbook Entries

Even calculations which you may think are trivial or obvious must be recorded. This includes, but is not limited to, conversions from pounds to kilograms, halibut length to weight conversions, ***and the differences between start and end weights when using a flow scale*** for haul weight or sample weight. These small calculations may be recorded on your Deck Forms.

In your calculations, you must use 3.1416 as the value for pi and 0.4536 for the conversion of pounds to kilograms.

Calculations may be in pencil, but all other logbook entries must be made in ink!

Rounding Rules

When you are performing a calculation, carry the numbers out full field until you have reached your ***final product. Do not round any numbers within the calculation!*** For example, values used for height and width in volumetric equations are typically the average of three or more separate values. It is a common mistake to use rounded average height and width measurements in volumetric equations. Rounding within a calculation will cost you time in debriefing!

When you round a final product to enter on a paper form or in ATLAS, round to the number of decimal places required by the column. To round your final product:

- look ***only at the first digit*** to the right of the number you are rounding,
- if X $\geq$ 5 round up, if X <5 round down.

For example, when recording your final density on the Observer Haul Form, you need to round to two decimal places. If your final calculation was 927.8286 kg/m^3, you would round up to 927.83 kg/m^3. If your final calculation was 972.8226kg/m^3 you would round down to 972.82 kg/m^3.

SELECTING HAULS TO SAMPLE

Deciding which hauls to sample depends on a variety of things. You must consider the fishery the boat is participating in, gear type, vessel type, the time and energy necessary to complete your observer duties, and most importantly, your health and safety. In general, we want you to sample "as much as possible," but in a safe and reasonable manner. ***Please reference the trawl, longline, and pot sections of the manual for further details and guidelines for selecting hauls to sample for the different gear types.***

When All Hauls Should be Sampled

Observers aboard catcher-only trawlers participating in the pollock fishery are expected to sample every haul. These vessels make relatively few hauls each day, so sampling all hauls is possible. In general, observers aboard vessels participating in other fisheries can sample all hauls if the vessel is taking three or fewer hauls per day or if the vessel only fishes for part of the day. Catcher/processor longline vessels are the exception to this generality, and observers may need to use the RST or RBT on a longline CP retrieving more than two sets a day. Finally, if there are two or more observers aboard a vessel, it is expected that all hauls will be sampled.

When All Hauls Cannot Be Sampled

If you cannot sample all the hauls, you must take numerous steps to ensure that their samples are as random as possible. This allows the Observer Program to stand behind your data, and makes it legally and scientifically defensible.The first step is to randomize which hauls you will sample for species composition. There are three methods for randomly selecting hauls to sample:

1. Use the Random Sample Table (RST).
2. Use the Random Break Table (RBT).
3. Use the RST with the RBT when needed.

Do not randomize which hauls to sample in any other way unless it has been approved by a NMFS staff member!

If your sampling effort is low and/or you are having difficulty deciding how to randomly select hauls to sample, contact NMFS staff for assistance (see "Contact Addresses and Numbers" on page A-51) and document the problems in your observer logbook.

When to Use the Random Sample Table

If you doubt that you will be able to sample all of the hauls that your vessel brings aboard on a normal day, use the RST to determine which hauls to sample. It will be necessary to use the RST to select hauls in most fisheries, other than those mentioned above. If you feel that you will usually be able to keep up with all the hauls, but may need an occasional break if fishing picks up or you fall behind on other duties, the RBT may be a better choice. A discussion on when and how to use each of these tables follows.

Versions of the Random Sample Table (RST)

There are three versions of the RST. The difference between the tables is the number of "off" hauls in each sequence. Hauls which are not supposed to be sampled are referred to as "off," and hauls which are to be sampled are referred to as "on."

The three versions of the RST which you can use are:

1. The RST usually used on catcher vessels.
2. The RST used on CPs landing 6 or fewer hauls each day.
3. The RST used on CPs landing more than 6 hauls per day.

The catcher vessel table has one "off" haul in each sample sequence, while CP tables can have between one and three off hauls in each sequence. ***Choose an***

RST which is appropriate and will best fit your needs. You may choose to use a more rigorous schedule, but you may not use a less stringent schedule than your vessel type and fishing activity requires.

Use the RST which is most appropriate to your vessel. You may always use a more stringent table if you can keep up with it!

Look at the title of the table to be sure you are using the correct one. When you first board a vessel, ask the captain how many hauls he expects to land each day. Use this number to determine which table to use. Once you choose an RST, you should stick to it, unless the vessel changes fisheries, or drastically changes their fishing habits.

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	**2**	**3**	**2**	**4**	**4**	**2**	**3**	**2**	**4**	**3**	**4**	**2**	**4**
	1	1	1	1	1	1	1	1	1	1	1	1	1
B	**4**	**3**	**4**	**4**	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**
	1	1	1	1	1	1	1	1	1	1	1	1	1
C	**2**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**4**	**3**	**3**
	1	1	1	1	1	1	1	1	1	1	1	1	1
D	**4**	**4**	**3**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**4**	**3**	**4**
	1	1	1	1	1	1	1	1	1	1	1	1	1
E	**3**	**3**	**3**	**2**	**2**	**3**	**4**	**2**	**4**	**2**	**4**	**3**	**3**
	1	1	1	1	1	1	1	1	1	1	1	1	1

Figure 2-3: Random Sample Table (example)

How to Use the RST

In the RST, the bold-face rows of type indicate the number of consecutive "on" hauls that should be sampled. The normal-face type rows are the number of consecutive "off" hauls that are not sampled. You will be instructed how to enter the RST during your training or briefing. Once you enter, your first hauls selected will always be "on" hauls. From this point, move vertically down through the table sampling or not sampling the number of hauls as indicated. If you reach the bottom of a column, begin again at the top of the next column. If you reach the end of the table (Z, Z) continue at the top of the table (A, A).

Vessel Responsibility and the RST

The RST was designed to randomize the hauls sampled by an observer. It is the vessel personnel's responsibility under CFR 679.50(f) to "notify observers at least 15 minutes before fish are brought on board,...to allow sampling the catch,...unless the observers specifically request not to be notified." If vessel personnel are not notifying you of retrievals, it can affect your ability to sample according to instructions. Talk to the captain to ensure he understands that you must be notified of fish coming aboard. If problems with notification continue, be sure to document this in your logbook and inform NMFS staff through ATLAS or when you are in port.

Do not give your RST to vessel personnel. Inform them verbally only when you wish not to be notified!

The RST is for your use only. Your samples are meant to represent the catch under normal fishing activities. If the crew knows which hauls will or will not be sampled, they could alter their fishing activities. In order to avoid this possible bias, do not give your RST to vessel personnel. If you need to let the captain know your immediate schedule in order to get some uninterrupted rest, do this verbally.

How to Use the RBT

Break tables are designed to give observers a six-hour break each day when normal vessel operations do not permit adequate time off. The RBT is another tool that can be used to randomize which hauls are sampled. The RBT can be used alone, when an RST provides too much time off, or in combination with a RST on any vessel type when all hauls cannot be sampled. Remember, the break table should only be used if you cannot sample all the hauls. If your vessel does not fish for part of a day, or makes one long tow (usually at night), you should consider that your break and disregard the break table.

The RBT can be used alone, or with the RST to randomize sampled hauls and time off.Consult NMFS staff if you frequently use the RST and RBT together as your sampling effort for that vessel will be low.

Unlike the RST, you can use the break table on some days, and not on others. Of course, you may also use it every day. Once it is used, you must track each day on the break table, whether the break time is taken or not. For example, if you use the break table one day, then it is not used for two days, record the date on the second and third lines and use the time on the fourth line for a break on the fourth day.

The break table is made up of three columns. The first field reads "DATE," the second field is for you to record the date and the third field has a break starting time for each day. A 24-hour clock is used, so a day is from 0000 to 2359 ALT. Beginning at the top of the table enter the date of the first day you use the RBT and check to see when you should begin your six-hour break. Work down the first column, filling in the date of each day, whether or not a break is taken, and taking six-hour breaks when needed (only one per day) using the scheduled time for that date. When you finish the first column, start at the top of the second column and so on.

You are responsible for all the "on" hauls brought aboard the vessel prior to the start of your break, so you may not actually start your break at the time indicated on the table. For example, you are on a longline vessel following only the break table, and your break starts at 1800 hours. The vessel picks up a set at 1745. You need to sample this set, since it started being retrieved before your break began. When you finish your sample at 2015, you would start your six-hour break. To document your change, draw a line through the 1800 on the table and write 2015 next to it. ***Additionally, if you are too exhausted to wait for your break, follow the same documentation procedure, and write the circumstances in your logbook.***

Break Table Use Summary

- Take a break only on days you need it.
- If the retrieval time of an "on" haul is before your break time, complete your sample before taking your six-hour break.
- Break for six hours unless otherwise instructed by NMFS staff.
- Sample the next "on" haul which has a retrieval start time after the end of your six-hour break.
- Hauls retrieved during your break continue to be counted against the Random Sample Table.

DATE	01/16	~~0800~~ 0245
DATE	01/17	0100
DATE	01/18	0700
DATE	01/19	~~1300~~ 1415
DATE	01/20	~~1600~~ 1730
DATE	01/21	~~1200~~ 1145
DATE	01/22	0400
DATE	01/23	~~1200~~ 0145
DATE	_____	0100

Figure 2-4: Properly Completed Break Table

Documenting RST and RBT Use

Your use of the Random Sample and Break Tables must be documented on the Observer Haul Form. Fill in the "Random Sample Table" and "Random Break Table" columns to indicate what tables you were using. **If you use the break table, staple it into your logbook**, so that any changes you made regarding when you took a break are properly documented.

If Your Sampling Schedule is Too Rigorous

If you find that you cannot sample all the "on" hauls on a vessel, or that your other work is suffering, there are a few things you can try:

1. If you are on a CP or mothership and are only using the RST, start using the break table on some or all days.

2. Reduce your sampling time by reducing the sample sizes of one or more hauls in the "on" haul series. ***It is preferred to have random, smaller samples from more hauls than large samples from fewer hauls.***

3. Look ahead at your schedule and plan to make best use of your rest time. For example, if your RST reads that you have a four-on, one-off, four-on series coming up, try getting more rest before this series. Complete paperwork, nap, and eat between samples so you have a larger block of rest time during your off haul.

4. If you get caught in an unworkable situation, you can skip one of the hauls in the series to be sampled. If you do not sample an "on" haul, continue sampling the

rest of the series as if you had. In the four-on, one-off, four-on series example, if you needed to rest for two hauls, you would sample four hauls, rest for two, and sample three hauls to complete the series. If it is necessary to skip on hauls on a continuing basis, contact with an Observer Program for advice. ***Do not sample off hauls to make up for skipped on hauls!***

5. If you are having difficulty following the RST or RBT regularly, contact NMFS for assistance (see "Contact Addresses and Numbers" on page A-51). Do not use a solution that has not been approved by NMFS!

Frequently Asked Questions About the RST and RBT

Q1: I am supposed to sample four hauls in a row. The third haul comes up at 1450, and I am scheduled to begin a break at 1500. Do I sample that haul?

A1: Yes. Sample the third haul in that block and then take your 6-hour break. When you finish your break you will re-enter the RST. To re-enter, check the fishing schedule against the RST to see when the next "on" haul will be retrieved.

Q2: A haul is retrieved at 0945 and my break starts at 1000. According to the instructions, I should sample this haul, but they don't begin processing until after the fish have aged for four hours. Do I sample this haul?

A2: Yes. While you are waiting for them to begin processing, you can do paperwork, laundry, eat, etc. After you complete your sampling you may begin your 6-hour break if needed, or skip the break for that day.

Q3: Can I skip breaks and only take them on a few days when I need to?

A3: Yes. On the table, record the date of each day whether or not a break was taken. You cannot accumulate break time by skipping a day and taking a longer break the following day. You cannot take more than one break per day.

Q4: Can I sample more hauls than those indicated on the RST?

A4: No. Do not sample "off" hauls on the RST unless you can sample all the hauls. If the number of hauls taken by the boat was overestimated, you may switch to a more rigorous RST. You should not switch more than once unless the vessel changes fisheries or fishing activities.

Q5: My break is over and the haul currently being processed is an "on" haul and is about half processed. Can I take samples from the remaining portion?

A5: No. Since the catch is already half processed, half the population from which you want to sample is unavailable to you. This would interfere with your random sampling design. Additionally, you were not present to verify that no presorting, or other unusual sorting, occurred. Use this time to complete paperwork, get some more sleep, or take some down time for yourself.

Q6: Suppose my break is just ending and the next haul retrieved is an "off" haul, resulting in a longer break than I need. Should I stick to the RST and not sample?

A6: Yes. You must sample only the designated hauls, resulting in a longer break than the six hours scheduled. Consequently, you may not need to take a break the next day.

Q7: I was just assigned to a different vessel (or, my vessel just completed a delivery and is resuming fishing). How does this effect my use of the RST?

A7: When you are assigned to a new vessel, or when fishing resumes after a delivery, continue where you left off on the table if you were in the middle of an "on"series, or were going to start another. If you left off in the middle of an "off" series, or were going to start another, skip to the next "on" series. ***Your first haul of each new vessel or trip should be an "on" haul.***

INTRODUCTION TO SAMPLING THEORY

The following section explains some of the basics of sampling theory. For specific sampling instructions you should refer to the appropriate sections on vessel type within this manual. If you have any questions, especially with regard to this section, please contact Observer Program staff.

Target vs. Sampled Populations

Fisheries observers report on catch from commercial fisheries. You provide answers to the questions of what, where, when, and how much was caught. In a perfect world, observers would take a census of the catch: every fact about everything that was hooked,

trawled, or trapped would be accounted for. In most situations at sea a census for every species will be impractical. Sampling the population is the next best option to a population census. Through sampling you will provide information necessary for fisheries management.

Any time you sample, you are dealing with two populations: the target population and the sample population. The target population is the population of interest, or the population we want information about. In contrast, the sample population is the population available to you; it is the population that is going to supply information about the target population.

It is your main goal during sampling to ensure that the sample population represents the target population. Recognized differences between sample and target populations need to be noted in your logbook and discussed during debriefing.You must also note any factors you believe may in some way have an affect on the population available to you.

Sample Design

In order for your sample to accurately reflect the population, you must adopt an adequate sampling design. By incorporating randomness into your sampling (*e.g.*, by using a random sampling design), you are increasing the probability that your samples reflect the population sampled.

In random sampling, each and every individual has an equal chance of being in your sample. There are two sample designs used by the Observer Program to incorporate randomness: simple random sampling (SRS) and systematic random sampling (SYS). These systems are discussed further in chapters specific to vessel type.

Sample Frames

Each sampling design uses a sampling frame from which sample units are selected at random. In other words, the sampling design is the type of sampling you will be performing (SRS or SYS), and the sampling frame is the "what" you will be sampling from (the list of all sample units in the population). If the sample frame does not adequately represent the target population, then the data (and any results generated from the data) may be biased.

Sampling frames can either be spatial (based on equal-sized units of space; *i.e.*, gear, weight, volume) or temporal (based on equal-sized units of time). The following illustrate this point:

Example 1: Bob is an observer on a trawler catcher vessel. The catch is dumped onto the deck and generally fills up the entire trawl alley.There is one area of the trawl alley that is not available to Bob, because it is dangerously close to a moving net reel. In this case the trawl alley contains the target population of fish and the sample population excludes fish in the area from which Bob can not sample. Bob visually divides the trawl alley area into equal sections using the trawl alley bin boards as a guide. He then numbers these sections and randomly chooses sections from which to sample. In Bob's case, the sample frame is spatial.

Example 2: Sue is an observer on a catcher vessel that dumps its catch into a live tank and then processes it over a sorting belt into holding tanks below deck. She knows that fish go by on the conveyor belt at a fairly steady rate (so much weight per so much time). Because the fish are not accessible all at once but rather over time, Sue decides to sample based on time units. The total amount of time units that the haul takes to go over the conveyor belt comprise a temporal frame.

Example 3: Jasper is sampling on board a catcher processor that uses a flowscale to weigh its catch. As with example 2 above, the fish are available over time (not all at once as in example 1), but because the fish are being weighed by the flowscale, Jasper can also sample spatially, based on weight. Jasper determines that sampling based on weight is the best option and uses a spatial frame of weight units from which to sample.

Creating Your Sampling Design

Create your sample design before you start sampling. In creating your design you must carefully consider the total amount of organisms you can quantify (sort, count weigh) in one sample and the time needed between sampled units of your sampling frame. Estimate the total amount of the catch and divide it into equal sized ***manageable*** sample units. Keep in mind that the more you can sample from a population the better; the larger the overall sample size, the closer you get to an actual census of the catch.

The Benefits of Multiple Large Samples

Multiple large samples of equal size have a positive influence on the data: they produce low variance (*e.g.*, high precision). This is because the variance, or mathematical uncertainty, decreases as more samples are taken.

Data quality is increased when you:

- Develop a sample frame of equal sized units and collect random samples,
- Take multiple samples,
- Make sample units as large as possible, while maintaining a consistent sample size within each haul.

When in doubt over whether to sacrifice the size or the number of randomly selected samples, take more samples over taking fewer very large samples. ***At least three samples are necessary for the estimation of variance!***

What Does All This Mean for You?

The Bering Sea and Gulf of Alaska Fisheries are among the best managed in the world, in large part due to the data collected by observers. Statisticians and fisheries managers rely heavily on observer data and also rely heavily on the assumption that these data have been collected a specific way. It is your job as a North Pacific Fisheries Observer to collect data in the manner dictated by this manual and FMA staff, and to fully document those instances for which you are unable to do so.

When considering your sample design, there are three key elements to ***always*** consider, listed here in order of priority or importance:

1. All samples should be ***random*** and made up of approximately equal sized units;

2. You must maximize the ***number*** of samples taken per sampled haul;

3. You must maximize the ***size*** of your samples per sampled haul, with equal sized samples.

This short list should be referenced in the development of any sample design on any vessel type. All samples should be random; once randomization has been accomplished through Observer Program standards, consider how many samples are feasible on your particular vessel type. ***The Observer Program encourages a minimum of three samples per haul when feasible.*** Finally, once the number of random samples has been maximized, consider sample size. As previously mentioned, larger sample sizes help to ensure higher quality data.

Steps in Developing a Sample Design

Following is a synopsis of sampling steps. These steps are addressed again in the chapters of this manual specific to vessel type:

1. **Define the target population.** The target population is the group we want to make statements about (inference). In the case of species composition sampling, the target population is defined as all the fish in a given haul. In the case of biological sampling (*e.g.*, sex/lengths), every individual of the species being sampled comprises the target population.

2. **Determine the type of sample frame best suited to the target population and the vessel.** In practice, you have two general categories of sampling frames on a trawl vessel: ***spatial*** and ***temporal***. Use a spatial frame, such as measured portions of the deck or bin, when all the catch is available at once. Use units of time (*e.g.*, five minute increments) when all the catch passes you at one point, as on catcher vessels when catch is dumped directly into tanks below deck. Although units of time on vessels with a flowscale is an option, observers generally use units of weight. On a longliner or pot boat, your sampling frame can be composed of units of gear (skates or pots, either individual or grouped). Gear based frames are considered spatial frames.

A weight based frame using a flow scale is considered a spatial frame.

3. **Define your sample units and sample population.** If your spatial frame breaks the catch on deck into measured areas, then a single measured area is the sampling unit, and you must be able to collect all the organisms from this area. Likewise, a single five minute increment of run time could be a sampling unit for a temporal frame. On a longliner, a sampling unit could be a single skate or a mag (a mag is usually comprised of several skates). On a pot boat the sample

units could be a single pot or a group of any number of pots. ***The one requirement for all these options is that unit size must be consistent throughout the frame***.

Sample units should all be of equal size, and as large as possible for a given situation. The size of your sampling unit should be manageable: you must collect or otherwise account for ***ALL*** the animals within a single unit. Animals or sample units that can not be sampled (are presorted, or unavailable to the observer) are not included in the sample frame, and are therefore not part of the sampled population.

4. **Consecutively number the units in the sample frame.** If your units are sections of deck, assign a number to each section. If your units are time increments, number them consecutively. Skates or groups of pots can also be numbered consecutively (you need to account for the total number of skates or pots in the entire set).

5. **Pick random numbers.** For a simple random sample, generate random numbers from one to your maximum sample unit number. For systematic random samples, select a random start point between one and your desired sample interval (the process of determining an appropriate *sampling interval* is discussed more fully in this manual's vessel specific chapters).

Pick random numbers using a random number table, dice, cards, or any other objective method.

6. **Selecting the units from which to sample.** If you are working with a simple random sample design, the randomly generated values of step 5 above represent the units to sample. If working with a systematic sample design, the first randomly chosen sample unit and every *nth* sample unit thereafter (where *n* is the sample interval) constitutes your sample.

7. **Sample the randomly chosen units.** If your sampling units are deck sections, collect **all** of the animals from each randomly selected deck section. If your units are sections of longline gear or pot gear, account for **all** animals from the randomly selected segments or pots. If your units are time increments, collect **all** of the fish during the time increment. ***Sample unit size must be manageable, because every fish in the unit must be accounted for.***

In Figure 2-5, there are three sample frame examples. The colors represent the species composition of the haul, with one color representing one species. For the purposes of this example, you can define the units by either time or space - whichever you are most comfortable with conceptually. The first two frames, A and B, each have 12 units. The last has 6 units, each twice the size of those in frames A and B.

The units marked by a dark "X" are those that were chosen to sample. In Frame A, only 1 large sampling unit is selected, resulting in only 1 species of fish in the sample. In Frame B, 3 smaller sampling units were selected (every 4th unit, starting at unit 3; sample interval (n) = 4). Through a random systematic sample, not 1, but 3 species of fish were selected for sampling. In Frame C, the units themselves are larger and 3 sampling units were selected (every 2nd unit starting at unit 2; sample interval (n)=2). Through a random systematic sample (SYS) and increased sample size, all of the species in the haul are represented. If these were real samples of real fish, the last sampling frame and design would provide the most accurate statement about the nature of the catch in that haul.

Documenting Design Constraints or Problems

In some cases, it will not be possible to systematically sample. For example, limited access and small catch sizes on some catcher vessels make it difficult if not impossible to sample systematically. When you are unable to sample systematically, for whatever reason, a simple random sample method is the next best option.

There will be times when you will not be able to maintain your intended sampling design for a haul. You might find yourself in this situation if a haul becomes unexpectedly dirty, requiring you to sample much less than you planned to, or you misjudge the time you need to sort through one sample. ***If you abort or alter a sampling design during the sampling of a haul, for any reason, mark the "Unable to Follow Sample Design" field for the affected sample or samples. Document the circumstances on the Deck Form and in your Daily Notes (See "Addressing Challenging Sampling Situations" on page 5-13).***

Below are three different sample frames imposed on the same catch. In these frames:

- Each color represents a unique species
- Each box represents a sample unit
- Each "X" denotes a unit that was sampled for composition

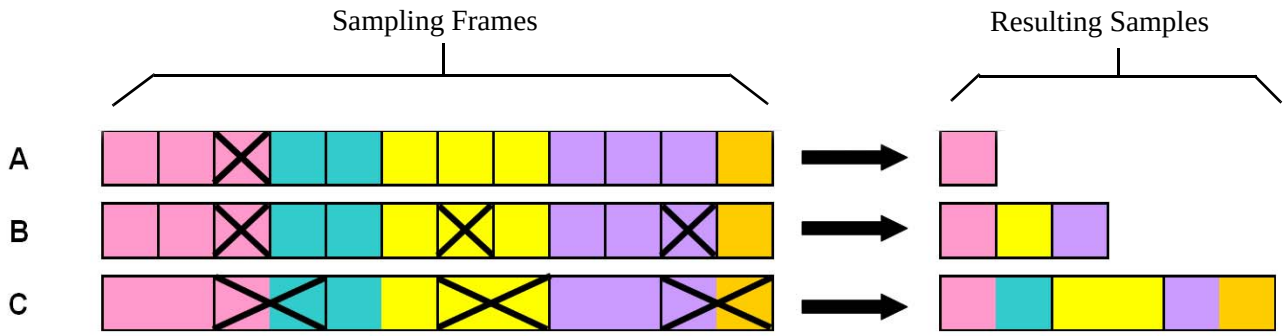


Figure 2-5: Sample frame examples showing benefits of multiple large samples over fewer small samples.

SAMPLE DESIGN CODES FOR SPECIES COMPOSITION

Information captured in your logbook regarding your sample design and sample unit will also be entered on the Observer Haul Form using the appropriate Sample Design Code. Since your planned sample design may change during the course of your trip, the Sample Design Code entry needs to be specific for each haul that you sample. For example, if you are sampling on an Amendment 80 catcher processor and using a systematic sample design, you would enter this on the Observer Haul Form with a Code 7-Systematic Random, but if a very small haul was retrieved and you were only able to take a single random sample, the Sample Design Code for that particular haul would be Code 6 - Simple Random. Typically, you may only need to use one or two different sample design codes for each trip. Please note that different aspects of your sample collection require different codes, and not all codes are available for each gear type.

A sample design code must be entered on the Observer Haul Form for every sampled haul. Regardless of whether or not you can follow your planned sample design, record the code for the sample design you intended to follow on the Observer Haul Form. Check the "Unable to Follow Design" field on the Deck Form for the affected sample or samples if you cannot follow your planned sample design.

Note: (1) Codes 1 and 4 are not used on the Observer Haul Form and codes 2, 3, and 8 are not used in 2013. (2) The following sample design codes relate to species composition data. (3) For sample design codes related to length and specimen data, see "Sample Design" on page 13-21.

Code 5 - Opportunistic: This code is used for non-randomly selected samples. Examples: 1)You are sampling on a trawl vessel where only one checker bin is available to sample from and you do not have safe access to any other part of the trawl alley (typical of Kodiak fleet). 2) A very small haul is retrieved, you do not have time to create a frame, and you must obtain a composition sample before the fish run out. 3) You take a sample at the beginning of a haul without using a random selection method.

Code 6 - Simple Random: Use for a basic simple random collection of fish. You must have an established frame from which you select one or more random samples. You must have access to the entire population. For detailed descriptions of the methods applied for your vessel's gear type see "Random Sampling on Trawlers" on page 5-9, "Random Sampling on Longliners" on page 8-5, or "Sampling

Designs on Pot Vessels" on page 10-4. Example: You were only able to take a single random sample from four segments of gear because the haul was very small (*i.e.*, longliners with short sets).

Code 7 - Systematic Random: Composition samples collected from a larger population using a systematic random design. You must have an established frame from which you systematically select your random samples. You must have access to the entire population. For detailed descriptions of the methods applied for your vessel's gear type see "Random Sampling on Trawlers" on page 5-9, "Random Sampling on Longliners" on page 8-5, or "Sampling Designs on Pot Vessels" on page 10-4. ***Systematic Random is the preferred sample design.*** Systematic random sampling is the standard for longliners and factory trawlers. The majority of your sampling will fall within this "Systematic Random" code.

Code 9 - Other Random: Use this code to identify a sample that is selected using a randomization scheme, however the sample design is not one of those listed above. If you do not have access to the entire population, use Code 9 – Other Random. This will be commonly used on catcher trawlers where access to the trawl alley/catch is limited. Examples: 1) You are on a catcher vessel and have access to only one side of the trawl alley. You collect a systematic random sample from those fish to which you have access. 2) You are on a catcher vessel and have access to only three checker bins, but not the entire trawl alley, to collect a sample. You randomly select one of the three accessible bins for your sample. 3) You collect your sample by dipping your basket into the flow of fish in the trawl alley, but you can only access fish on one side of the trawl alley. Note that sample designs may have systematic or simple random elements to them, but this code should be used if you do not have access to the entire catch/population. It is well known that access to catch on some vessels and in some fisheries is limited and in these cases the expected sample design code is Code 9 – Other Random.

Code 10 -Census: Use this code when no sample frame is required because you census the entire population. For more details on censused offloads or hauls on trawlers, see "GOA Vessel Observer Offload Salmon Census" on page 5-30. Use this code on catcher vessels for observing the pollock offload or for any haul when the entire catch is sampled for species composition.

Code 11 - Other: Use for sample designs that do not conform to any of the codes defined above.

Code 12 - Unknown: If you do not know how to define your sample design enter this code and contact your inseason advisor or NMFS field staff with questions.

SAMPLE UNIT TYPE FOR SPECIES COMPOSITION

You identify the sample unit type when you define your sample frame. The type of sample unit describes how the target population is divided to form the sample frame. In most cases, your sample frame is based on units of gear or targeted weights of fish. However, other sample unit types are possible. A sample unit type must be entered for all sampled hauls. The Sample Unit Type codes are:

Code 1 - Gear: Use when the sample frame consists of units defined by discrete segments of gear, such as segments of longline gear (skates, magazines), pots, or a group of pots or longline segments. ***This sample type is most common on fixed gear vessels (i.e., longliners and pot vessels).*** This is the only sample unit type available on longliners. A temporal/spatial frame implemented on a longliner has a gear based sample unit type because your frame is based on these discrete units. The temporal aspect is merely an estimate for you to determine the gear based units of your frame.

Code 2 - Time: The sample unit is a predetermined time interval. Use this code when you collect or tally all the fish encountered during the unit of time defined by your sample frame. Typically, a true time based sample results in an unequal number of pots or possibly a large variance in the weight of samples because the rate of fish moving past the sample station or the number of pots coming aboard is not consistent. ***This sample type is used on pot vessels and occasionally on trawl vessels; it cannot be used on longliners.*** Example: A catcher processor takes six hours to process a haul. The observer divides that into 72 five-minute intervals. The observer randomly selects six intervals and collects all the fish from the belt during that time interval of five minutes.

Code 3 - Weight: The sample unit is a predetermined weight of fish. Use this code when the sample frame is a list of equal weight units, and all the fish within that weight unit can be collected. Your sample unit weight multiplied by the number of units in the frame should equal the approximate haul weight. For example, when sampling on a catcher processor, if you divide the 20,000 kg vessel estimate into 100 units of 200 kg with a sample unit size of 200 kg, then all of the potential units added together would equal the vessel's estimate (100 units multiplied by the 200 kg sample unit size equals the vessel's estimate of 20,000 kg). ***This sample type can be used on trawl vessels only; it may not be used for fixed gear vessels.*** In some cases a weight based sample unit type may have a temporal component. For example, you are on a pollock CP and are using a systematic temporal sample design with 10 mt sample units. The factory is processing fish at 10 mt per hour. You head down to sample every 3rd hour which equates to every third 10 mt interval and you collect a 10 mt sample. This would be considered a weight based sample unit type since your sample unit is based on an actual weight. Your sampling interval is based on a time interval that directly relates to the size of your sample unit.

If the size of your sample *is not equal* to the size of your sample unit, see Code 5 - Other.

Code 4 - Volume: The sample unit is a predetermined volume of fish in a container. This includes samples based on the volume of fish released from a bin, or the volume of fish defined in a unit as a result of using a grid in the trawl alley. The total volume of fish defined in your sample frame must be equal to the total volume of fish in the population of the haul. ***This sample type is used on trawl vessels only; it may not be used for fixed gear vessels.***

Code 5 - Other: This sample unit code is used-

- anytime that the unit defined within the sample frame cannot be collected in its entirety.
- when there is no unit defined within the sampling frame.
- when there is no sampling frame.
- when the actual amount of fish that are collected are not equal to the size of the sample unit.

Examples: 1) Use Code 5 - Other on a catcher vessel when the units within the sample frame are defined as individual zipper pulls, but only a small portion of the fish in each selected zipper is actually collected due to space constraints (*i.e.*, only having 3 - 4 observer baskets to fill and store fish). 2) Use this code if you are implementing a temporal/systematic design where you would collect 3 baskets of fish every nth minute (*i.e.*, trawl vessels when using a temporal frame for selecting samples but you cannot collect all the fish during the entire time unit). 3) Use this code if you are dividing the vessel estimate by 1 ton to determine your sample start times and you intend to collect a fraction of the fish within the 1 ton unit for your samples. ***This is not a weight based sample unit type (Code 3 - Weight) and must be recorded as Code 5 - Other.***

Code 6 - Unknown: Use this code when you are unsure which Sample Unit Type you are using.

How to Use the Random Number Table

To use the random number table, enter the table at a random point. The easiest way to do this is by closing your eyes and placing your finger on the table. The column and row nearest your finger is the starting point. Determine how many digits in the row you are using: if you need numbers between 1 and 250, use three digits in the row, and so on. Decide in which direction you will move through the table. Then proceed in any direction through the table (even diagonally), recording appropriate numbers and skipping numbers too high or repeated, until you have enough random numbers. Unlike on the Random Sample Table, you do not have to keep track of your position in a random number table. You should decide on a direction and enter the table at a different random starting point every time you use it.

For example, if you need to choose 3 numbers between 1 and 25, you could enter the table by placing your finger on the table to choose a column and row. Your criterion is two digit numbers between 01 and 25 (inclusive). For this example, you decided to work up the column from your starting point. As you move up the column, the first number you encounter is 14. This is a two-digit number between 01 and 25; it fits the criterion, so you write it down. The next number is 09; it also fits the criterion, so you write it down. The next number is 58 and does not fit the criterion so you skip

this number. Keep moving up the column, skipping the numbers that do not fit the criterion, until you have chosen all the numbers you need.

SUBSET SAMPLING

Subset sampling is a sampling method that provides data users with additional information on the species or species groups encountered in your samples. In the course of collecting and working up your samples, there may be occasions when it is too time consuming or impossible to weigh ***and*** count all, or identify all, of a single species in your sample. To handle these situations the observer program allows random subset sampling for number and weight or for species identification.

Subset sampling is a tool that can be used to save time, space, and energy. However it should not be over-used because actual numbers, weights, and the identification of all individuals to species provides the best information.

Subset Sample for Number and Weight

The observer program prefers that a number and weight be provided for all species in your composition data, but sometimes this is not possible. If a species in your sample is so abundant that you are having a difficult time counting and weighing it, you are allowed to reduce your effort by taking a small random subset sample of that species from within the larger sample. You will use this subset sample to provide critical weight and number information for the species. All remaining individuals ***not*** in the subset sample are counted ***or*** weighed only. ***Whether you count or weigh individuals not in the subset sample depends on vessel type and species, so you must refer to the topic of subset sampling in the vessel specific chapters of this manual!*** Managers use the values supplied by the randomly collected subset sample information to determine the weight or number of the individuals of that species in the entire sample.

The implementation of subset sampling for number or weight is dependent on the gear type with which you are working. Please refer to the trawl composition, longline, and pot vessel chapters for specific directions on subset sampling for number or weight.

Subset Sampling for Species Identification

In the process of identifying the individual specimens in your randomly collected samples, you may find fish species which are difficult to distinguish from one another. Identifying each of these fish to species may take unreasonable amounts of time, particularly if a distinguishing characteristic requires a time-consuming task such as counting gill rakers. In these situations, it is appropriate to do a random subset sample for species identification.

Subset samples for species identification are often used for rock sole, Tanner crabs, shortraker/rougheye rockfish and arrowtooth/Kamchatka flounder groups.

To collect a subset sample for species identification, pick random portions of your composition samples (baskets, sampled time units, segments of gear) and collect all the individuals from the species group. Randomly choose between 20 and 30 individuals from the group to identify. The identified animals are listed on separate lines on the Species Composition Form with the species name. The remaining individuals from the group, which were not further identified, should be weighed, counted, and recorded under the more general code for that species group.

Do not extrapolate a subset sample into the rest of your sample! Record the fish that were not identified to species with the group code (*i.e.*, rock sole unident., code 104).

For example, you have too many fish from the rock sole group in your sample. You cannot identify each of them, so you choose two random baskets of mixed fish and remove and identify all the rock sole. Upon completion, you find that of the 29 total rock sole in the two baskets, 26 are northern rock sole and 3 are southern rock sole. For the species composition of that sample you would list 26 northern rock sole, 3 southern rock sole, and all the rock sole from your remaining sample as “rock sole unidentified.” If rock sole is the predominant species that you will be measuring, you should also use the rock soles that were identified to species for your length sample and record them on the Length and Specimen Form. An example of recording a subset sample of rock soles can be found on the Species Composition form example in Figure 5-15 on page 5-51.

USING YOUR SCALES

To obtain accurate weights, you must use the appropriate scale. If your vessel is equipped with a motion compensated electronic platform (MCP) scale which is passing ***daily*** tests, you may use this scale for all sampling purposes, including weighing individual fish for otolith or scale sampling. MCP scales can be read to the hundredth of a kilogram. Use your NMFS issued scales in the following manner:

- Use the 2.0 kg brass scale for items weighing up to 2.0 kg. This scale can be read to the hundredth of a kilogram.
- Use the 12.0 kg brass scale for items between 2.0 and 12.0 kg. This scale can be read to the hundredth of a kilogram.
- Use the 50 kg Salter scale for weighing items between 12.0 and 50.0 kg. This scale can be read to the tenth of a kilogram.

If your scale does not register a weight, enter 0.01 as the weight for the organism. If you board a small vessel in Dutch Harbor or Kodiak, Chatillon flatbed scales are available from the NMFS field stations. These scales have a gauge that can be read to a hundredth of a kilogram, but it is usually not appropriate to do so. Unless the weather is very calm, these scales should be read to the tenth of a kilogram, like your hanging 50 kg Salter scales.

Although your scales look sturdy, they are susceptible to damage and excessive rust. Keep them in good working order by removing them from open areas when you aren't using them, keeping them well oiled, and storing them securely. For instructions on how to care for a Chatillon flatbed scale, see page A-55.

Taring Your Scales

It is important to tare your scales to ensure the weights you record are accurate. Every time you change a container such as a basket, you must tare the scale to account for the difference in weight among baskets. Remember to check your tare frequently since the weight of a basket can change due to the accumulation of fish slime, guts, water weight, or damage to the basket. Listed below are the steps to take for taring these types of scales.

- Salter Scale - Hang an empty basket on the Salter scale and adjust the dial on the back side of the scale. Turn the dial until the arrow points to 0.0 kg.
- Motion Compensated Electronic Scale - Place an empty basket on the scale and press the tare button. The display should read 0.0 kg with the basket on the scale. If you have any questions about taring the MCP, consult the factory manager or foreman.
- Beam Balance Flatbed Scale - Make sure the scale is not in the locked position and that all the weight indicators are at 0.0 kg. Place an empty basket on the scale and slide the metal knob on the bottom left hand corner until the 2 metal balance indicators on the right hand side of the scale are in line with each other. Always consult FMA field staff on how to properly use the scale before checking one out.
- Brass Scales - Turn the adjusting screw on top of the scale until the weight indicator is at 0.0 kg.

Testing Your Scales

Bring your scales into a field station at a mid point of your cruise to retest them and ensure they are still accurate. ***You must test your scales prior to use if during your most recent assignment you used an electronic or motion compensated platform scale.*** Your data cannot be used if your scales are not working correctly. Document these test results in the "**Observer Scale Test Log**" section of your logbook. If your scales do not pass testing obtain replacement scales as soon as possible and document this in your logbook.

You are expected to test your hanging scales before you deploy, at the midpoint of your deployment, and when you check in your scales at the end of your deployment, even if you have not used your scales. Record the test results in the "Observer Scale Test Log" in your logbook.

Keep your scales dry and well oiled. It's nearly impossible to use too much oil on a scale!

Motion Compensated Electronic Scales

Vessels regulated under a Limited Access Privilege Program (LAPP) must supply and use motion compensated scales. When they are required to, trawlers and longliners will have a flow scale and a platform scale on board. A few catcher vessels have flow scales, but it is unlikely that these are NMFS certified. Flow scales that are not certified may not be used for Observer Estimates or to determine sample weight; they may only be used as a sampling aid.

Motion compensated platform (MCP) and flow scales are able to accurately weigh catch by comparing the weight on two separate load cells. The first load cell weighs the object with an unknown weight (your basket of fish), the second load cell, or reference load cell, weighs a known weight. The two weights are compared at least 60 times per second and this enables the scale to compensate for motion that would otherwise cause an inaccurate weight reading. Flow scales, or conveyor scales, also monitor belt speed and incorporate that information into the weight calculations. Both scale types, when properly calibrated, provide highly accurate weights.

Flow scales are used differently for trawlers and longliners. For trawlers, the entire catch must be weighed on the flow scale. For longliners, only P. cod will be weighed on the flow scale.

Platform scales are used to weigh the samples you collect. The vessel crew will also use the platform scale to complete their daily flow scale test. Flow scales are incorporated into a conveyor belt and are used to weigh total catch on trawl CP and mothership vessels. They may be used to design a weight based random sample frame, and for larger samples, can also be used to determine sample size. If your trawl vessel is equipped with a motion compensated flow scale, and it is passing daily accuracy tests, you should use this for determining sample size and Observer Estimate. You may use motion compensated scales even if your vessel is not operating in a fishery where they are required, but they must be tested appropriately each day they are used.

Platform Scale Testing

If you are using an MCP scale, you are required to test this scale at least every 24 hours using certified test weights. When two observers are on board it is recommended that each observer test the scale during their shift. The vessel must provide a combination of test weights that allow the platform scale to be tested at 10 kg, 25 kg, and 50 kg. Most vessels have either gold colored or stainless steel weights. Many vessels also have standard weights (lbs) that are silver in color that they use to test their production scales. ***Make sure the test weights you use are metric.***

MCP scales must be off by no more than ±0.5% from the test weight.

When you test the platform scale, the displayed weight should be off by no more than ±0.5% of the known test weight. Record each test, even failed tests, in your Daily Observer Platform Scale Test Log in your logbook. If the scale fails at any of the designated weights it should be re-tested or calibrated and re-tested. Whether you simply re-test or calibrate and re-test will depend on the make of scale. The vessel should have a copy of the scale instruction manual and you may want to consult with the engineer or factory foreman the first time you calibrate or test the platform scale. ***The MCP scale cannot be used to determine the weight of any part of your sample if it has not passed the daily test.***

To test an MCP scale:

- Test the platform scale at 10 kg, 25 kg, and 50 kg at least every 24 hours. It is recommended that observers test the scale at the beginning of each observer shift. If the platform scale fails, it may be retested or calibrated and retested.
- Record all test results on the Platform Scale Test Record in your logbook.

<u>Marel and Pols Platform Scales</u>

Seventy percent of the NMFS approved platform scales are made by Marel. Both Marel and Pols platform scales have a function called “marine calibration.” Prior to testing these scales for the first time you should perform a marine calibration. Consult the scale instruction manual, the engineer or a factory foreman if

you need assistance. Marel scales will display a reminder to perform a marine calibration by the blinking "CAL" light about every three hours of operation. Pols scales will not remind you to perform a marine calibration.

Skanvaegt Platform Scales.
The only thing you need to do with Skanvaegt platform scales is perform the daily test. There is no marine calibration for this brand of scale.

What To Do When the Platform Scale Fails
If the platform scale fails the daily test you should test it again. For Marel and Pols scales you can perform a marine calibration and then re-test the scale. For Skanvaegt scales, simply re-test the scale. If the scale does not pass after two or three attempts, consult with the factory manager or the engineer and inform the captain that the scale has failed. It is the captain's decision whether the vessel continues to fish. As an observer your role is simply to inform the captain that the scale has not passed and that it is a violation to continue fishing until the scale is repaired. If the vessel continues to fish you should sample for species composition using your 50 kg Salter and brass scales. You should also notify NMFS, via your inseason advisor, and document the incident in your logbook. ***Do not refuse to sample or tell the vessel they can't fish if the platform scale is not functioning.*** The flow scale cannot be used to determine sample size or haul weight if the MCP scale does not pass. The accuracy of the weight used to test the flow scale is dependent on the MCP scale.

Flow Scale Testing
On vessels where flow scales are required by regulation, the flow scale must be tested at least one time each 24 hour period in which fish are weighed on the flow scale. It is the vessel's responsibility to (1) test the flow scale each day, (2) notify the observer that they are going to test the flow scale at least 15 minutes in advance, and (3) conduct the test while you are present. The vessel should fill out a Record of Daily Scale Test and you will sign the form signifying that you witnessed the scale test.

If you are the sole observer on a longliner with a flow scale, it is important to work closely with the vessel to ensure the flow scale test is done when you are awake. Any problems scheduling these tests must be addressed with your inseason advisor.

While watching the flow scale test and sampling hauls, pay attention to the actions of the crew. The following scenarios may indicate a problem with the flow scale that must be reported to NMFS:

1. The crew needs to make adjustments to the scale prior to each test.

2. The flow scale frequently goes into fault mode during haul processing.

3. The rate-of-flow display indicates that tonnage flow per hour has changed drastically, even though the flow rate appears to be the same (*e.g.*, the crew have been running a full belt of fish at 40 tons/hour and suddenly the flow scale reads a flow at 20 tons/hour, even though no adjustments to flow rate have been made).

Flow scales must be off by no more than ±3.0% from the MCP scale weight.

In order to do a flow scale test, the vessel must weigh at least 400 kg of fish or an alternative material (sand bags) supplied by the scale manufacturer. Other items such as bags of flour or rice and steel test weights are ***not*** approved for testing flow scales. After the fish or sandbags are weighed on the flow scale they should be weighed on the platform scale. The maximum permissible error for flow scales is ±3.0%. Complete instructions for testing the flow scale appear on the Record of Daily Scale Tests form, provided by the vessel. Vessel personnel will ask you to sign this form. It is the only non-Observer Program form you should sign! In summary, the vessel personnel's responsibilities for flow scale testing include:

- Having the scale certified by the Alaska Regional Office.
- Performing a daily 400 kg. materials test, using fish or test materials supplied by the scale manufacturer (sandbags).

- Conducting the flow scale test in the presence of an observer, to verify that the test was conducted in accordance with regulations.
- Recording the flow scale test on the proper form (OMB No. 0648-0330).
- Producing a printout of the total catch weights, which must include the haul number, the date of the haul, and the weight of all the catch as weighed by the flow scale.

If the vessel has trouble with their flow scale, have them contact Alan Kinsolving, NMFS Scale Program Coordinator. Phone (928) 774-4362, fax (907) 586-7465.

What To Do When the Flow Scale Fails

Depending on which type of gear your vessel uses (trawl vs. longline), follow these steps if the flow scale fails the daily test:

For Trawlers and Longliners

1. If the flow scale fails the daily test, it may be re-tested as many times as the crew wishes.

2. If the flow scale fails, the *captain* decides whether or not to continue fishing. As an observer, your role is to simply inform the captain that the scale has not passed and that it is a violation to continue fishing with a scale that has not passed the daily test.

3. Notify NMFS, via your inseason advisor, and document the incident in your logbook. ***Do not refuse to sample or tell the vessel they can't fish if the flow scale isn't functioning.***

Trawlers:

The scale may ***not*** be relied on as a source for total catch weight until it has passed the daily test. ***If total catch is weighed on a flow scale that did not pass the daily test, do not use that weight as the Observer Estimate. You must report only the Vessel Estimate, leave the Observer Estimate blank, and notify your inseason advisor.***

If the flow scale fails the daily test and the vessel continues to fish, sample for composition using the MCP scale (assuming it has passed). Your sample sizes will be limited by the fact that you must weigh the entire sample on the MCP scale.

Longline Vessels:

Continue sampling as normal. ***The flow scale is only used by the vessel and has no impact on any observer duties.***

SAMPLE STATION REQUIREMENTS

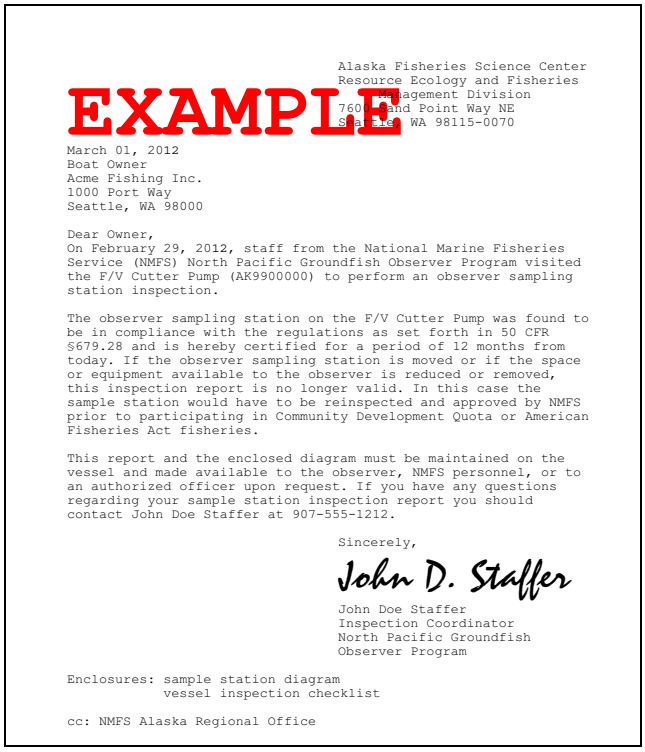
Catcher processors participating in Limited Access Privilege Programs (LAPP) are required by regulation to have an observer sampling station. Observer sampling stations are certified by FMA Division staff and motion compensated scales are certified by NMFS Regional Office staff. Certification is good for one year from the date the observer sampling station or motion compensated scale was approved. Once certified, vessels must maintain an Observer Sampling Station Inspection Report, Vessel Diagram, and a Scale Inspection Report on board and make that report available to the observer, NMFS personnel, or to an authorized officer upon request.

Observer Sampling Station Inspection Reports

Read the Observer Sampling Station Inspection Report when you board a LAPP vessel. Note the date the Inspection Report was issued (certification is good for one year), examine the sample station diagram, and compare the setup of your station against the diagram. An example of the Sample Station Certification Letter is shown in Figure 2-6 on page 2-28. Before you complete your inspection of the sampling station, make sure the station is completely setup. If possible, test the platform scale before your vessel departs to make sure it passes the daily test. The scale should be turned on at least ½ hour prior to testing so that it can warm up.

If your vessel is not able to produce an Observer Sampling Station Inspection Report, inform the captain of the requirement for maintaining one onboard and to request a copy from their company office. A faxed copy and original inspection report were sent to each vessel's home office following certification and the vessel should be able to obtain a copy. If the captain is unable to obtain a copy, notify your inseason advisor that the vessel does not have a copy onboard. ***Do not refuse to sample or refuse to embark on a vessel that can't produce the inspection report.*** Once you notify your inseason advisor, NMFS will contact the fishing company and take any necessary action.

Each observer deployed on a vessel fishing with a certified sampling station ***must*** complete an Observer Sampling Station Verification Checklist in their logbook. The information you provide will be used to determine if sampling stations are functional or if modifications have been made since the station was last inspected. It is very important that you fill out the checklist completely and provide comments when necessary. You may find that your measurements are slightly different from those listed on the inspection checklist. Small differences are to be expected.



EXAMPLE

Alaska Fisheries Science Center
Resource Ecology and Fisheries
Management Division
7600 Sand Point Way NE
Seattle, WA 98115-0070

March 01, 2012
Boat Owner
Acme Fishing Inc.
1000 Port Way
Seattle, WA 98000

Dear Owner,
On February 29, 2012, staff from the National Marine Fisheries Service (NMFS) North Pacific Groundfish Observer Program visited the F/V Cutter Pump (AK9900000) to perform an observer sampling station inspection.

The observer sampling station on the F/V Cutter Pump was found to be in compliance with the regulations as set forth in 50 CFR §679.28 and is hereby certified for a period of 12 months from today. If the observer sampling station is moved or if the space or equipment available to the observer is reduced or removed, this inspection report is no longer valid. In this case the sample station would have to be reinspected and approved by NMFS prior to participating in Community Development Quota or American Fisheries Act fisheries.

This report and the enclosed diagram must be maintained on the vessel and made available to the observer, NMFS personnel, or to an authorized officer upon request. If you have any questions regarding your sample station inspection report you should contact John Doe Staffer at 907-555-1212.

Sincerely,

John D. Staffer

John Doe Staffer
Inspection Coordinator
North Pacific Groundfish
Observer Program

Enclosures: sample station diagram
vessel inspection checklist

cc: NMFS Alaska Regional Office

Figure 2-6: Sample Station Certification Letter

Completing the Observer Sampling Station Verification Checklist

The following should be used to complete the checklist in your logbook. Each item that pertains to your vessel type should be addressed on the checklist. Whenever possible, quantified units should be recorded. ***Both the lead and the second observer are required to return for debriefing with completed checklists.***

Sample Station:

Trawlers: If sample collection points are within the sampling station write "within station." If you are collecting and weighing your entire sample from a belt outside your station, measure from the nearest point in the sampling station to the closest point of the diverter board (or whatever device is used to collect fish from the belt). If you are sampling a large portion of the haul and sorting and weighing bycatch from the belt (i.e., not weighing predominant catch on observer scales, the MCP scale, or by flowscale), measure from the nearest point in the sampling station to the closest point of the portion of the belt used for bycatch collection.

Non-Trawl: There are three points to be considered for non-trawl vessels. The roller or pot launcher is the ***point where fish are brought onboard. The collection point*** is where you gather fish as they come off the line or are emptied from the pot. The ***tally station*** is the area in which tally samples are conducted. If the collection point, location where fish is brought on board, or tally station is within the sampling station write "within station." If it is outside, record the distance from the nearest point of the sampling station to the specified area.

Minimum Work Space:

The minimum work space must be at least 4.5m^2, which includes the sample table. Copy the sample station diagram and record the dimensions as you measure the station. If there is any unusable space (*e.g.*, sump pump), record the areas length and width. Unusable space is defined as any area within the sample station where access to the floor is blocked or limited by another object or where height is restricted. A good test of usable space is to simulate moving, storing, and working with an observer basket. If a basket will not fit, then the space is probably not usable.

Table:

The length, width and height of the table should be recorded in the comment box. Measure the outside dimensions (*i.e.*, from the outside of a lip, not from the end of the inside flat surface). If the table is adjustable, note that in the comment box. The area for the scale is in addition to this space, and should not be included in the measurements for the table. If there is any unusable space note the length and width of that area. Unusable table space is defined as an area where setting an observer basket is impossible.

Observer Sampling Scale Location and Height:
This refers only to the MCP scale. The shortest distance from the scale to the table and the height of the platform should be recorded in the comment box. Comment on whether or not the scale has a sticker confirming that its certification is current, what combination of weights are available, and where they are kept. Note: The MCP scale height cannot exceed 0.70 m.

Flow Scale Display Visibility (Trawlers Only):
Note if the flow scale display is readable from where you collect unsorted catch and the area where sampling takes place. Note the brand and model number of the flow scale.

Floor Grating:
Diamond plate hatch covers are acceptable in lieu of standard grating, as long as drainage and slipping are not a concern. The comment box should contain notes on type, condition, and location of grating.

Lighting:
Note the number and type of lights directly in the sampling station. Any other light sources should also be recorded.

Hose:
Note whether or not the hose reaches the sampling station, the location of the water valve, and your access to the water valve.

Unobstructed Access:
This refers to movement between the sample collection point and the sample station. Note the width of passageways you must use to move baskets of fish as well any tripping hazards or stairs. Obstructed access is any passageway less than 0.65 m wide and 1.8 m high (floor to ceiling) or a passage which is blocked or limited by objects in the passageway.

Diverter Board (Trawl Vessels Only):
The diverter board must be located after the flow scale and preferably before any sorters. Check that the diverter board is functional. Note: Some vessels have acceptable alternatives for removing catch from the flow of fish for sample collection (*e.g.,* trap doors).

Sample Station Inspection Report:
Note the date and exact pages of the inspection report. Were the sampling station diagram and checklist presented to you with the certification letter?

Additional Comments:
This is the place to record details which are not specifically addressed in the regulations, but are of concern to the FMA Division. Specific points for non-trawl vessels are: tally station details such as location, route between sample station and tally station, and sample collection details.

Scale Inspection Reports
All scales required on LAPP vessels will be marked with a NOAA sticker signifying they are certified. Test weights will be stamped with NOAA insignia to indicate that they are certified. If a scale on your vessel does not have a valid "NMFS Approved Scale" sticker, you should ask to see the Scale Inspection Report. If your vessel is not able to produce a Scale Inspection Report, inform the captain of the requirement for maintaining copies on board. Notify your inseason advisor that the vessel does not have these documents on board. Send another message if the vessel obtains copies from NMFS or their home office. ***Do not refuse to sample or refuse to embark on a vessel that is unable to produce a Scale Inspection Report or a weight certificate.*** Once you notify your inseason advisor, NMFS will contact the fishing company and take any necessary action.

WORKING WITH TWO OBSERVERS

There are several North Pacific fisheries that require two observers aboard a CP vessel. This presents observers with the unique opportunity to work together. Both observers are expected to work together as a team to provide consistency in sampling techniques, recording data, and communications with vessel personnel. The "lead" observer will be assigned by your employer. The other observer is referred to as the "second." Although ***the lead observer is not in a supervisory position,*** their role is slightly different from that of the second.

Lead Observer's Role

As a lead observer, it is expected that you have more experience on the given vessel type and therefore are given more responsibilities. The lead observer is

expected to work closely with the second observer and provide tutelage as needed to ensure the highest quality data. When problems occur on the vessel the lead observer should address these immediately with crew or captain. This assures that vessel personnel receive consistent and timely feedback as problems arise, and allows them the opportunity to work with you in finding a resolution to the issue(s).

As the lead observer, you are responsible for the entire data set. With the exception of the "Haul sampled by" column on the OHF, all data must be recorded under your cruise number, regardless of who actually collected it. All data entry to ATLAS and text messages must be entered and sent under your cruise number. As a lead observer, you are also responsible for ensuring that your data are sent to NMFS on time. You and the second observer(s) should maintain separate Daily Notes in your own logbooks, but all calculations must be recorded in your logbook.

Because lead observers are responsible for the data set, it is necessary for them to direct the sharing of duties and other activities of the observer team. In instances when opinions differ, the lead observer will have the immediate say in the matter. NMFS should be notified immediately and will have the final say.

As the lead, your role in debriefing is far more involved than that of the second. The lead observer is responsible for submitting the entire data set to NMFS and is required to make all necessary corrections to the data set, regardless of which observer made the error. As the lead observer, you need to know how the second observer(s) collected and recorded raw data so that you can make any necessary corrections. It is in your best interest to double check all data according to the instructions given at the end of the chapters describing data collection and form protocols. NMFS staff will try to debrief you and the second observer(s) at the same time if it is logistically possible. This is preferred, since speaking to both observers at the same time makes it easier to clear up any data questions.

Second Observer's Role

The second observer has the same responsibilities for data quality and integrity as the lead. As the second observer, you will record all the data you collect under the lead observer's cruise number except in the "Haul sampled by" column on the OHF where you will record which hauls you sampled. Record all calculations in the lead observer's logbook. The only data that you will collect under your own cruise number are your Species ID Forms, Marine Mammal Sighting Forms (11US), and your Daily Notes. Any compliance issues that you witness should be documented thoroughly in your logbook and the lead observer should be notified. Sampling problems that arise during your shift should be handled immediately and you should inform the lead observer. Recurring problems should be discussed with the lead observer, and the lead should address the concerns with the vessel.

Salmon scales should be recorded under the lead observer's cruise number for data reporting and kept in numerical order with scales he or she collects. Write your initials on the back of the envelope, so that species identification verification can be done for scales collected by both observers.

If you and the lead observer do not debrief at the same time, you will need to reconstruct your time aboard the vessel during your debriefing interview. Keep very detailed notes in your own logbook regarding how you sampled and any problems you encountered to assist you in remembering specific events aboard the vessel. You may make photocopies of calculations, diagrams or other pertinent information from the lead observer's logbook to bring to debriefing if you would like (this is not required, but some observers have found it helpful). With the exception of making data corrections, your debriefing will be the same as that of a lead or solo observer.

The 12 Hour Rule

In most LAPP fisheries, the time required for an observer to complete sampling, data recording, and data communication duties may not exceed 12 consecutive hours in each 24-hour period.

Shared Duties

As a part of the observer team you are expected to maintain effective communication with your fellow observer. You should agree on a specified time between shifts to discuss pertinent fishing and sampling activities that occurred during the previous shift. Decide on a ***secure*** common area to leave recent data that needs to be entered or checked by your colleague. Each observer is responsible for all hauls during his/her shift. Each observer should be on duty for no more than 12 hours in a 24 hour period. ***During LAPP fisheries,***

you should complete all your duties, including data entry within these 12 hours. If you are unable to complete all your duties within 12 hours, contact your inseason advisor for advice. Both observers should share the responsibility of collecting the data for the Trip form, Vessel and Observer Haul Forms and entering data into ATLAS. Additionally, both observers are responsible for, and should take the initiative in, resolving sampling problems that arise due to the vessel setup and operation. Remember that both observers should always be advised of all pertinent activities and instances related to observer duties. Be sure to establish a system of checking calculations, data, and data entry before sending data. ***Checking someone else's data for errors is more efficient than checking your own– do both!***

You must work together to establish viable random sample designs. Since each haul represents a population and can be sampled independently, it is not necessary that both observers use the same sample designs. It ***is*** essential that a design remain the same throughout any individual haul or set. In the event that both observers sample a haul or set, the observer who begins the sample will decide on the appropriate random sample design and the other observer should follow that design. To aid in data correction and verification, each observer ***must*** initial the Deck Form for every sample collected.

Both observers should contact NMFS if there are significant differences of opinion concerning sampling methods. Each observer must describe their sampling technique thoroughly. The inseason advisor will advise you on the proper course of action.

PRE-OFFLOAD MEETINGS WITH INDUSTRY FOR BERING SEA POLLOCK DELIVERIES

Pre-offload meetings are essential to ensure all ***Bering Sea pollock deliveries*** are monitored in their entirety for salmon bycatch. These meetings are intended to provide a means of communication between the vessel and plant observers, plant personnel, and vessel personnel. The pre-offload meetings are **NOT** intended for the plant or vessel personnel to dictate observer activities. ***Pre-offload meetings are expected to take place when catcher vessels targeting Bering Sea pollock come in with a deckload, have fish in a live tank, or when interruption of offloads take place.*** Below are guidelines for the pre-offload meetings for these specific situations.

1. **Vessel arrives with fish either in a codend, live tank, or with fish loose on deck.** In this scenario the plant is expected to transfer deckloads or fish in a live tank to the RSW tanks before the fish are pumped into the factory. This is to comply with the Amendment 91 regulation that all salmon must be stored in refrigerated saltwater tanks prior to offloading. The intent of this regulation is to ensure no sorting or discard of salmon occurs. Both the vessel and plant observer will be needed to achieve this monitoring goal and a pre-offload meeting should be held to coordinate the efforts of the observers and industry. The following individuals are expected to be present at the pre-offload meeting: the plant observer on duty, the observer assigned to the offloading vessel, plant personnel and a crew member from the offloading catcher vessel. This group will coordinate a plan for ensuring the codend, loose fish on deck, and/or live tank transfer to the RSW tanks is monitored by an observer. At the pre-offload meeting the following topics need to be discussed and agreed upon by all individuals:

- The expected date and time of the codend or live tank transfer to the vessel's RSW tanks.
- Any potential conflicts with other observer duties during the transfer expected time.
- A notification procedure.
- Any other issues that may occur during the offload.

In the event that only one observer is available at the time of codend or live tank transfer, the sorting on the line will be stopped, and all fish upstream from the last point of sorting will be removed so that the one observer on duty may monitor the dumping of the codend or the live tank transfer to the RSW tanks. Once the codend or live tank transfer to the vessel's RSW is complete and the observer on duty has returned to the sorting line, movement of fish on the sorting line and any sorting of the offload will resume.

2. **A vessel offloading is interrupted for another vessel's offload.** In the event the plant will need to

switch vessels during an offload, a pre-offload meeting will be conducted to ensure the plant and vessel observers, as well as the dock crew and the vessel personnel, are prepared and informed of the offload plan. When the vessel that will be interrupting the current offload arrives, each vessel observer and a crew member from both the vessel currently under the pumps and the vessel that will be interrupting the offload, the plant observer on duty, and plant personnel are expected to be present at the meeting. At the meeting the following topics need to be discussed and agreed upon by all individuals:

- The expected date and time of the beginning of the partial offload.
- The expected date and time of the completion of the partial offload.
- Any potential conflicts with other observer duties during either offload time.
- A notification procedure
- Any other issues that may occur during the offload.

At the completion of each partial offload the same procedures must be followed as the completion of a full offload. The sorting on the line will be stopped and any fish upstream from the last point of sorting will be removed so the observer on duty can count and sample the salmon; the salmon will then be removed from the salmon storage area once the observer has completed their sampling duties.

All pre-offload meetings must be documented in the daily notes section of your logbook. A note that a pre-offload meeting took place before the delivery is sufficient.

INSEASON ADVISORS AND TEXT MESSAGES

Vessels or plants with ATLAS will have assigned staff acting as inseason advisors. ***Be sure to alert your inseason advisor when you first board the boat.*** Inseason advisors are available to answer sampling and data recording questions. See “Inseason Advisors” on page 21-2 for detailed information regarding inseason communication protocol.

First Message to Inseason Advisor

Send a test message when you first board a vessel to make sure ATLAS is able to open and to send. See “Examples of First Messages to Inseason Advisor:” on page 21-4 for further instructions and guidance.

Illness or Injury

If you are ill or injured and cannot work for more than one day, you must contact NMFS. If you are on a vessel with ATLAS, contact your inseason advisor.If you are not on a vessel with ATLAS, use an available means of communication (phone, fax, e-mail, radio) as soon as possible. You also must inform your captain of this impediment. If you cannot work for more than three days, you must contact your employer. Inform NMFS and your employer if an on-going illness and/or injury consistently impacts your sampling. See “Illnesses and Accidents” on page 19-11.

Marine Casualties

Notify your inseason advisor promptly regarding marine casualties even those that are not immediately threatening. See “Marine Casualties” on page 19-11 for descriptions of marine casualties.

SENDING DATA

During the course of your cruise, you may need to contact NMFS for many reasons, but the most common reason is to send your data. The data you collect at sea is vital for inseason management. When the Observer Program receives your data, preliminary quality control checks are done, and the information is made available to the Sustainable Fisheries Division in Juneau. The Division uses the observer data to determine how much catch has been removed from each regulatory area. If you do not submit data on time, and in the proper format, the Observer Program cannot provide the information necessary for making sound management decisions.

It is important to note that you must send complete data only. Sending incomplete data (e.g., haul information without the associated species composition data) can affect how the data are being extrapolated. This applies to both ATLAS and fax data.

Non-Fishing Days

A non-fishing day is one during which no hauls were retrieved while you are assigned to your vessel. All days aboard must be accounted for with either a fishing or non-fishing position. This is the Observer Program's only way to account for the number of days you were assigned to a vessel. Refer to each gear type specific chapter for information regarding how to record non-fishing days.

Sending Data via ATLAS

The table in Figure 2-7 describes how often observers with ATLAS communications should send data by vessel type. Send data as required, even if your vessel has not fished in this time period. Send in the non-fishing day positions to let the NMFS know that there was no fishing activity. ***If your vessel landed catch, but you were unable to sample for a full day, you must include a text message explaining why you did not sample.*** The Observer Program needs to be able to verify that data was not collected on that day. Plant observers must document non-delivery days on the Offload form. For more information on sending data via ATLAS, refer to page 18-22.

Vessel Type / Fishery	**Transmission Frequency**
CP or mothership trawl All fisheries	Once per day
Longline CP All fisheries	Once per day
Pot CDQ fisheries	Once per day
Pot Non-CDQ fisheries	2-3 times per week
Processing plants All fisheries	Once per day
Trawl catcher vessels All fisheries	Once per day

Figure 2-7: When to Send Data via ATLAS

If you are assigned to a pollock vessel with ATLAS and you disembark your vessel before receiving your final fish ticket ***DO NOT*** fill out paper forms and fax them once you get your delivery information. If it is possible, go to a field office where a NMFS staff member can load your ATLAS data on a computer and you can enter and transmit via ATLAS. If this is not an option, you may need to wait until you return for debriefing to enter that data.

Correcting and Resubmitting ATLAS Data

If you are on a vessel or at a plant with ATLAS and you need to change your data, see 'ATLAS INSTRUCTIONS' beginning on 18-1 for specific instructions. Any data that you edit in Atlas will automatically be sent to Seattle the next time you prepare and transmit data. If you are asked to resend ATLAS data, select a haul or date range before you prepare your data to be transmitted.

Faxing Data

Observers who use fax communications must fax their data on a weekly or trip by trip basis (whichever is more frequent). If you are using fax communications, your sent data will consist of your Trip Form, Offload Form, Vessel and Observer Haul Forms, Hook Count and Spacing Form, and the corresponding forms for species composition, length and specimen data, marine mammal interaction and specimen data, and seabird interaction and specimen data. If no fishing was done for a trip, fax in the Trip Form and both Haul Forms with the non-fishing day locations recorded on them. ***If your vessel landed catch, but you were unable to sample for any full day, you must include a message explaining why.*** You may have been ill or the weather may have been bad, but the Observer Program needs to be able to verify that data was not collected on that day.

If you are assigned to a pollock catcher vessel that does not have ATLAS, the observer program keypunch staff must have all of your offload data before it can be entered. This includes the Vessel/Plant offload form, offload census composition and any offload level length or specimen data. You will need to wait for the fish ticket and any after scale information before completing and faxing offload data.

Fax your data to the Groundfish Observer Program in Seattle at 206-526-4066 or 206-526-4207. If you have trouble sending your data don't give up! Call the Observer Program collect at 206-526-4240 if you continue to have problems. If no one answers, leave a

voice mail message. Include your name, cruise number, vessel name, and the reason why you can't send your data.

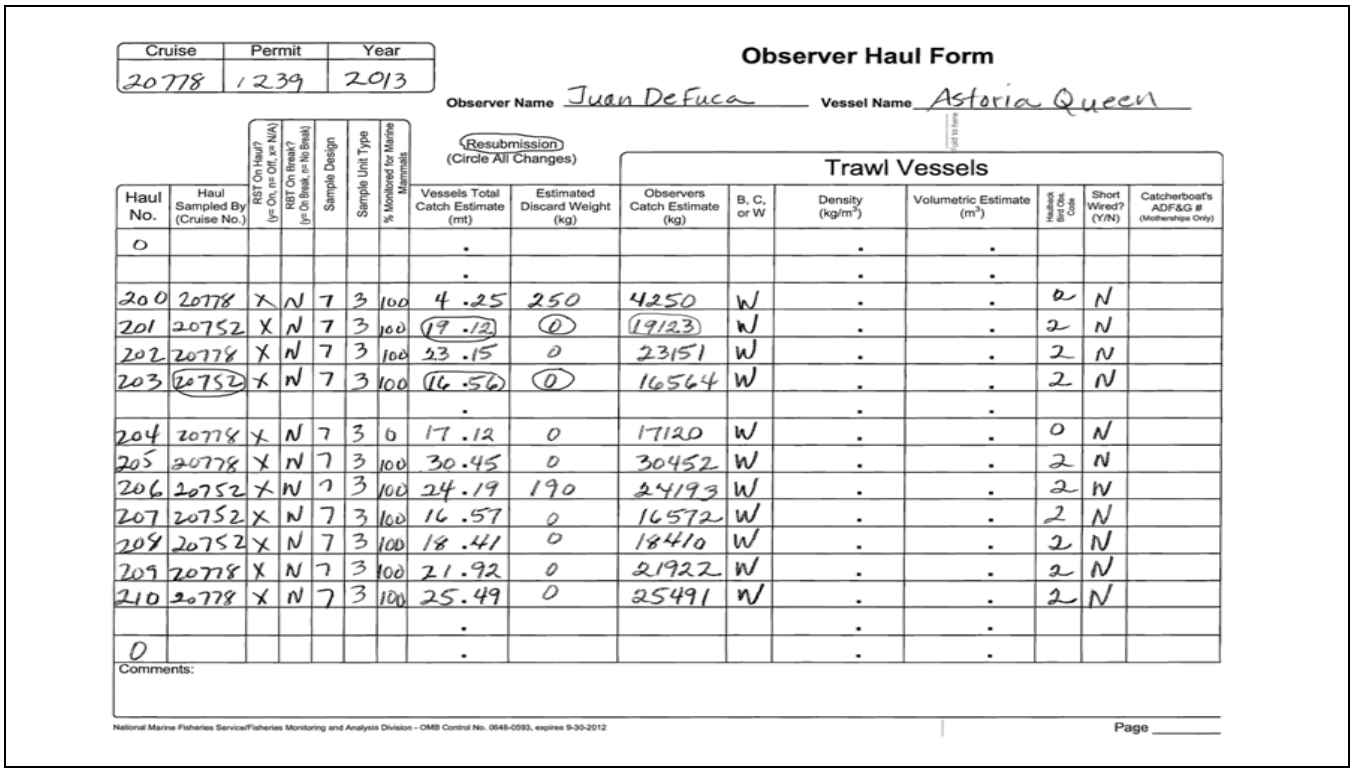
Questions or text messages can be included with your data on a blank, unlined sheet of paper and may be hand written or typed. Please print or use a large font so faxes can be easily read.

If you see, or suspect that you see, a North Pacific right whale, please fax a Marine Mammal Sighting Form or send a message via ATLAS as soon as possible.

Correcting and Resubmitting Faxed Data

If you have a correction to data that you have previously faxed to the Observer Program, simply correct the information on your paper form(s) and ***circle all the changes!*** At the top of the form, ***circle "resubmission"*** so we know you are sending corrections to previously faxed data (Figure 2-8).

Occasionally, the Observer Program will not receive some or all of your data due to a communications problem. If this happens, you may get a message from your employer instructing you to resend the missing data. In this case, simply fax the missing data.



Observer Haul Form

Cruise	Permit	Year
20778	1239	2013

Observer Name Juan DeFuca Vessel Name Astoria Queen

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, w= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Haulback Bird Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)
0							.				.	.			
							.				.	.			
200	20778	X	N	7	3	100	4.25	250	4250	W	.	.	0	N	
201	20752	X	N	7	3	100	(19.12)	(0)	(19123)	W	.	.	2	N	
202	20778	X	N	7	3	100	23.15	0	23151	W	.	.	2	N	
203	(20752)	X	N	7	3	100	(16.56)	(0)	16564	W	.	.	2	N	
							.				.	.			
204	20778	X	N	7	3	0	17.12	0	17120	W	.	.	0	N	
205	20778	X	N	7	3	100	30.45	0	30452	W	.	.	2	N	
206	20752	X	N	7	3	100	24.19	190	24193	W	.	.	2	N	
207	20752	X	N	7	3	100	16.57	0	16572	W	.	.	2	N	
208	20752	X	N	7	3	100	18.41	0	18410	W	.	.	2	N	
209	20778	X	N	7	3	100	21.92	0	21922	W	.	.	2	N	
210	20778	X	N	7	3	100	25.49	0	25491	W	.	.	2	N	
							.				.	.			
0							.				.	.			

Comments:

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Figure 2-8: Resubmitted Fax Data (example)

TRIP INFORMATION

Table of Contents

INTRODUCTION

There are several trip by trip elements that are important to your deployment. These include a safety orientation (see "Safety Orientation" on page 2-3), familiarizing yourself with the vessel configuration, and the collection of trip data.

BECOME FAMILIAR WITH YOUR VESSEL

As quickly as possible, try adapting to the new surroundings by familiarizing yourself with the layout of the vessel and by meeting the people you will be working with. If the previous observer is available, ask that person to give you a tour and orientation of the vessel. Note key areas such as observer quarters, galley, wheel house, factory, and sampling area. If the previous observer is not available, vessel personnel are frequently assigned to assist new observers with the familiarization process.

Before the vessel leaves port, make sure you have all of your personal items and sampling equipment onboard. Check your equipment before leaving port for lost or forgotten items. If the vessel has ATLAS, send a test message to ensure it is functioning properly. Contact the field offices if you require additional sampling equipment and forms. ***If you are prone to sea sickness, get as much critical presampling work done before leaving port.***

A vessel is required to provide observers with a safe work area adjacent to the sample collection site.

It is important that the observer sampling station on board the vessel facilitates your objectives and goals. Ask yourself the following questions as you assess the sampling station:

- Is there access to unsorted catch?
- Is the collection site near the sampling station?
- Are there any tripping hazards?
- Is there adequate room for storing your gear and samples?
- Is there a location where you can secure a hanging scale; if not, do you need a flatbed scale from the field office?
- Is there a work table or a comparable setup available for your use?
- Is there equipment nearby to adequately clean your gear and samples?

If you have the opportunity, you should view the vessel profile prior to deployment in Seattle or Anchorage, or visit one of the field offices.

Catcher/Processor Trawler

In the first few days, familiarize yourself with life on board and initiate your work with the following:

- If your vessel will be using a flow scale, talk to the skipper to determine who will be responsible for testing the scale and how you can obtain haul by haul scale weights.
- Watch the net retrieval to determine the best location for observing the codend retrieval. Remember that the location needs to be in a place that will ensure your safety and allow a full view of the deck activities. Speak with the deck boss for

assistance in determining where the best area is with your objectives and goals in mind. Watch how and where the codends are opened and how thick and fast the fish are dumped. Look to see if the crew does any sorting on deck.

- Observe the factory operations. Note where the catch is sorted and what species and sizes are retained. Follow the fish from the deck to the freezer. This is a good opportunity to determine what method would be suitable for obtaining information on the amount of catch that is discarded. Note what primary and ancillary products are being made. Be aware of all possible hazards.
- Get started with the most obvious methods for making catch weight estimations, for obtaining species composition data, and for collecting other biological samples. As time progresses, and you become comfortable with your duties, consider other methods or implement variations in your methods to improve your sampling and data quality.
- If you are assigned to a C/P in the Gulf of Alaska, you may have to make volumetric estimates. Watch the net retrieval and handling. At this time, you can easily decide when and where you will need to take additional measurements. Also, use this time to improve methods for obtaining dimension measurements for codends and bins. Determine whether you require assistance from vessel personnel and enlist their aid.
- When the deck is inactive, perhaps when the vessel is in port or steaming to the fishing grounds, make measurements which will aid you in estimating codend dimensions and bin volumes

Catcher-Only Trawler

Fishing operations are much simpler aboard a catcher-only vessel but an observer has less opportunity to get oriented as only a few tows may be made each trip.

- When the deck is inactive, perhaps when the vessel is in port or steaming to the fishing grounds, make measurements which will aid you in estimating codend dimensions.
- Watch the net retrieval and handling. At this time, you can easily decide when and where you will need to take additional deck measurements. Also, use this time to improve methods for obtaining dimension measurements for codends. Depending on the fishery, you may be using the trawl alley as a bin for volumetric estimates. This would be a good time to measure the trawl alley. Trawl alley measurements may also aid in obtaining codend dimensions. Determine whether you require assistance from vessel personnel and enlist their aid.
- Determine the best location for observing the codend retrieval. Remember that the location needs to be in a place that will ensure your safety and allow a full view of the deck activities. Take special note of hazardous or potentially hazardous areas. The captain or crew members may also have some advice on where possible hazardous situations exist.
- Make a note of checker bins or other equipment that will be useful for collecting and storing samples. Space is limited on the smaller vessels so making use of all available resources is a necessity. You may realize at this point that you require an extra basket or two. You can obtain extra baskets or portable totes from the field offices.
- For the first retrieval, be prepared with sampling equipment ready and in hand. Use this time to observe the retrieval of the net and determine the most appropriate area and method for obtaining a catch estimate, depending on the fishery. Make the effort to measure the codend or collect bin volumetric dimensions of the catch. Watch how and where the codend is opened and how thick and fast the fish are dumped. Look to see if the crew does any sorting on deck. Observe what is retained and discarded. Observe where and how sorting occurs. By being aware of these situations, you will be able to determine the best method for obtaining discard information and avoiding sample bias.
- If you will be required to sample at a processing plant, you should locate the plant observer before or immediately after your first trip, so they can provide an overview on the plant sampling station and typical sampling protocol (see “GOA Vessel Observer Offload Salmon Census” on page 5-30).

Longline Vessel

The fishing operations on longline vessels are different from trawl vessels. There are other considerations that should be addressed.

- It is important to be familiar with the units of gear, gear handling, and average number of sets per day. This information will assist you in setting up a routine to complete your duties. Speak with the captain or deck boss to obtain this information. This is also an excellent time to determine the best method of verifying the number of hooks per skate and to apply that method.
- Sampling for species composition requires an area for observing the gear retrieval and everything that is caught on the gear. Depending on the vessel configuration, this is most likely to be on deck. You will also need to locate an area where you can collect, store, and weigh bycatch and target species. This means that you may have more than one sampling station. Remember, working on a longliner imposes many hazards. You need to be aware of all possible dangers and work accordingly.
- During the first gear retrieval, locate an area where you can observe the retrieval of the line and all organisms coming up on the line. You should be near enough to identify most fish to species, family, or to special species groups. Determine what species are retained and discarded both at the roller and in the factory. This is a good time to observe the rollerman and determine what type of control you will have over the collection of bycatch. Take into account the retrieval rate of the gear and the amount of gear set in order to conceive a sampling frame. Monitor the quality of gear reparation as this affects overall gear performance.

Pot Vessel

The fishing operations on pot vessels are similar to those on longline vessels with few minor differences.

- It's important to be familiar with the units of gear, gear handling, and average number of sets per day. This information will assist you in setting up a routine to complete your duties. Determine hazardous work areas. Speak with the captain or deck boss to obtain this information. Determine the best method to verify the number of pots set per string.
- Sampling for species composition can be quite arduous due to the many hazards you need to be aware of as you are working. Pot vessels are small vessels with constant activity. You will need to set up your sampling station away from the gear retrieval area and all of the potential hazards that may occur in that area. Ask the vessel personnel where observers have historically sampled.
- Locate an area where you can observe the retrieval of the pots, yet remain safe of deck activity. Let the deck crew know what your objectives and goals are so they can work with you. Determine what species are retained and discarded. Take into account the retrieval rate of the gear and the amount of gear set in order to create a sampling frame.

The First Haul

By the time the first haul comes aboard you should have some idea of how you would like to sample. The first catch onboard is your first opportunity to test the routine for collecting, sorting, weighing, and counting fish that you worked out before fishing began.Determine what methods and techniques you will apply to collect species composition samples. Collect biological data from the predominant species and other species as required. Determine if and what extra assistance will be required to obtain biological data such as sexed length frequencies from the predominant species and halibut viability assessments. Familiarize yourself with the species caught by using the species identification keys and field guides. ***Complete species identification forms for all species seen.***

Inexperienced observers should be especially careful until they are familiar with the way catch is handled. You may need to reduce your sampling effort for the

first few hauls (fewer and/or smaller samples). Document your methods and the reasons for the reduced sampling effort in your Daily Notes. If you are unable to sample a haul for any reason, you must document the circumstances in your logbook. After only a few hauls you will be familiar with the catch handling process and able to decide on a sampling design that is right for that vessel and fishery.

These guidelines are general, and are written for observers going to sea their very first time. These guidelines will also assist prior observers who are beginning a cruise onboard a vessel/fishery type with which they are not familiar.

THE TRIP DATA FORM

Trip data information will allow economists to better define the duration of fishing trips and to understand how fishing trips change as fisheries regulations, markets and institutions evolve. ***All vessel observers complete this form.***

What Is A Trip?

For our purposes, a trip is defined as "any time a vessel that you are assigned to unties from the dock at a port, floating processor, or tramper, and upon completion of that trip the vessel returns and ties up to a dock in a port, at a processor, or a tramper." In the event that an "at sea transfer" takes place, an observer is then asked to start or end the trip at the point of embarking or disembarking the vessel at sea. The port code of 18-Transfer at sea would be used. There may be times where a vessel trip doesn't include any fishing. Even though no fishing took place during your deployment, this still needs to be recorded as a trip. Observers are only responsible for documenting trips for which they were physically on board the vessel.

Trip number must be associated with the cruise and permit number. If an observer is the second on a boat, but becomes lead after a lead disembarks, the trip number must be "1." Trip number information is unique to the cruise number/permit number combination.

Trip Data Form Instructions

Cruise, Permit, Year: Enter the cruise number supplied in your training or briefing. Vessel permits can be found on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13"). ***If data on the Trip Form straddles the end of one year and beginning of the next, write the last two digits of both years, separated by a slash (e.g. "12/13").***

Observer Name/Vessel Name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing. You can continue to use the form until all sample blocks are filled with data; just be sure to enter the correct header information for each new sample.

Page Numbers: Number the pages "Page ___ of ___" starting with page one for each vessel or plant and ending with the total number of pages.

Trip Number: Start with 1 for each vessel when you are the lead or sole observer. ***It is not necessary to skip lines between trips.***

Crew Size: Enter the total number of crew (including the captain) on the vessel at the beginning of each trip (do not include the observer(s)).

Fish in hold at trip start?: Enter "Y" if there are fish or product in the hold at the start of the trip. Enter "N" if the hold is empty.

Port Codes: Use the following table to determine the port code of the port the vessel is leaving from or returning to. Enter the port code in the "Port of Trip Start" or "Port of Trip End" column and leave the latitude and longitude columns for trip position data blank. If the port the vessel is docked at is not listed, or the vessel is docking to a catcher processor/tramper anchored in a bay, use the "Other" code. If you use the "Other" code, you must enter position data in the trip start and/or trip end position columns. For at-sea transfers, use code 18 and enter position data. If the port is not on this list refer to the supplemental information provided to you by FMA.

1-Adak	7-Seward	13-Ketchikan
2-Alitak	8-St. Paul	14-Kodiak
3-Dutch Harbor	9-Yakutat	15-Seattle
4-Juneau	10-Akutan	16-Sitka
5-King Cove	11-Cordova	17-Other
6-Sand Point	12-Homer	18-Transfer @ sea
19-Tacoma	20-Bellingham	

Trip Start Position: If you leave from a port, floating processor, or tramper that is not listed in the table, use the "Other" code and list the latitude and longitude of the port in the trip start position. If you transfer at sea, use code 18 and enter position data. Read the position directly from the ships GPS or ask the captain for the positions. One hundred plus degrees of longitude are assumed so do not enter the "1." Record the position to the level of accuracy available and to the nearest second. Vessels may record positions to the nearest minute, seconds, or hundredths of a minute; in this case you must convert this value to seconds. Use the conversion chart on page A-36 to convert from hundredths of a minute to seconds. Do not enter degree marks. Degree, minute and second entries must be two digits. Complete t the "E or W" column to indicate if the longitude is east or west of the 180 degree line.

Observers are allowed free and unobstructed access to navigation and communication equipment on request.

Start Date: Enter the month and day the vessel departed the port, processor, or tramper. The month and day must be two digits (*e.g,*. 01/01 for January 1st).

Time of Trip Start: Enter the time the vessel left the port, processor, or tramper. If transferring at sea, record the time you boarded the vessel. Use 24 hour time notations, in four digits with no colons. Enter all 2400-hour notations as 0000 hours which starts a new date.

Trip End Position: If you return to a port, floating processor or tramper that is not listed in the previous table, use the "Other" code and list the latitude and longitude of the port in the trip end position. If you transfer at sea, use code 18 and enter the latitude and longitude where the transfer occurred. Follow the same rules as described for "Trip Start Position" when entering the position information.

End Date: Enter the month and day the vessel ties up to a dock at a port, processor, or tramper. The month and day must be two digits (*e.g.*, 01/01 for January 1st).

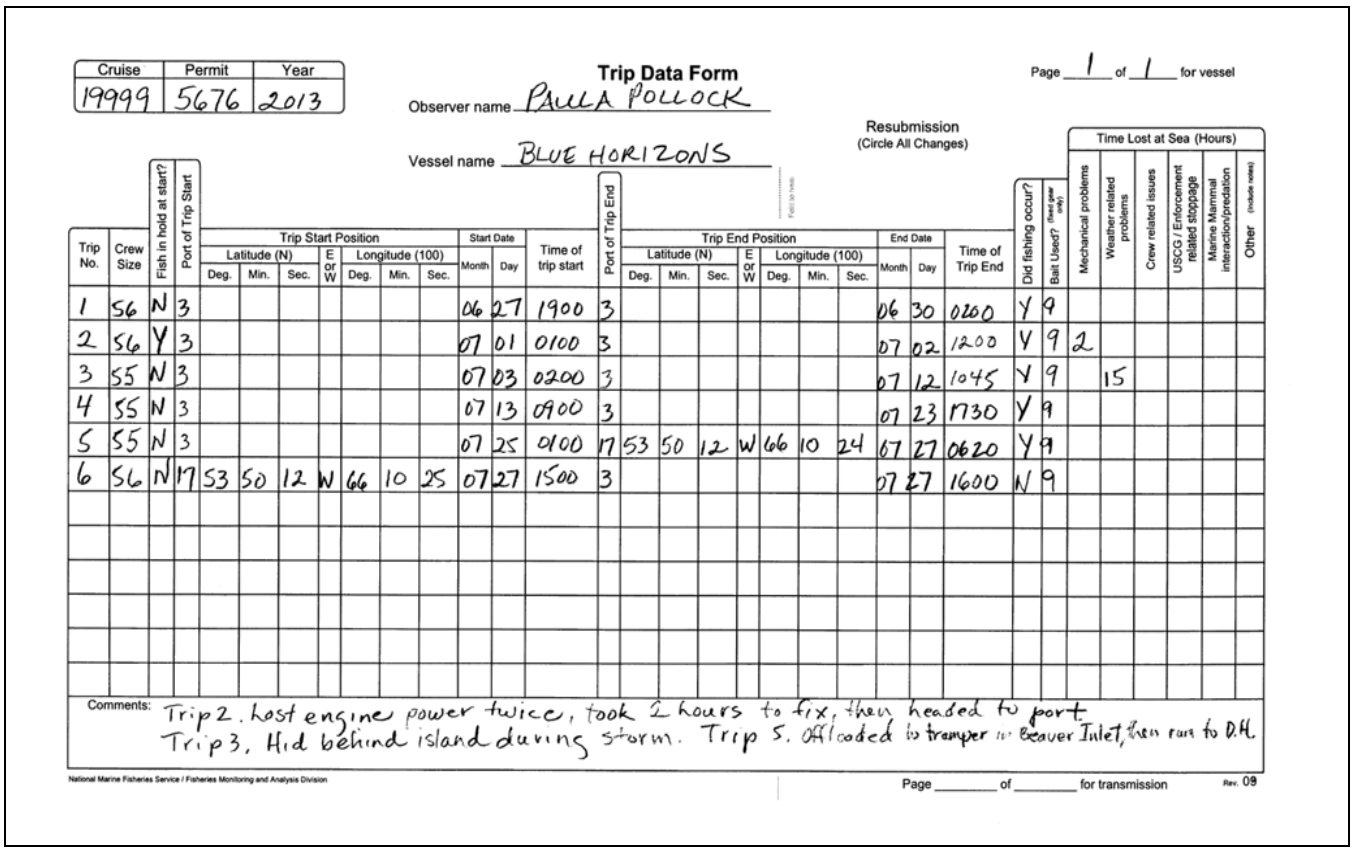
Time of Trip End: Enter the time the vessel ties up to the dock or processor. If transferring at sea, record the time the transfer occurred. Use 24 hour time notations, in four digits with no colons. Enter all 2400-hour notations as 0000 hours which starts a new date.

Did fishing occur?: Enter "Y" if the boat you were assigned to actually fished during the trip. Enter "N" if the vessel did not fish during this trip.

Bait Used: Enter the appropriate code of the bait the vessel is using. An entry is needed even for trips where no fishing occurred; use code 9 - Not Applicable. If your vessel is not using fixed gear (*i.e.*, trawl vessels) enter 9 - Not Applicable. If the vessel is using a bait that is not listed, enter 7- Other. If the vessel is using a combination of baits listed use 8-Combination. When using code 7 - Other or 8- Combination write in the type of bait they were using in the comment section on the bottom of the page.

1-Herring	6-Salmon
2-Squid	7-Other
3-Octopus	8-Combination
4-Pacific cod	9-Not Applicable
5-Sardines	

Time Lost at Sea (Hours): Time lost is any time something unexpected occurs while at sea that changes the ability of the vessel to fish and it has to spend time waiting or repairing something they otherwise wouldn't have done. Time at anchor waiting to offload or to go out to fish ***is not*** time lost at sea. Time at anchor due to weather ***is*** time lost at sea. Enter the total amount of time lost (rounded to the nearest hour) under the appropriate reason. Your preprinted options are Mechanical problem, Weather related problem, Crew related issue (accident or other problems), USCG/ Enforcement related stoppage, Marine Mammal interaction/predation, and Other. If "Other" is used please provide an explanation in the comments section at the bottom of the page. If no time was lost while the vessel was out fishing, leave all time lost columns blank.



Cruise	Permit	Year
19999	5676	2013

Trip Data Form

Observer name PAULA POLLOCK

Vessel name BLUE HORIZONS

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	56	N	3								06	27	1900	3								06	30	0200	Y	9						
2	56	Y	3								07	01	0100	3								07	02	1200	Y	9	2					
3	55	N	3								07	03	0200	3								07	12	1045	Y	9		15				
4	55	N	3								07	13	0900	3								07	23	1730	Y	9						
5	55	N	3								07	25	0100	17	53	50	12	W	66	10	24	07	27	0620	Y	9						
6	56	N	17	53	50	12	W	66	10	25	07	27	1500	3								07	27	1600	N	9						

Comments: Trip 2. Lost engine power twice, took 2 hours to fix, then headed to port.
Trip 3, Hid behind island during storm. Trip 5. Offloaded to tramper in Beaver Inlet, then ran to D.H.

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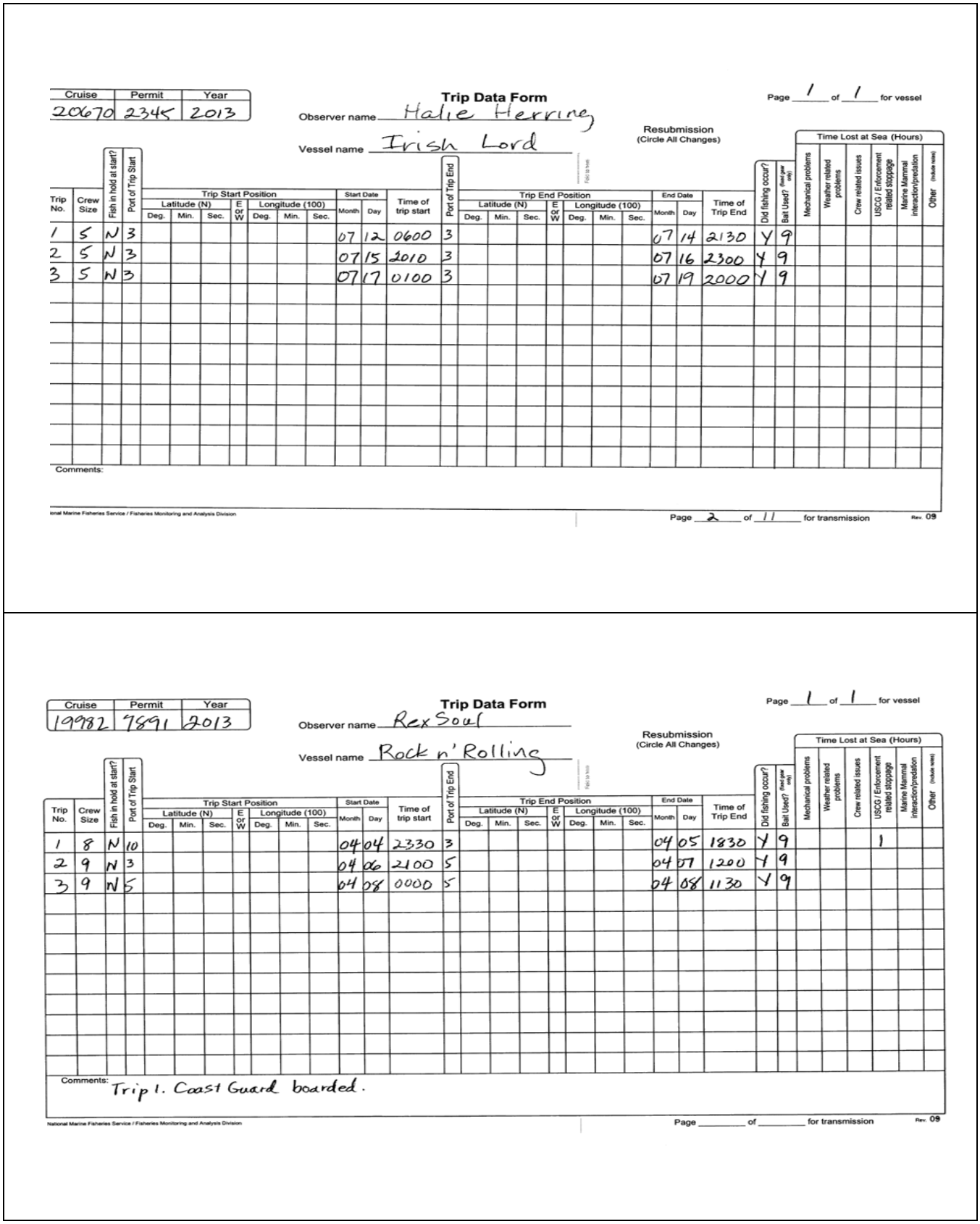
Figure 3-1: Trip Form Examples



Cruise	Permit	Year
20670	2345	2013

Trip Data Form

Observer name: Halie Herring

Vessel name: Irish Lord

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	5	N	3								07	12	0600	3								07	14	2130	Y	9						
2	5	N	3								07	15	2010	3								07	16	2300	Y	9						
3	5	N	3								07	17	0100	3								07	19	2000	Y	9						

Comments:

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Cruise	Permit	Year
19982	7891	2013

Trip Data Form

Observer name: Rex Soul

Vessel name: Rock n' Rolling

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	8	N	10								04	04	2330	3								04	05	1830	Y	9				1		
2	9	N	3								04	06	2100	5								04	07	1200	Y	9						
3	9	N	5								04	08	0000	5								04	08	1130	Y	9						

Comments: Trip 1. Coast Guard boarded.

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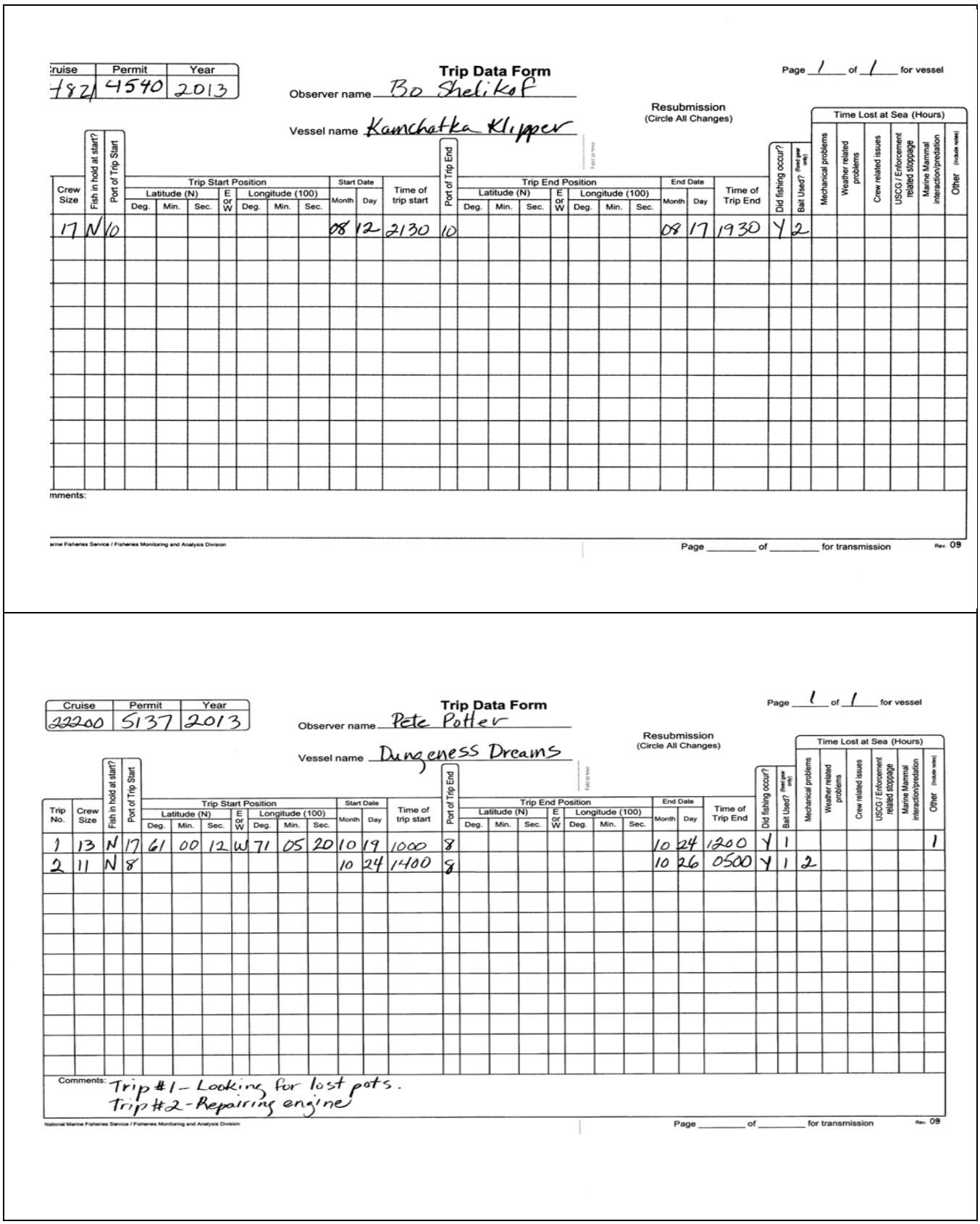
Figure 3-1: Trip Form Examples



Trip Data Form

Cruise: 182 | Permit: 4540 | Year: 2013

Observer name: Bo Shelikof

Vessel name: Kamchatka Klipper

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
17	N	10								08	12	2130	10								08	17	1930	Y	2						

Comments:

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Trip Data Form

Cruise: 22200 | Permit: 5137 | Year: 2013

Observer name: Pete Potter

Vessel name: Dungeness Dreams

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	13	N	17	61	00	12	W	71	05	20	10	19	1000	8								10	24	1200	Y	1						1
2	11	N	8								10	24	1400	8								10	26	0500	Y	1	2					

Comments: Trip #1 – Looking for lost pots.
Trip #2 – Repairing engine

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Figure 3-1: Trip Form Examples

TRAWLER CATCH DATA

Table of Contents

PRIORITIES

- Your safety!
- Verify and record fishing effort information from the vessel’s official NMFS logbook.
- Obtain independent estimates of catch for at least every haul sampled for composition when required.
- Send data to FMA as directed (see “Sending Data” on page 2-32).
- Collect the “goldenrod” copies of the vessel logbook pages.

SAFETY ONBOARD TRAWLERS

It is always your highest priority to stay safe and be aware of your surroundings aboard every vessel. Each vessel is different and fishing situations are constantly changing. There are several concerns specific to trawlers you should be aware of to help ensure your safety.

When sampling on catcher trawlers, you may be working outside and exposed to the elements for long periods of time. In the winter months, you could experience freezing conditions, snow, spray, and high winds. Dress appropriately!

Decks can become very icy, making the process of transferring sampled catch from collection point to weighing station very dangerous. Reduce the amount of fish you put in each container to make the load lighter, ask crew to assist you in transferring the sample, or push/pull the containers of sample along the deck. In rough weather, waves can break over the stern ramp and temporarily flood the trawl deck. Be aware of this possibility when you are out on deck and when determining where to work up your sample. Choose sheltered areas to work if you can.

The Observer Program expects you to be proactive about your own safety by wearing a personal flotation device whenever you are working on deck, even if you think your sample station is not openly exposed to the elements. You should always notify the captain or crew if you plan to be, or think you will be, out on deck alone.

Many observers deployed to small catcher trawlers report that they had to work dangerously close to tight cables and trawl wires because deck space was at such a premium. If you have to work around vessel gear and tight cables, make sure to communicate with the captain about what times are the best for you to be working in those areas. Often, the captain will ask that you wait for the crew to complete the setting or retrieval of gear before going on deck. Requests or suggestions made by the captain pertaining to your safety or safe practices should be listened to and followed!

On catcher processors, sampling is typically accomplished below decks, so weather is less of a contributing factor to one's immediate safety. Catcher processors do have dangerous areas that catcher trawlers don't typically have: sharp processing machinery, belt catch points, and hydraulically operated hatches. There are many instances where crew have lost fingers, hands, arms, feet, or legs from getting caught by pinch points, hatch doors, or in machinery. Pay attention to the warning signs posted around factory machinery. ***Never try to retrieve items that may have become entangled or stuck in the machinery by yourself!*** Let the vessel's crew know about the problem, as there are strict lockout/tagout procedures to ensure that whenever machinery is being worked on or cleaned, it is turned off and locked in the "off" position.

Regardless of what vessel type you are on, your continued safety comes down to recognizing the dangers of the environment you are in. Don't become complacent!

DOCUMENTING FISHING EFFORT

This chapter covers the collection of fishing information for trawl vessels and for motherships taking unsorted codend deliveries. If your vessel is acting as a mothership, please also refer to "MOTHERSHIP DATA COLLECTION" on page 6-1. If the vessel acts as a tender only and does not fish for itself record non-fishing day positions only.

All vessels that carry observers are required by federal regulation to maintain a current NMFS "Alaska Groundfish" logbook. Catcher processors and motherships use the Daily Catch Production Logbook (DCPL) while catcher vessels use the Daily Fishing Logbook (DFL) for daily fishing and processing activities. The captain or assigned crew member must enter details of fishing activities, effort, and catch in the logbook. You will use the logbook to gather the information for the Vessel Haul Form (VHF) and Observer Haul Form (OHF). Under regulation 50 CFR 679.50, observers have the right to inspect and copy the NMFS logbook and all other documentation of fishing effort. See Figure 4-1 for an example of a vessel logbook. Observers also collect copies of the logbook pages; these pages are referred to as the "goldenrod" copies due to their color.

For the VHF you need to obtain the following information from the vessel logbook:

- type of trawl gear used.
- if this haul was CDQ and the CDQ group number.
- date and time of gear deployment.
- latitude and longitude of gear deployment.
- average bottom depth and average gear depth.
- date and time of gear retrieval.
- latitude and longitude of gear retrieval.

In addition, you need to record a code corresponding to gear performance. Gear performance information is not recorded in the vessel logbook. Ask the captain to let you know if there were any problems during the tow or to document this information somewhere for you.

For the OHF you need to obtain the vessel crew's estimate of total catch weight.

Electronic Logbooks

Some vessels are using third-party software to maintain their logbooks electronically. This logbook software captures the same information as the paper versions, and is sent to the Alaska Regional office electronically on a regular basis. Bring a copy of the printout back with you in lieu of a goldenrod copy. You should expect to see electronic logbooks (ELB) on some catcher vessels and on all AFA or pollock CDQ catcher processors. On vessels with flow scales, be sure to check for updates to the vessel estimate at the end of the haul. Request a copy of all revisions made to the ELB. An example of the ELB printout is shown in Figure 4-2 on page 4-4.

Be sure all the information you need to complete your VHF/OHF is recorded on your forms before disembarking the vessel!

Verifying Logbook Information

Before recording anything from the vessel logbook onto your data forms, you must verify that the data reported are accurate. ***If you find that a vessel logbook entry is wrong, determine the correct information for your Haul Forms.*** Document the incorrect data in your logbook, and mention the discrepancy to the captain or person in charge of maintaining the logbook. Please refer your captain to the Region if he or she has questions (see page A-51). Usually, the error will be corrected by the crew member, so you should check the logbook for these changes. It is important that you record the correct information on the Haul Forms even if the logbook entry is never amended. In general, your Haul Forms will match the vessel logbook, with the possible exception of these corrections. Verify the following logbook entries:

Date and Time of Gear Deployment and Retrieval

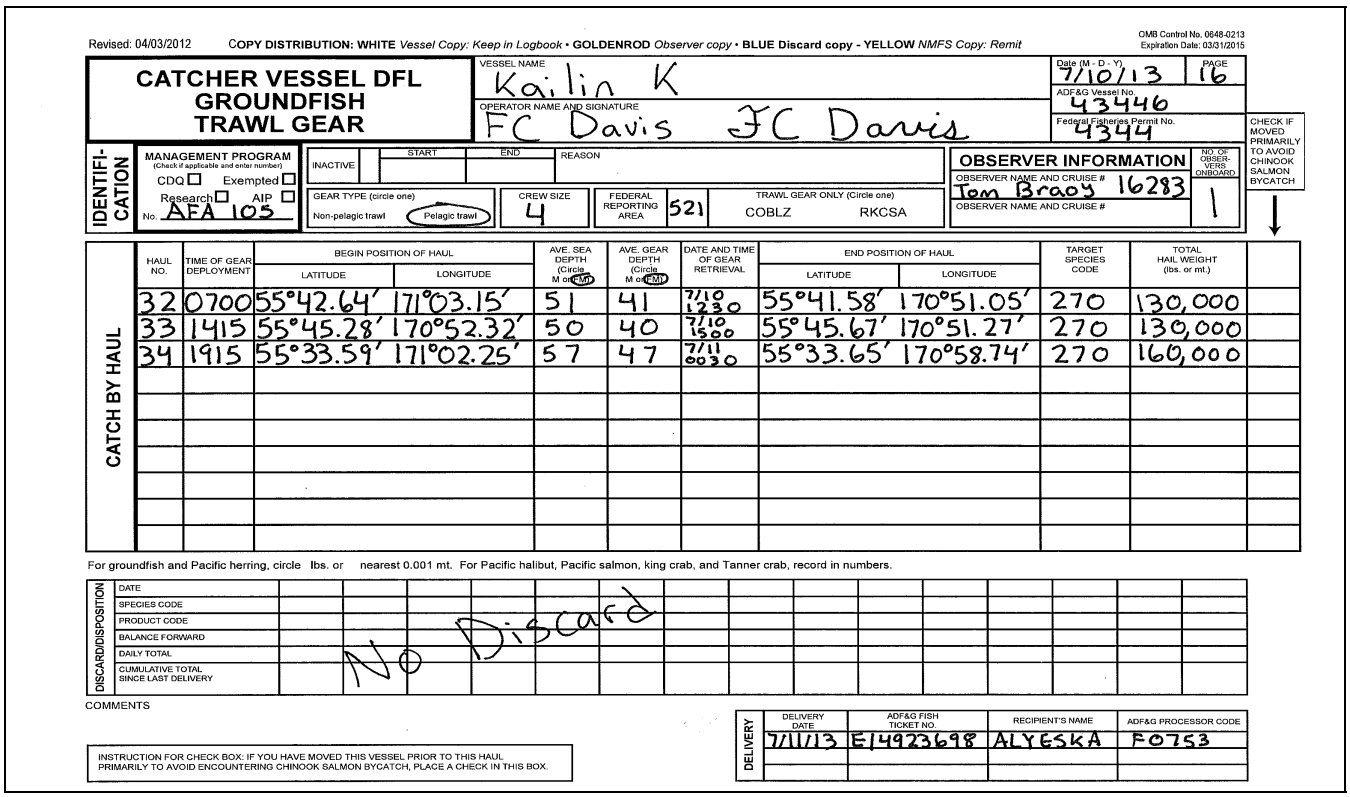
For every haul, record the time the trawl net ***enters the water*** in the 'time of gear deployment' field of the VHF. You must also record the time of gear retrieval for every haul. The time you document should represent when the ***retrieval of trawl gear cable begins***. Make sure the crew is listing the time the net enters the water and leaves fishing depth, not the times the net reaches fishing depth or is pulled on board. Let the officer in charge of the logbook know if incorrect times are listed. If incorrect data continues to be logged, consult NMFS for advice on how to record your haul data.

Times That Do Not Reflect True Fishing Duration

Sometimes a codend is retrieved from fishing depth and then reset to fishing depth without being dumped on deck. A captain may do this to check the contents of the net, or to make a fast or tight turn of the vessel (bringing the net to the surface will prevent the doors from crossing during the turn). When this occurs the net is not actively fishing therefore the start and stop times recorded in the vessel's logbook and on your Vessel Haul Form do not accurately reflect the true duration of fishing effort. ***Not all turns affect fishing duration. If the vessel does a wide turn or makes a turn without hauling back, the net is most likely still fishing and the haul duration was not affected.*** If you suspect the vessel may be running gear in a manner that is affecting the duration, or you are unsure, check with the wheelhouse. List all "fishing duration affected" tows on the VHF with code "9" in the gear performance column. This code provides a good indication of whether the duration is a reliable indicator of fishing time or not. In the comments section of the Vessel Haul Form note the haul number, the reason why the duration was affected, and an estimate of the fishing time lost (if possible). Ask the captain to note in the vessel logbook when the true fishing duration is ***not*** the difference between the start and stop times listed.

Deployment and Retrieval Latitude and Longitude

Deployment and retrieval positions are read from a GPS navigation system in the wheelhouse. The deployment location recorded in the vessel logbook should be the ship's position where the trawl net enters the water. The retrieval position should be the location where the retrieval of trawl gear cable begins.



Revised: 04/03/2012 COPY DISTRIBUTION: WHITE *Vessel Copy: Keep in Logbook* • GOLDENROD *Observer copy* • BLUE Discard copy - YELLOW *NMFS Copy: Remit*

OMB Control No. 0648-0213
Expiration Date: 03/31/2015

CATCHER VESSEL DFL GROUNDFISH TRAWL GEAR

VESSEL NAME: Kailin K
OPERATOR NAME AND SIGNATURE: FC Davis FC Davis
Date (M - D - Y): 7/10/13 PAGE: 16
ADF&G Vessel No.: 43446
Federal Fisheries Permit No.: 4344

IDENTIFICATION
MANAGEMENT PROGRAM (Check if applicable and enter number): CDQ ☐ Exempted ☐ Research ☐ AIP ☐ No. AFA 105
INACTIVE ☐ START END REASON
GEAR TYPE (circle one): Non-pelagic trawl / Pelagic trawl
CREW SIZE: 4
FEDERAL REPORTING AREA: 521
TRAWL GEAR ONLY (Circle one): COBLZ RKCSA

OBSERVER INFORMATION
OBSERVER NAME AND CRUISE #: Tom Brady 16283
OBSERVER NAME AND CRUISE #:
NO. OF OBSERVERS ONBOARD: 1

CHECK IF MOVED PRIMARILY TO AVOID CHINOOK SALMON BYCATCH ↓

CATCH BY HAUL

HAUL NO.	TIME OF GEAR DEPLOYMENT	BEGIN POSITION OF HAUL LATITUDE	BEGIN POSITION OF HAUL LONGITUDE	AVE. SEA DEPTH (Circle M or FM)	AVE. GEAR DEPTH (Circle M or FM)	DATE AND TIME OF GEAR RETRIEVAL	END POSITION OF HAUL LATITUDE	END POSITION OF HAUL LONGITUDE	TARGET SPECIES CODE	TOTAL HAUL WEIGHT (lbs. or mt.)	
32	0700	55°42.64′	171°03.15′	51	41	7/10 1230	55°41.58′	170°51.05′	270	130,000	
33	1415	55°45.28′	170°52.32′	50	40	7/10 1500	55°45.67′	170°51.27′	270	130,000	
34	1915	55°33.59′	171°02.25′	57	47	7/11 0030	55°33.65′	170°58.74′	270	160,000	

For groundfish and Pacific herring, circle lbs. or nearest 0.001 mt. For Pacific halibut, Pacific salmon, king crab, and Tanner crab, record in numbers.

DISCARD/DISPOSITION: DATE, SPECIES CODE, PRODUCT CODE, BALANCE FORWARD, DAILY TOTAL, CUMULATIVE TOTAL SINCE LAST DELIVERY — No Discard

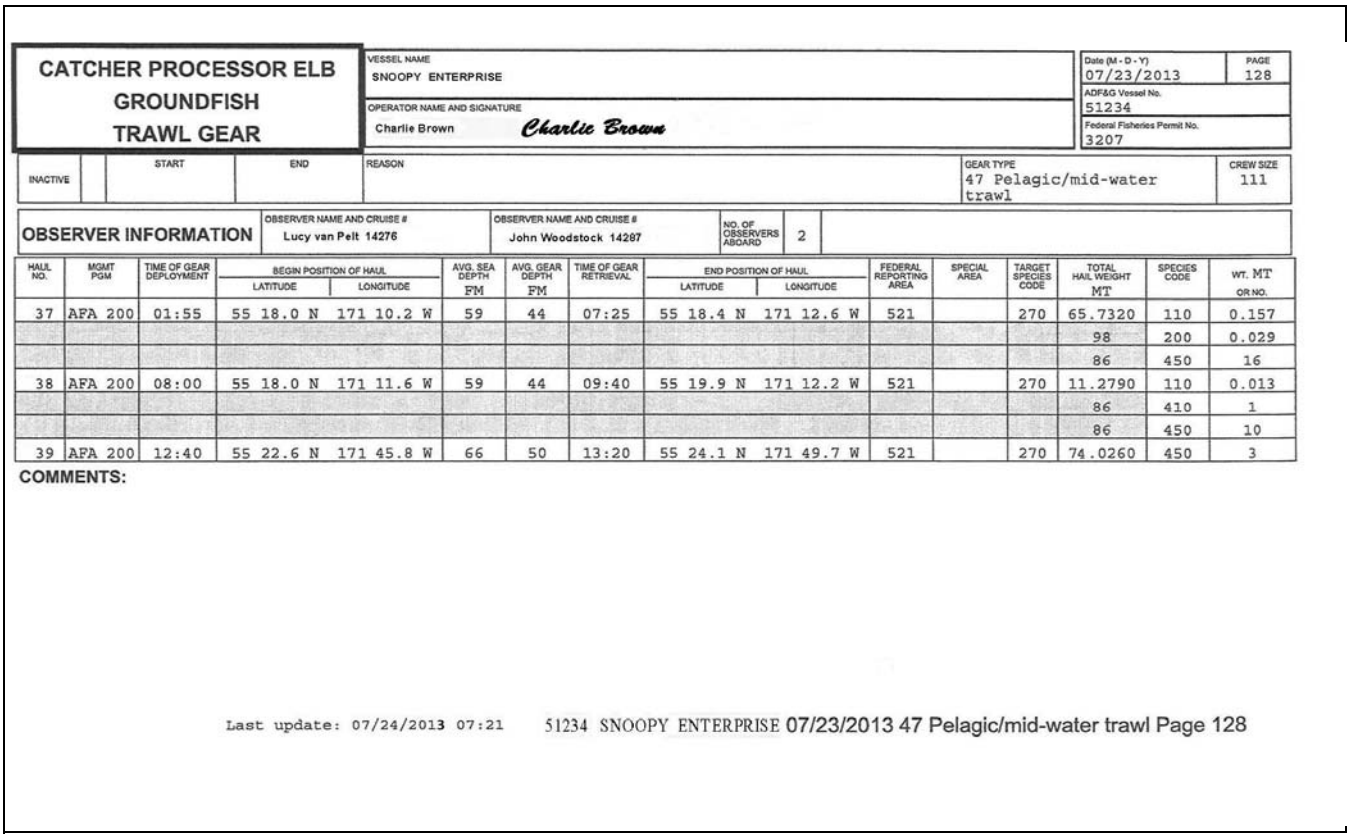
COMMENTS

INSTRUCTION FOR CHECK BOX: IF YOU HAVE MOVED THIS VESSEL PRIOR TO THIS HAUL PRIMARILY TO AVOID ENCOUNTERING CHINOOK SALMON BYCATCH, PLACE A CHECK IN THIS BOX.

DELIVERY

DELIVERY DATE	ADF&G FISH TICKET NO.	RECIPIENT'S NAME	ADF&G PROCESSOR CODE
7/11/13	E/4923698	ALYESKA	F0753

Figure 4-1: Vessel Logbook Example



CATCHER PROCESSOR ELB GROUNDFISH TRAWL GEAR

VESSEL NAME: SNOOPY ENTERPRISE
OPERATOR NAME AND SIGNATURE: Charlie Brown *Charlie Brown*
Date (M - D - Y): 07/23/2013 PAGE: 128
ADF&G Vessel No.: 51234
Federal Fisheries Permit No.: 3207

INACTIVE ☐ START END REASON
GEAR TYPE: 47 Pelagic/mid-water trawl
CREW SIZE: 111

OBSERVER INFORMATION
OBSERVER NAME AND CRUISE #: Lucy van Pelt 14276
OBSERVER NAME AND CRUISE #: John Woodstock 14287
NO. OF OBSERVERS ABOARD: 2

HAUL NO.	MGMT PGM	TIME OF GEAR DEPLOYMENT	BEGIN POSITION OF HAUL LATITUDE	BEGIN POSITION OF HAUL LONGITUDE	AVG. SEA DEPTH FM	AVG. GEAR DEPTH FM	TIME OF GEAR RETRIEVAL	END POSITION OF HAUL LATITUDE	END POSITION OF HAUL LONGITUDE	FEDERAL REPORTING AREA	SPECIAL AREA	TARGET SPECIES CODE	TOTAL HAUL WEIGHT MT	SPECIES CODE	WT. MT OR NO.
37	AFA 200	01:55	55 18.0 N	171 10.2 W	59	44	07:25	55 18.4 N	171 12.6 W	521		270	65.7320	110	0.157
													98	200	0.029
													86	450	16
38	AFA 200	08:00	55 18.0 N	171 11.6 W	59	44	09:40	55 19.9 N	171 12.2 W	521		270	11.2790	110	0.013
													86	410	1
													86	450	10
39	AFA 200	12:40	55 22.6 N	171 45.8 W	66	50	13:20	55 24.1 N	171 49.7 W	521		270	74.0260	450	3

COMMENTS:

Last update: 07/24/2013 07:21 51234 SNOOPY ENTERPRISE 07/23/2013 47 Pelagic/mid-water trawl Page 128

Figure 4-2: Electronic Logbook Example

If you notice large changes between deployment and retrieval positions, or between one haul's position and the next, ask the captain if these distances are correct.

Large changes in position are those more than two degrees of latitude or longitude in the same day, or those more than six degrees of latitude or longitude over a two day period. You should occasionally check during haulbacks that the latitude and longitude listed in the logbook match that on the GPS display.

Vessel Estimates of Catch

The vessel operator must make their own estimate of the weight of the catch. This estimate is often referred to as a hail weight. By regulation, the catch weight must be entered into the vessel logbook within two hours of gear retrieval or within two hours of completion of weighing the catch if the vessel is required to weigh catch on a NMFS approved scale. For vessels required to weigh catch on a NMFS approved scale the scale weight must be entered for the vessel estimate. Be sure to check if the captain records a hail weight and later replaces it with the flowscale weight. During your first few days onboard, ***ask the captain how he or she makes their vessel estimates and document the response in your logbook.***

The vessel operator may record this weight in either metric tons or pounds, ***but you must record it in metric tons on your OHF. If you need to convert the logbook value from pounds to metric tons, show this calculation in your logbook*** in the Vessel Estimate Conversion Calculations section; see Figure 4-3.

TARGET SPECIES CODE	ROUND CATCH WEIGHT		
	TOTAL HAUL WEIGHT (Circle one (lb) or MT)	IR/IU SPECIES	
		SPECIES CODE	(Circle one (lb) or MT)
141	45,000	270	500
		110	800
		SNF	1100

The CP trawl vessel logbook instructions read that, in addition to the total catch weight estimate, the vessel operator must record a separate entry for catch estimates of species managed under the IR/IU regulations (see page 5-34). Make sure that the vessel operator's documented ***total estimate*** of catch includes any IR/IU species caught.

Vessel Estimate Conversion Calculations

Vessel Name: Hali Herring

Haul Number	Vessel Estimate in Pounds	Multiplied by 0.4536 kgs/lb (conversion factor)	Equals Vessel Estimate in Kilograms	Rounded Vessel Estimate in MT (to nearest hundredth)
164	14620	x 0.4536 kgs/lb	6631.632	6.63
165	23898	x 0.4536 kgs/lb	10840.1328	10.84
		x 0.4536 kgs/lb		

Figure 4-3: Documenting Conversion Calculation of Vessel Haul Estimate in Pounds to Kilograms

OBSERVER ESTIMATES OF CATCH WEIGHT

Independent observer estimates of catch weight are made on most trawlers. The exception is pollock catcher trawlers delivering to a processing plant or floating processor, where an independent observer estimate is not required.

Observer estimates of catch weight must be ***unbiased and made independently.*** You must make estimates for as many hauls as possible. There are three methods for determining total catch weight:

1) **Weighed ("W") estimate** - entire catch is weighed using the observer scales or using the vessel's flow scale.

2) **Bin ("B") estimate** - weight is calculated using a bin volume and density.

3) **Codend ("C") estimate** - weight is calculated using a codend volume and density.

You can use any of these three methods on a vessel, depending upon catch size, composition, and vessel configuration. Observer estimate methods are indicated by the letters "B," "C," or "W" in the "B, C, or W" column on the OHF (see "Completing the OHF on Trawl Vessels" on page 4-16).

Weighed ("W") Observer Estimates

Independent weighed estimates are obtained using either: 1) NMFS issued observer scales, 2) a motion compensated platform (MCP) scale, or 3) a certified motion compensated flow scale. To be used for catch weight estimates, flow scales and motion compensated platform scales must pass daily tests for accuracy. For small hauls under about 500 kilograms, you could

feasibly use your observer scales or MCP scale to weigh the entire catch. For larger hauls, weighed estimates would have to be by certified flowscale.

Motion compensated flow scales record the weight of catch as it runs over the scale. If you are going to use the flow scale for the observer estimate, the crew must test the scale every 24 hours. You may use the flow scale for deriving an observer estimate ***only*** if it has been tested for that day, has passed the test, and the test was witnessed by an observer. Vessel personnel must complete the flow scale test form. Your signature on the form indicates that you witnessed the flow scale test. Do not record numbers on the form, perform any calculations for the flow scale test or form, and do not assist vessel personnel with weights or weighing items during the flow scale test. Figure 4-4 on page 4-7 shows an example of a Daily Scale Test form. For more information on flow scales, see "Flow Scale Testing" on page 2-26.

All catcher processor trawlers fishing in the BSAI or the Central GOA rockfish fishery are required to use flowscales.

If you are on a vessel that is required to use a certified motion compensated flow scale, you must use the flow scale for the observer estimate and you should not take estimates using any other method.

Large Items

Occasionally marine mammals (or parts of marine mammals) or large inorganic items (such as a boulder or 55-gallon drum) are caught by trawlers. To prevent the weight of mammals or other large objects from being misinterpreted by management as fish weight, do not include the weight of the item in the Observer Estimate. If you are making a codend or bin volume estimate, subtract the volume of the large item from your calculated volume of the codend or bin.

The weight of organisms other than marine mammals that are too large to enter the live tanks and go over the flow scale ***must be included in the observer estimate.*** If possible, obtain an actual weight using the MCP or hanging scales, and add this weight to the flow scale weight. If the organism is too large to weigh on the observer scales, estimate the weight of the organism and add the weight to the final flow scale weight for the haul.

Volumetric Observer Estimates

The way the catch is handled on a vessel will help you determine which catch estimation method is most applicable. Calculations for observer estimates require both a volume and a density value for the catch. On catcher only vessels, the codend may be emptied directly onto the trawl deck for sorting, or into below-deck refrigerated seawater (RSW) tanks. Observers often find that estimates by codend are the most feasible in these cases. Estimates by bin volume may work equally well if catch is dumped into the trawl alley. On catcher processors when no flow scale is used, the catch is often held in the codend before being dumped into a tank or bin. In these instances, volumes can be determined for the filled codend, or the filled bin.

On some vessels, codends are brought up in portions and dumped incrementally onto the deck or into tanks. Obtaining weight estimates in these situations can be challenging. If making codend estimates, try to mark the bag with string or other material so you don't measure and account for an area twice. Work with the crew to see if they can assist you in measuring and keeping track of codend sections. If the crew are dumping catch incrementally into bins, ask if they can completely empty the bin before adding more catch from the codend.

Consider the areas where fish will be held before processing and delivery: the codend, trawl alley, checker bins and/or live tanks. Determine which container will be safest to measure, and the easiest to accurately measure.

To calculate the observer estimate, multiply total volume of catch by a density factor (see "Determining Density" on page 4-10). The volume, density, and the observer estimate are recorded on the Observer Haul Form.

Record the measurements you take for each haul on your Deck Form. All dimensions, calculations, and methods must be noted in your logbook in the Volumetric Catch Estimate Calculations section. You must document and explain your estimation methods in the Daily Notes pages. When making volumetric estimates of the total catch, keep the following in mind:

Record of Daily Scale Tests

Vessel Name: Pacific Rover Date: 06/01/13
Time test started: 12:13

I. Weigh Fish on Observer Platform Scale

Basket #	Wt Fish + Basket (kg)	Basket #	Wt Fish + Basket (kg)	Basket #	Wt Fish + Basket (kg)	Basket #	Wt Fish + Basket (kg)
1	46.83	8	43.29	15		21	
2	40.91	9	41.16	16		22	
3	36.22	10	40.32	17		23	
4	38.93	11	37.86	18		24	
5	45.25	12	39.22	19		25	
6	40.01	13		20		26	
7	32.64	14		Total weight all fish+baskets			482.64

II. Calculate Percent Error of Flow Scale

Scale Indicator: Begin Test: kg
End Test: kg

Total weight fish and baskets (kg)	- Weight of Baskets	0 Platform scale weight of fish	Weight of Fish on Flow Scale (kg)	Error (B) - (A)	% Error = (C) ÷ (A) x 100
482.64	50.76	431.88 (A)	433.62 (B)	1.74 (C)	0.40288%

III. Sea Conditions (Beaufort Scale) at Time of Scale Test (Circle One):
0 1 (2) 3 4 5 6 7 8 9 10 11 12

Signature of vessel operator
I observed this test and to the best of my knowledge it was conducted in accordance with 50 CFR 679.28 (b)(3)
Signature of observer

INSTRUCTIONS

1. Collect approximately 400 kg of fish in baskets and weigh the baskets of fish on the platform scale. Record the weight of each basket of fish (basket plus fish) in Section I.
2. Record the total weight of all baskets plus fish in the first box in Section II.
3. Record the weight of the baskets in the second box. Subtract the weight of the baskets from the total weight of fish plus baskets to determine the weight of the fish only, record this weight in the third box in Section II. This is the platform scale weight of the fish (A).
4. Record the weight displayed on the flow scale before and after the test fish are weighed.
5. Weigh the fish from the baskets on the flow scale. Record the weight in the fourth box of Section II (B).
6. Calculate error of flow scale by subtracting the platform scale weight (A) from the flow scale weight (B). Record the error (C) in the fifth box of Section II.
7. Calculate percent error by dividing the error (C) by the known weight of the fish (A) and multiplying by 100. Record this information in the last box of Section II. The scale is weighing within 3 percent error if the result is between -3.0% and +3.0%.
8. Record Beaufort Scale sea conditions at time of test.
9. Have form signed by vessel operator and observer.

Figure 4-4: Flow Scale and Record of Daily Scale Tests

Observer estimates cannot be made by guessing the weight of the catch or by using numbers provided by the crew. They must be calculated using actual measurements taken by you.

- You do not make volumetric estimates on CPs or motherships that are required to use a certified, tested motion compensated flow scale, regardless of whether the flow scale has passed the daily test. (Amendment 80 vessels in the flatfish fishery operating in the Gulf of Alaska may be exempt from using their flowscale. Consult with NMFS staff before embarking on these vessels.)
- On catcher vessels, make volumetric estimates of checker bins, trawl alleys, codends or codend sections (add the sections together for a total volume as necessary).
- The formula for determining catch weight using volume and density is:

$$\text{volume } (m^3) \times \text{density } (kg/m^3) = \text{catch weight } (kg)$$

- Record your total catch weight estimates on the OHF, even if you are not totally confident about the accuracy of the estimate.

- If you find that none of the methods suggested will provide an accurate independent catch estimate, contact NMFS staff as soon as possible for assistance.

Observer Estimates by Bin ("B") Volumes

The steps in making a volumetric estimate of live tanks, trawl alleys, or checker bins are:

1. **Measure the area of the empty bin.** Many fish bins and tanks are irregularly shaped and need to be measured as several independent sections. To do this, sketch out the bin and visually break up the floor area into regularly shaped sections that can be measured easily. Figure 4-5 shows how an unusually shaped trawl alley was divided and measured to calculate a floor area.

2. **Determine the appropriate formulas for each area of the bin.** Consult "Abbreviations, Conversions, and Formulas" on page A-17 and select the appropriate volumetric formula for each separate shape. Each mathematical formula identifies what dimensions are measured (length, width, height, short radius, diameter, etc.). The sum of the areas for all the sections yields the total area of the bin.

3. **Measure the height of catch in the bin**. The height of the fish in the bin provides the final dimension needed to obtain the volume of the catch. If you are using a fish bin, there may be permanent marks that you can use for a depth measurement. Be sure to verify the accuracy of these marks before you rely on them for your own measurements. If the bin is unmarked, ask permission to mark the bin with height markers. The vessel crew may be able to provide you with paint or other permanent writing material. Replace marks as they erode over time. The bin or tank should be marked on all four sides and all markings should be visible. Marks should be in increments of no more than 10 cm. On some vessels, you can use a stick marked in centimeter increments to measure the depth of fish in the bin or trawl alley.

Volumes calculated using just one fish height are potentially biased. Take several measurements distributed within the container and average these!

4. **Calculate and record bin volume and catch weight**. Record height measurements on your Deck Form and record all area and volume calculations in your logbook. When you take multiple measurements for one dimension (*e.g.*, height) use an average in your final volume calculation. Make sure that all of your measurements are as precise as possible and describe your methods in your logbook.

Potential Bin Volume Biases

The following are factors that may affect the accuracy of your bin volumetric estimates:

- tanks may be enclosed such that the depth of fish cannot be determined;
- tanks may hold fish *and* an indeterminate amount of water;
- tanks may be too difficult to measure because of many irregular shapes;
- level of fish may be too shallow to obtain an accurate reading.

If you notice any of the potential biases listed, observer estimates by codend volume would be a better alternative. Document all methods used for obtaining independent observer estimates in your logbook. Be sure to include descriptions of any problems you encountered.

Observer Estimates by Codend ("C") Volume

Always remember that safety is your first concern when measuring a codend. Codends tend to slide and roll. ***Never enter the trawl alley to take measurements.*** Ask crew members for assistance; their help will make the task easier and safer. Follow the steps listed below to take an accurate codend measurement.

1. **Determine the appropriate geometric shape(s)**. Decide on the appropriate formula(s) to use based on the shape of the codend. Using the formula, determine which dimensions you need to measure in order to obtain a volume. Refer to page A-17 for the formulas required to calculate volumes of various shapes.

2. **Measure sections of the codend using actual measurements and/or reference points**. Take height and width measurements from several segments to obtain the average height and width for the net. You may want to acquire a long stick, or similar item, and mark it for use as a height gauge. When sighting across

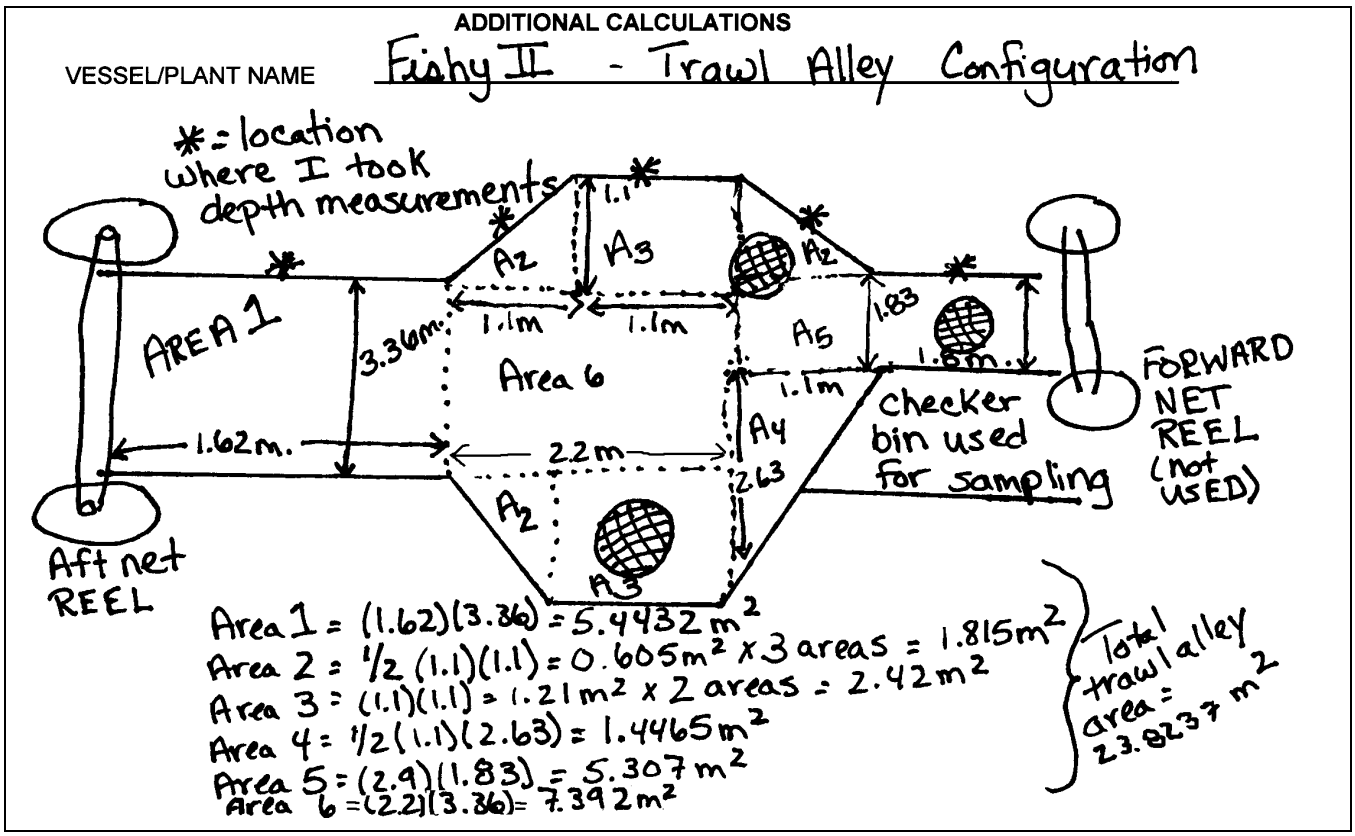


Figure 4-5: Calculating Area of an Irregular Shaped Trawl Alley

the net for a height, your eyes should be level with the top of the net. If the net is large, moving around dangerously, or brought aboard in segments, using pre-measured areas of the deck is a safer alternative for measuring codends.

- **Pre-measure the deck, if you are using reference points**. Measure the length of the trawl alley and place marks along its length to determine the codend length.
- **Measure structures on the deck that you can use as a gauge for estimating dimensions of the codend.** Make easily read marks on deck structures in increments of 1/10 to 1/4 meters. Verify the measurements of any marks left by previous observers before using them.
- **The net outline does not often line up nicely with pre-measured deck markings.** You should determine the difference in distance between any marks and where the codend ends. Actual measurements from the pre-measured marks are preferred over visually estimated distances.
- **Measure the width of the entire trawl alley.** If the codend does not fill the entire alley, measure the distance between the codend and the trawl alley walls. This can be done using the tape measure or by pre-measuring your clipboard, a stick, or planks in the deck. Subtract this measurement from the total trawl alley width to determine codend width.
- **If the codend is the same height as your shoulder, head, arm, or other parts of your body, use these heights to gauge codend height**. This is the least preferable method of obtaining a measurement because it isn't as precise as one obtained with a measuring stick. Use this option if you are unable to take more precise measurements.

3. **Record dimensions, calculations, and volumetric formula.** In your logbook, record the methods, dimensions and calculations used in obtaining your volumetric estimates. Record the calculated volume in cubic meters. Document all calculations used to obtain the total catch weights in kilograms, including density calculations when appropriate.

Occasionally, large items like boulders are caught. Do not include these items in your estimates of catch. If the item is in the codend, calculate the volume of the item and subtract it from your codend volume.

Measuring Large Codends

Codends can sometimes be longer than the trawl deck. These codends must be emptied in several sections. To determine the codend volume in this situation, measure each codend section as it is brought on board. Use the reinforcing cables or "expansion straps" around the circumference of the filled codend to visually divide it into sections. Determine a volume for each segment of the net and add these together for a total volume. ***Each section must be independently measured! Do not apply a predetermined or constant volume to the number of codend segments. see Figure 4-6 on page 4-11 for an example of the expected level of documentation.***

Determining Density

Once you have obtained a volumetric estimate of the catch, you must calculate the weight of the catch. To do this, you need to multiply the catch volume by a density. Density should be expressed in kilograms per cubic meter. Multiply the density by a codend or bin volume to calculate the catch weight estimate. Densities are either prescribed, or calculated.

Prescribed Densities

If the catch consists of ***50% or more pollock,*** apply a density of 980.00 kg/m³ when using bin volume, or a density of 1020.00 kg/m³ when using codend volume.

Calculated Densities.

- If you are calculating density, ***you must take a density sample whenever there are significant changes in species composition between hauls.***
- If catch composition is relatively constant, ***you must take density samples at least once within each 24 hour period.***

To calculate density, measure both the volume and weight of an ***unsorted*** sample of catch. Choose a container that holds 500 kgs or less and has a volume that can be calculated. Oil drums or plastic garbage cans hold about 300 kg and are excellent density containers. A plastic tote, filled part way, is also excellent for calculating density estimates. As a last resort, use ***four or more*** observer baskets for the density sample. Refer to Figure 4-7 when using the Observer Program's standard observer basket to obtain density estimates.

<u>To calculate density:</u>

1. Determine the volume of your container by measuring it using the same methods you would to measure the volume of fish in a bin.

   - If you are using observer program issued observer baskets, you must fill them with unsorted catch to the level indicated for each basket type and use the volume shown for each basket type in Figure 4-7 on page 4-12.

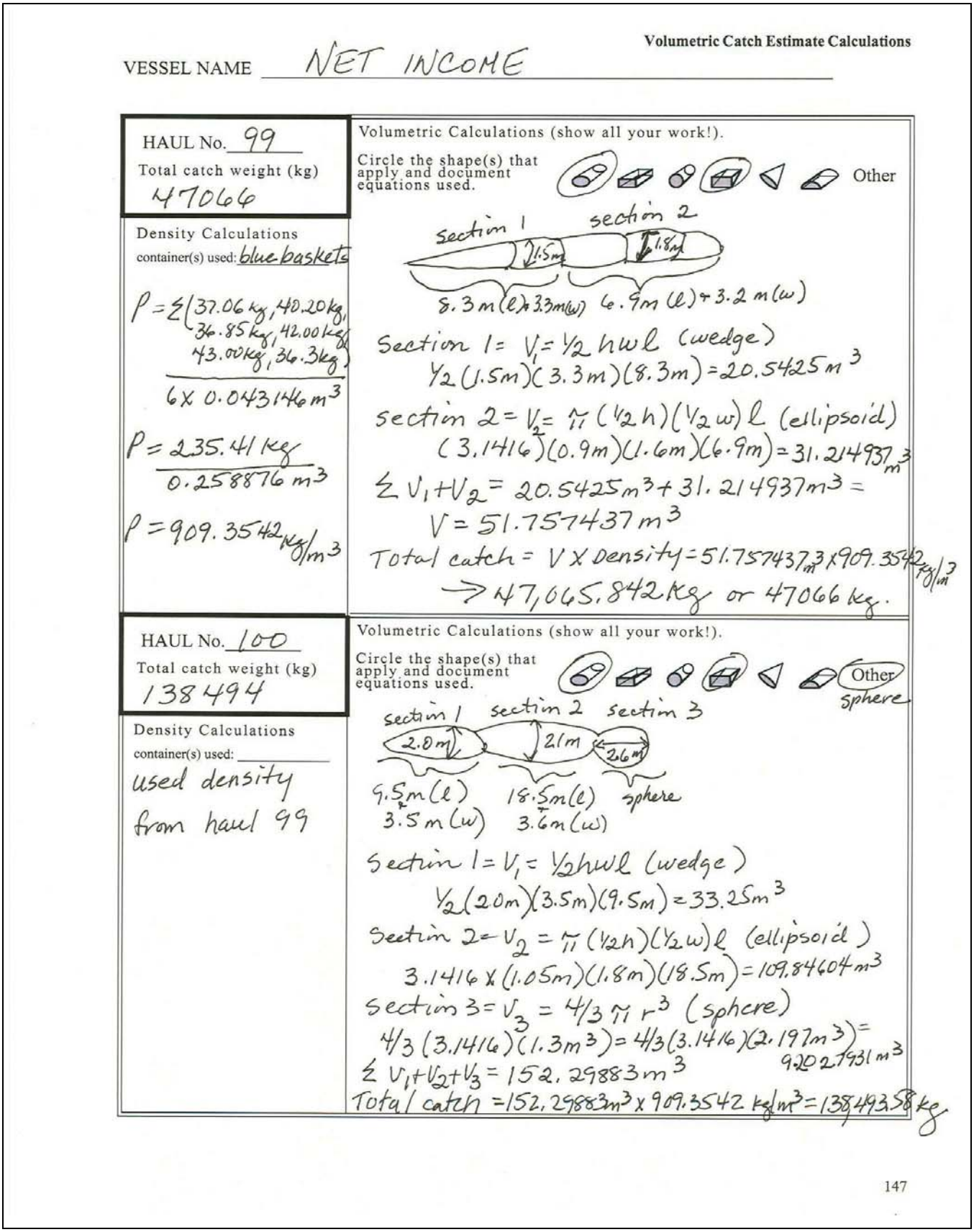
2. Fill the container with randomly selected unsorted catch. In many instances it is easiest to use your species composition sample. Settle or arrange the fish to minimize interstitial space.

3. Fill your containers consistently to the same level or measure the height of the catch in your containers. Record the height value on your Deck Form. If you are using your observer baskets for density, be sure to fill them to the level shown Figure 4-7 on page 4-12. This level corresponds with the standard volume given in Figure 4-7.

Some vessels have blue baskets made by another company. These are smaller than Observer Program issued baskets and should not be used to determine densities!

4. Weigh everything in your density sample. Record this weight on your Deck Form. If you are using observer baskets to calculate density, you ***must*** weigh ***a minimum of 4 basket*****s** ***filled to the bottom of the handle*** or 200 kg of unsorted catch (if using an alternate bin) for the total weight of your density sample.

5. Use the density formula on page 4-12 to calculate density. Document all calculations in your logbook!



Volumetric Catch Estimate Calculations

VESSEL NAME NET INCOME

HAUL No. 99
Total catch weight (kg)
47066

Density Calculations
container(s) used: blue baskets

$\rho = \Sigma(37.06\,kg, 40.20\,kg, 36.85\,kg, 42.00\,kg, 43.00\,kg, 36.3\,kg)$
$6 \times 0.043146\,m^3$

$\rho = 235.41\,kg$
$0.258876\,m^3$

$\rho = 909.3542\,kg/m^3$

Volumetric Calculations (show all your work!).

Circle the shape(s) that apply and document equations used. Other

section 1 section 2

1.5m 1.8m

8.3m (l) + 3.3m (w) 6.9m (l) + 3.2 m (w)

Section 1 = $V_1 = \frac{1}{2}\,h\,w\,l$ (wedge)
$\frac{1}{2}(1.5m)(3.3m)(8.3m) = 20.5425\,m^3$

section 2 = $V_2 = \pi(\frac{1}{2}h)(\frac{1}{2}w)l$ (ellipsoid)
$(3.1416)(0.9m)(1.6m)(6.9m) = 31.214937\,m^3$

$\Sigma V_1 + V_2 = 20.5425\,m^3 + 31.214937\,m^3 =$
$V = 51.757437\,m^3$

Total catch = V x Density = $51.757437\,m^3 \times 909.3542\,kg/m^3$
$\Rightarrow 47{,}065.842\,kg$ or 47066 kg.

HAUL No. 100
Total catch weight (kg)
138494

Density Calculations
container(s) used: _____
used density
from haul 99

Volumetric Calculations (show all your work!).

Circle the shape(s) that apply and document equations used. Other sphere

section 1 section 2 section 3

2.0m 2.1m 2.6m

9.5m (l) 18.5m (l) sphere
3.5m (w) 3.6m (w)

Section 1 = $V_1 = \frac{1}{2}hwl$ (wedge)
$\frac{1}{2}(2.0m)(3.5m)(9.5m) = 33.25m^3$

Section 2 = $V_2 = \pi(\frac{1}{2}h)(\frac{1}{2}w)l$ (ellipsoid)
$3.1416 \times (1.05m)(1.8m)(18.5m) = 109.84604\,m^3$

Section 3 = $V_3 = \frac{4}{3}\pi r^3$ (sphere)
$\frac{4}{3}(3.1416)(1.3m^3) = \frac{4}{3}(3.1416)(2.197m^3) =$
$9.202.7931\,m^3$

$\Sigma V_1 + V_2 + V_3 = 152.29883\,m^3$

Total catch = $152.29883m^3 \times 909.3542\,kg/m^3 = 138493.58\,kg$

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Figure 4-6: Measuring Large Codends (example of expected level of documentation)

Densities must be taken from unsorted catch. Settle or arrange fish to minimize interstitial spaces. Measure the containers you use for density carefully!

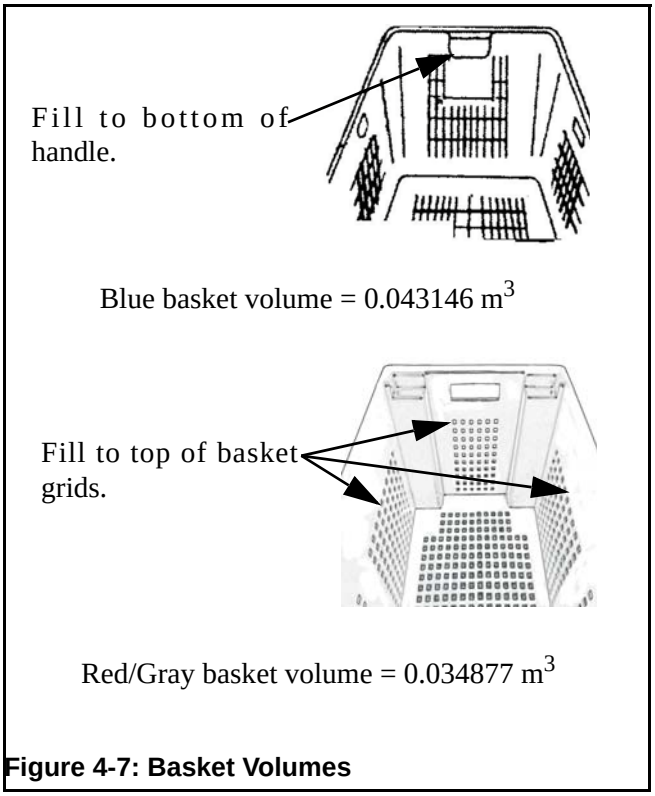


Figure 4-7: Basket Volumes

density (kg/m³) = wt. of sample (kg) ÷ volume of sample (m³)

Dumping Partial Codends

Occasionally a vessel will dump a partial codend before bringing it on deck, preventing access to the entire catch. In these cases, visually estimate the amount of catch that was discarded. Add this value to the observer estimate calculated for the accessible portion of catch.

Use reference marks or actual measurements when possible to obtain the estimate of the discarded portion. If this is not possible, use your best judgement and ask the captain or crew to help estimate the total amount discarded. Document the situation in your logbook. Include why part of the net was discarded and describe the method used for estimating the discarded catch.

GOA Catcher Trawler Catch Estimates

It is generally advisable to use codend measurements to estimate catch volume in these fisheries. Keep in mind that the deck layout may be complicated and access to the codend to make measurements may be dangerous. Work with the captain and enlist the crew's help early on to explain your expectations and to receive their suggestions to help you obtain codend measurements. Bin volume measurements are often not an option on these boats due to low catch volume. Use your baskets for making density estimates. Using a checker bin for densities can be challenging as the sample size is often too small compared to the size of the bin making the depth of fish reading inaccurate.

DISCARD ESTIMATES

Observers must make an independent estimate of discards for all sampled hauls. Discard information for sampled hauls is collected in conjunction with percent retained data. Fisheries managers are able to quantify discards at both the vessel and fleet level using observer discard estimates.

Discards on CPs and Non-Pollock CVs

On all catcher processors and non-pollock catcher vessels, you must record discard for sampled hauls, but you do not need to do so for unsampled hauls. On these vessels, record discard for unsampled hauls only if you can reliably account for them. Record the discard estimate on the OHF. The discard estimate is always included in the observer estimate or vessel estimate recorded on the OHF. For example, your observer estimate is 35000 kg of which you estimate 10000 kg was discarded. On the OHF you record a discard of 10000 kg and observer estimate of 35000 kg.

Discards on Pollock CVs

In the pollock shoreside fishery, fisheries managers add your discard estimates to the delivery weight to determine the total catch by trip for a vessel. For this reason, discard must be estimated for all hauls on a pollock catcher vessel. ***Do not include the discard estimates from your OHF in your delivery weight.***

If you are on a pollock catcher vessel, you must document any discards for all hauls, whether sampled or unsampled.

Discard Estimate Methods

The process of estimating total discards differs between catcher vessels and catcher processors. Regardless of the vessel type, ***the time spent on this information should be minimal and obtaining a discard estimate should only take a few moments***. On catcher vessels, discards are generated on deck, where you can see all the fish at one time. On catcher processors, discard can occur on deck or anywhere in the factory. Familiarizing yourself with the flow of fish on the vessel will help you to recognize areas of potential discard. If vessel personnel sort out and discard undesirable fish, or if portions of the catch are dumped overboard, you must estimate the total weight of these discards. Account for catch discarded in one of the following ways:

1. An actual measurement of the discard contributes the best information, but this method may not be feasible on your vessel type. If the discards are few, try to weigh everything using your observer scales. If you cannot do so, consider the other options discussed here.

2. Volumetrics may be used to determine a discard estimate. If the vessel retains all the discard in the alley or checker bin, the volume of this discard, multiplied by a density, will yield an estimate. Using volume and density is also a good method when whole or partial codends are dumped overboard. When you use volumetrics for determining a discard estimate it is acceptable to use known references rather than actual measurements.

3. A simple visual estimate is the easiest method of obtaining an estimate of discards. Experience with methods 1 and 2 will help you to make more accurate visual estimates. Using visual cues such as how many baskets of discards a sample generated can help you to quantify what you are seeing. For example, if all your samples resulted in one basket of discards (approximately 40 kg), and those samples were about 1/100th of the entire haul, you can assume there were about 100 baskets of total discards, or about 4000 kg.

You can refer to the discard information recorded in the vessel logbook to verify your independent observations, but ***do not use these entries to provide discard data!*** Refer to “Estimating Percent Retained” on page 5-33 for further discussion of estimating percent retained and discard on trawlers.

RECORDING VHF AND OHF DATA

All calculations must be recorded in your logbook. In addition, you must record the methods used to determine independent observer estimates and your justifications for using these particular methods. Keep accurate, complete records throughout your deployment! This will enable you to provide staff with pertinent cruise details at your debriefing interview. ***You are responsible for your work and must be able to recall all methods and techniques used to collect your data.***

Completing Haul Forms on Trawl Vessels

In addition to the information captured in your logbook, you must complete a summary of fishing effort and total catch. This information is recorded on the VHF and OHF.

If you are on a vessel that fishes both pelagic and non-pelagic gear, you must maintain two sets of VHF and OHF forms, one for each gear type for the trip.

If you are on a vessel equipped with ATLAS you must maintain a set of paper VHF and OHF forms in addition to sending these data electronically.

The fishing effort information required on the Vessel Haul form should come from the vessel’s NMFS logbook. Additionally, ***observers must retain the goldenrod copies of the vessel logbook pages pertinent to their cruise.*** The goldenrod pages are submitted in debriefing with all other data for the vessel. If your vessel is using an electronic logbook, request a copy of the printouts.

Ensure that the data you record on the VHF and OHF are accurate, reasonable, and there are no transcription errors. The OHF contains entries for calculated values. Double check your work! Instructions on how to complete each of these forms follows.

Keep the “goldenrod” and/or printed copies of the logbook in a secure place. These forms are confidential, and must not be seen by crew from other vessels.

Completing the VHF on Trawl Vessels

An entry must be made for every day you are assigned to a vessel. Start your entries with the day you embark a vessel and end on the day you disembark the vessel. ***Skip a line between each day's entries***. Make sure that you:

1. Record all hauls retrieved during your deployment whether or not you sampled them for species composition.

2. Record the hauls in the order that they were retrieved.

3. Keep the data from each vessel on which you are deployed separate.

Cruise, Permit, Year: Enter your cruise number. Vessel permit numbers can be found on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13").

Gear type: Enter a code for trawl gear based on the configuration of the gear regardless of how it is fished (mid-water or on the bottom). If you are on a vessel using a type of trawl gear not listed, please contact the Observer Program for instructions.

1 - Non-pelagic trawl
2 - Pelagic trawl net

Purpose Code: The Purpose Code provides a label in your data signifying how it can be used. Enter "CA" for *Catch Accounting* unless otherwise instructed by FMA Staff.

Observer Name/Vessel Name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing.

Trip Number: Record the trip number associated with the haul. Trip Form instructions are given in the chapter "TRIP INFORMATION" on page 3-1.

Haul Number: All hauls must be recorded and assigned a number. Haul numbers must be unique for the vessel and should be in sequential and ascending order. It is easiest if you use the same haul numbering as the captain. Enter "0" for haul number for each non-fishing day. There can be no duplicate haul numbers for a vessel except for haul number "0."

Electronic logbooks will not allow duplicate haul numbers during a calendar year. If possible you should use the same numbering system as your vessel if they are using an electronic logbook. If you are unable to use the same numbering system let your inseason advisor or FMA staff know the reason why.

Occasionally, you may need to skip haul numbers to match the vessel logbook. Document the reasons for skipped haul numbers in your logbook Daily Notes.

IFQ? Y/N: On trawlers, always enter "N" to indicate that no hauls were fished under an Individual Fishing Quota (IFQ). The only IFQ fisheries are halibut and sablefish longline. This column must be filled out for all hauls.

CDQ Number: For each haul taken under a Community Development Quota (CDQ), record "C" and the last 2 digits of the CDQ group number. If fishing CDQ, the CDQ number can be found on the vessel's logbook haul information page under "Management Program.".

CDQ #	Group Description
C99	Other unidentified Fishing Group
C51	Aleutian Pribilof Island
C52	Bristol Bay Economic Corp.
C53	Central BS Fisherman's Assoc.
C54	Coastal Villages Fishing Coop.
C55	Norton Sound
C56	Yukon Delta
M01	Makah Tribe Whiting Association

Vessel Type: Enter a code which identifies how the vessel received and processed fish for any given tow. The codes are:

1 - Catcher/processor (CP): The vessel caught and processed its own catch on this tow. Catch was stored in a freezer hold.

2 - Mothership: The vessel received unsorted catch by codend transfer from a catcher vessel for this haul.

3 - Catcher-only vessel: The vessel caught its own fish and retained it for delivery to a processing plant. Onboard, the catch was kept on ice or in refrigerated seawater (RSW) tanks, but was not frozen.

4 - A mothership or CP received this tow as sorted (or potentially sorted) catch from a catcher vessel. Catch was transferred by brailer, by pumping, or by another method other than codend transfer.

5 - The catch from this tow was sold over-the-side to other fishing vessels which will utilize the fish for bait.

6 - The entire catch from this catcher-only vessel's haul was discarded and not delivered. Document any circumstances of the dumping in your daily notes (see page 5-5).

Gear Performance: For each haul on a trawler, one of the following codes must be recorded:

1 - No Problem**.**

2 - Problem: a crab pot was in the haul.

3 - Problem: the net hung up on some obstacle and vessel had to back down.

4 - Problem: the net ripped.

5 - Problem: Other problem, write an explanation in your logbook Daily Notes.

6 - Problem**:** trawl net or codend lost.

9 - Fishing Duration Affected: the deployment and retrieval times do not reflect true fishing time.

Location Code: This column corresponds to the location entered in the "Deployment Information" and "Retrieval Information" tabs. For hauls, enter "R" to indicate the position corresponds to the Retrieval of a net. A day for which no hauls were retrieved is termed a "Non-fishing day." For these days, enter an "N" to indicate that no hauls were retrieved. There must be a position entry for every day you were onboard the vessel. For all non-fishing days, enter "0" for the Haul Number and "N" for location code. In the "Retrieval Information" tab, enter the date and the latitude and longitude of the vessel at or around noon (Alaska Local Time). If a non-fishing day occurs in between trips, leave the trip number column blank. ***Observers on motherships should refer to "Catch Information (Haul Forms)" on page 6-2 for instructions on entering delivery information.***

Non-Fishing Days

A non-fishing day is one during which no hauls were retrieved. For all non-fishing days, enter the trip number for the trip associated with the date no fishing occurred. If the vessel is in port, the trip number column should remain blank. Enter "0" for the haul number and "N" for the location code. Record the Month/Day and latitude and longitude of the vessel for that day under the **"Retrieval Information"** tab. ***Do not include a time***. Write the reason there was no fishing in the Comments section. All days onboard must be accounted for by either a fishing or non-fishing position. This is the Observer Program's only way to account for the number of days you were assigned to a vessel. Non-fishing days are recorded on both the VHF and the OHF

Port Coordinates

If you are in one of the ports in the following table on a non-fishing day, you can use the coordinates given as the non-fishing day position. One hundred degrees of longitude are assumed, so do not enter the leading "1.".

Port	Latitude	Longitude (W)
Adak	51 53	176 39
Akutan	54 08	165 46
Cordova	60 33	145 45
Dutch Harbor	53 53	166 32
Homer	59 38	151 33
Juneau	58 10	134 18
King Cove	55 03	162 19
Kodiak	57 42	152 15
Sand Point	55 20	160 30
Seattle	47 42	122 13
Seward	60 07	149 27
St. Paul	57 09	170 13

"Deployment Information" Tab

Month/Day: Enter the month and day the gear was deployed. Write the dates in two digit format (*e.g.*, 01/01 for January 1st).

Time: Enter the time the trawl net ***enters the water.*** Copy this time from the vessel logbook, unless you have identified a problem with these data. If the skipper is entering data that are not accurate (see "Times That

Do Not Reflect True Fishing Duration" on page 4-3), try to provide your own independently collected times. All entries must be in Alaska Local Time (ALT). Use 24 hour time notations, in four digits with no colons.

Latitude: Record the latitude of the "Begin Position of Haul or Set" from the vessel logbook. Record the position to the same level of accuracy as it is recorded in the vessel logbook. Vessels may record their positions to the nearest minute, seconds or hundredths of a minute. If the vessel listed their positions to the hundredths of a minute, you must convert this value to seconds. To convert from hundredth of a minute (also called a decimal minute) to seconds use the "Decimal Minutes to Seconds Conversion Chart" on page A-36. If you need to do the calculation, use the formula in "Abbreviations, Conversions, and Formulas" on page A-17. Do not enter degree marks or include "N" to indicate North for latitude. Degree, minute, and second entries must be two digits.

E or W: Fill out the "E or W" column to indicate if the longitude is east or west of the 180 degree line.

Longitude: Record the longitude of the "Begin Position of Haul or Set" from the vessel logbook. One hundred degrees of longitude are assumed, so do not enter the leading "1." Record the position to the same level of accuracy as it is recorded in the vessel log book. Vessels may record their positions to the nearest minute, seconds or hundredths of a minute. If the vessel listed their positions to the hundredths of a minute, you must convert this value to seconds. To convert from hundredth of a minute to seconds, use the "Decimal Minutes to Seconds Conversion Chart" on page A-36. If you need to do the calculation, use the formula in "Abbreviations, Conversions, and Formulas" on page A-17. Do not enter degree marks. Degree, minute and second entries must be two digits.

Average bottom depth and Average gear depth: Copy the "Ave. Sea Depth" and the "Ave. Gear Depth" from the vessel logbook. All entries must be to the nearest whole number. Record both depths in the same unit of measure and label them as fathoms (F) or meters (M) in the "M or F" column.

"Retrieval Information" Tab:

Month/Day: Enter the month and day the gear was retrieved. A haul is assigned to a date according to the time when retrieval of trawl gear cable begins. This time may not be the same day the net was set or the same day you sample. Hauls with retrieval times before 0000 hours are attributed to the previous day and retrieval times on or after 0000 hours are assigned to the next day. Write the dates in two digit format (*e.g.*, 01/01 for January 1st).

Time: Enter the time ***when the retrieval of trawl gear cable begins***. Copy this time from the vessel logbook unless you have identified a problem with these data. Follow the same rules as described for time under the Deployment Information tab. Hauls retrieved at exactly 2400 hours should be recorded for the following day as 0000 hours.

Latitude and Longitude: Record the positions of the "End Position of Haul or Set" from the vessel logbook. Follow the same rules as described for deployment.

Completing the OHF on Trawl Vessels

An entry must be made for every day you are assigned to a vessel. Start your entries with the day you embark a vessel and end them on the day you disembark the vessel. ***Skip a line between each day's entries.*** For every entry on the VHF there must be a corresponding entry on the OHF. When placed side-by-side, you should be able to read the VHF and OHF forms straight across all rows. The information for a haul on one form should line up with the same haul's information on the other form. Always start a new OHF when you start a new VHF. Keep a separate set of data forms for each vessel to which you are assigned.

Cruise, Permit, Year: Enter your cruise number. Vessel permits can be found on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.* "13").

Observer Name/Vessel Name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing.

Full Name of Catcher Boat and ADF&G Number: Fill in these two items on the OHF ***only if you are on a mothership***. For all unsorted codends and sorted catch delivered to your ship, you must record the ADF&G permit number of the delivering vessel.

Haul Number: Haul numbers must correspond to the ones used on the VHF. If a line is skipped on the VHF, skip the same line on the OHF. Non-fishing day entries must match the VHF with a haul number of "0."

Haul Sampled By: Enter the cruise number of the observer who sampled this haul. Enter "0" for unsampled hauls. If more than one observer worked on sampling the haul, use an agreed upon criteria to decide who will receive credit for the haul.

RST On Haul?: Enter the code which reflects the haul's status on the RST:

Y - Yes, this is an "on" haul.
N - No, this is not an "on" haul.
X - RST is not being used, all hauls are sampled.

RBT On Break?: Enter the code which reflects whether or not you were taking a break prescribed by the Random Break Table:

Y - Yes, I'm on break during this haul.
N - No, I'm not on break during this haul. If you aren't using the RBT, this is your default code.

Sample Design: Enter the code that best describes your method used for collecting your composition samples. See "Sample Design Codes for Species Composition" on page 2-20 for a description of each code. Leave blank for unsampled hauls:

5 - Opportunistic
6 - Simple Random
7 - Systematic Random
9 - Other Random
10 - Census
11 - Other
12 - Unknown

Sample Unit Type: Enter the code that best describes the sample unit used for completing your composition sample. See "Sample Unit Type for Species Composition" on page 2-21 for a description of each unit type. Leave blank for unsampled hauls:

1 - Gear
2 - Time
3 - Weight
4 - Volume
5 - Other
6 - Unknown

Percent Monitored for Marine Mammals: If you monitor for marine mammals during the dumping of the haul, enter "100." If the haul was not monitored for marine mammals, enter "0." No other values are valid on trawlers.

Vessel's Total Catch Estimate in Metric Tons: Record the "Estimated Round Catch Weight" from the vessel logbook. Convert the estimate to metric tons if it is recorded in pounds, and round to the nearest two decimal places. Show this calculation in the observer logbook. ***There must be an entry for every haul***.

Estimated Discard Weight in Kilograms: Record the estimated discard weight in kilograms, rounded to the nearest whole kilogram. If there were no discards, enter a zero value in the discards column for that haul. All hauls must have an entry. If you do not know whether or not there were discards, leave the field blank.

<u>"Trawl Vessels" Tab:</u>

Observer's Catch Estimate in Kilograms: Enter your independent observer estimate for each haul for which an estimate was made. Record the estimate in kilograms, rounded to the nearest whole kilogram. If you did not estimate the haul weight or actually weigh the entire catch, leave this field blank for that haul. If you determined there was no weight for the catch, enter a zero value in the observer estimate field.

B, C or W: Record how each catch estimate was made with a W, C or B. Enter "W" if the entire catch was weighed by you on your observer scales or on the vessel's certified flow scale, "B" if you used a bin volume calculation or "C" if you used a codend estimate.

Density in Kilograms/m^3: Record the density used to

rounded to two decimal places. You must record a density if the observer estimate was obtained using a bin or codend volume.

Volumetric Estimate in m^3: If your observer estimate was done via a bin or codend volume, enter the volume you calculated to the nearest two decimals. If you did not do an observer estimate or you did a weighed estimate, leave this column blank.

Haulback Bird Observation Code: You should monitor all or some portions of the haulback. Monitor from the start of the retrieval to the codend being brought fully onboard. While monitoring, watch the third wire and main wires for seabird interactions. If there are seabird mortalities or interactions, record those incidents on the Bird Data Forms or in ATLAS. For more instructions on recording seabird interactions refer to "Recording Bird Data" on page 16-9.

Record the code which best describes the haulback observation:

- **0 - No Monitoring -** For haulbacks you did not monitor in any way for seabird mortality. However, if birds were provided to you by the crew, record the interaction on the bird data form or in ATLAS.
- **1 - Monitored from Beginning of Haulback -** For haulbacks monitored from the beginning of the haul back (within several minutes of when they started to winch in the main wires).
- **2 - Monitored Started When Trawl Doors Secured** - For haulbacks monitored from when the trawl doors are secured on the stern.
- **3 -Monitored from the Beginning of Haul Until Short-wired** - For haulbacks that were short-wired, and you monitored from the beginning (when they started winching in the main cable) until the short-wire period started.
- **5 - Monitored Started When Trawl Sonar on Deck** - For haulbacks monitored from the time the trawl sonar (suitcase) reaches the deck.
- **6 - Monitored Started When Net is Being Brought on Deck** - For haulbacks monitored from when you arrive on deck and the net is being brought on board.
- **7 - Monitored Started at End of Short-wire Period** - Haulback was short-wired, and you started observations after the short-wire period (prior to suitcase or headrope coming on board).
- **8 - Monitored Started When Net is Already On Deck** - You arrive on deck to monitor the haulback, and the codend is already onboard (you record any mortalities of birds provided by the crew).
- **9 - Other Monitoring Situation** -Use this code for situations that are not addressed above (*e.g.* you watched the haulback, but you were unable to monitor the third wire and the main wire from the area of the deck where it was safe to watch the haulback). Document these situations in your logbook.

Short-Wired?: Enter "Y," "N," or "U" to denote whether the haul was short-wired during the haulback. Do not record a "Y" when the net is brought to the surface during the tow but then returned to fishing depth. A short-wired haul is when the trawl doors are pulled to the surface and the net is towed behind the vessel until it is brought on board.

- **Y - Yes**, the net was short-wired.
- **N - No,** the net was not short-wired.
- **U - Unknown**, When you did not watch any part of the haulback.

Catcherboat's ADF&G Number: Fill in this column on the OHF ***only if you are on a mothership***. For all unsorted codends and sorted catch delivered to your ship, you must record the ADF&G permit number of the delivering vessel.

"Longline and Pot Vessels" tab

These fields are for vessels using fixed gear only and are not used for trawl vessels.

DETERMINING DELIVERY WEIGHT

When the vessel delivers its catch to a processing plant, the fish are weighed. The scales at each plant are tested by the State of Alaska annually and they do not need to be tested daily in order for you to use this weight as a delivery weight. The delivery weight information must be verified by either yourself or the plant observer. Ultimately, the data used is yours, so do not rely on plant observers to verify your delivery weight unless they have agreed to do so. Plant observers need to give you documentation on how verification was done when ***they*** complete this task. For more information on this aspect of a plant observer's duties see "Delivery Worksheet Verification" on page 11-9.

You must verify the delivery weight before you record it on the Plant/Vessel Offload Form. You are responsible for knowing and documenting how all your data were derived!

Work with the plant observers and plant personnel to determine the best source for accurate weights. You are responsible for your data and must know how all delivery weights were derived. Delivery weight data can be obtained from the electronic scale readout, scale weights recorded by a plant representative, or the Alaska Department of Fish and Game (ADF&G) fish ticket.

Determining Offload Delivery Weights

Work with the plant observer and plant personnel to obtain the fish ticket information for your delivery. If a fish ticket is not available, you may obtain your total delivery weight using an alternate method. This includes, but is not limited to, direct observations of scale weights during the offload, verbal confirmation from plant personnel, skipper estimates, or independent measurements. The exact source of delivery weight information will be specific to each scenario. Regardless of how the weights are determined, always document your methods in the Daily Notes section of your logbook.

In the majority of situations, the fish ticket will be the best source of data for determining delivery weight. Plants are allowed to record the number only of prohibited species for some deliveries, however fisheries managers need weight data as well. If you are using the fish ticket for a delivery weight and the fish ticket does not have weights for all species, sum all the weights that were provided on the fish ticket and enter that value for the total delivery weight. Document the situation in your logbook. For information on interpreting fish tickets and tips on how to avoid potential errors see page 11-20.

Prohibited Species Discarded at Sea on Pollock Catcher Vessels

Prohibited species discarded at-sea, from both inside and outside your samples, are included in your estimate of discards on the Observer Haul Form. Any prohibited species discarded at-sea must be made available for you to sample. At-sea discard of salmon is prohibited. If this occurs you must notify NMFS staff immediately and give the number of each salmon species that was discarded to the plant observers for inclusion in their Salmon Retention Data. Note that fish discarded at-sea are not included in your offload delivery weight; they are listed on the fish ticket under code 98. Observers on vessels in the GOA must include salmon discarded at sea in their offload salmon census sample (see "GOA Vessel Observer Offload Salmon Census" on page 5-30).

Organisms Delivered but Not Weighed

Total delivery weight must reflect everything that was delivered to a plant. There are occasions when sharks and other large organisms are delivered to a plant but not weighed because they are too big to be pumped into the factory. In this event, you must estimate the weight of the large organism and include it in the total delivery weight. You must provide this information to the plant observer(s) as they are also responsible for incorporating this weight into the delivery weight.

RECORDING OFFLOAD DATA ON TRAWLERS

Observers on catcher trawlers must report offload information on the Vessel/Plant Offload Form.

The Vessel/Plant Offload Form is used by plant observers as well. For information on how to complete the Vessel/Plant Offload Form as a plant observer please refer to page 11-16.

Data for the Vessel/Plant Offload Form may be obtained from the Alaska Department of Fish and Game (ADF&G) fish ticket, electronic scale readout, scale weights recorded by a plant representative, the plant's NMFS logbook as well as from observations by

the observer. ***If you are on a vessel equipped with ATLAS you must maintain a set of paper offload forms in addition to sending these data electronically.***

Cruise Number, Permit, Year, Observer Name, and Vessel/Plant name: Enter the cruise number supplied in your training or briefing. Enter the vessel permit found in the manual on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13"). Enter your name and the name of the vessel to which you are assigned.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.***

Processor Name and Processor Permit: In the box in the upper left hand corner, fill in the name and processor permit for each of the plants to which your vessel delivers. You only need to record each plant once for each data set. There is a list of processor permits for shoreside or floating plants and motherships on page A-25. If your vessel delivers to a plant that is not on the list, enter 99999 (for "unknown") and contact NMFS staff as soon as possible.

Trip Number: Enter the number of the trip during which most of the fishing for the offload occurred. If the vessel made more than one trip to catch fish for the offload, record the trip that includes the majority of the hauls. In ATLAS, the "trip start date" will be auto-filled based on the trip that you selected.

Offload Number: All offloads must be recorded and assigned a number. Offload numbers must be unique for the cruise/vessel and should be sequential and ascending, beginning with "1."

Completion Date: Enter the month and day the offload was completed. Write the dates in two digit format (*e.g.*, "01/01").

Gear Type and NMFS Area: These columns are used by plant observers only**.**

Total Delivered, LB or KG: (Refer to "Determining Offload Delivery Weights" on page 4-19 for fishery specific delivery calculation protocol.) Record the total round weight delivered to the plant for that trip. Delivery weights can be entered in either pounds or kilograms. Delivery weights recorded in pounds must be recorded to the nearest whole pound. Weights reported in kilograms must be recorded to the nearest whole kilogram. Remember that when cut or bled fish are delivered, the round weight must be used. Round weights are listed at the bottom or end of the fish ticket.

- ***If there are multiple fish tickets with the same Landing Report ID Number, sum the individual delivery weights to obtain a single total delivery weight.***
- ***Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, list each Landing Report ID Number separately in the Offload Form with the corresponding total delivery weight for that individual Report.***

Total Pollock Weight, Were all Groundfish Weighed?, ADF&G Number of Delivering Vessel: These columns are used by plant observers only**.**

Receiving Processor Permit Number: For each offload, record the processing plant's permit number. The permit numbers should be one of those you listed under Processor Name and Processor Permit Number described above. If a delivery is split and sold to more than one processor, you should make an entry on the Vessel/Plant Offload Form for each delivery. If this, or any other incident out of the ordinary occurs, please note the circumstances in your logbook.

Was Catch Sorted (Y/N): Record "Y" for any delivery that was sorted at sea. Record "N" if the crew did not sort the catch before delivery.

Tender Offload (Y/N): Record "Y" if your vessel acted as a tender by receiving catch from another vessel. Otherwise enter "N."

Landing Report ID Number: Record the Landing Report ID Number associated with the delivery for this vessel. As a vessel observer this number will be taken directly from the fish ticket, a delivery worksheet provided by the plant observer, or may be obtained from the plant office along with other catch information. Record the Landing Report ID Number exactly as it appears on the fish ticket. If you did not receive a fish ticket, this field may be left blank. Multiple fish tickets associated with the same offload

to a single processor will usually have the same Landing Report ID Number. In this case, there should be a single line of entry for this delivery.

Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, each one must be listed separately on the Offload Form as if they were separate offloads. The trip number will remain the same, but the offload numbers and total delivery weights will be unique to each Landing Report ID Number.

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly check their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not check their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your data for errors.

Check Observer and Vessel Haul Forms For:

- Every day on the vessel has an entry. This includes the day you boarded and disembarked and all days in between.
- Non-fishing days have a non-fishing position with a haul number of zero; notes are made in the logbook or on the VHF regarding the reason the vessel was not fishing.
- No duplicate haul numbers.
- All haul numbers in consecutive order.
- No decimals other than those pre-printed on the page.
- For motherships, full name of catcher boat and the ADF&G #s are completed in box at top of page.
- For each delivery to a mothership, the delivering catcher boat's ADF&G# is recorded.

Check Vessel Haul Form for:

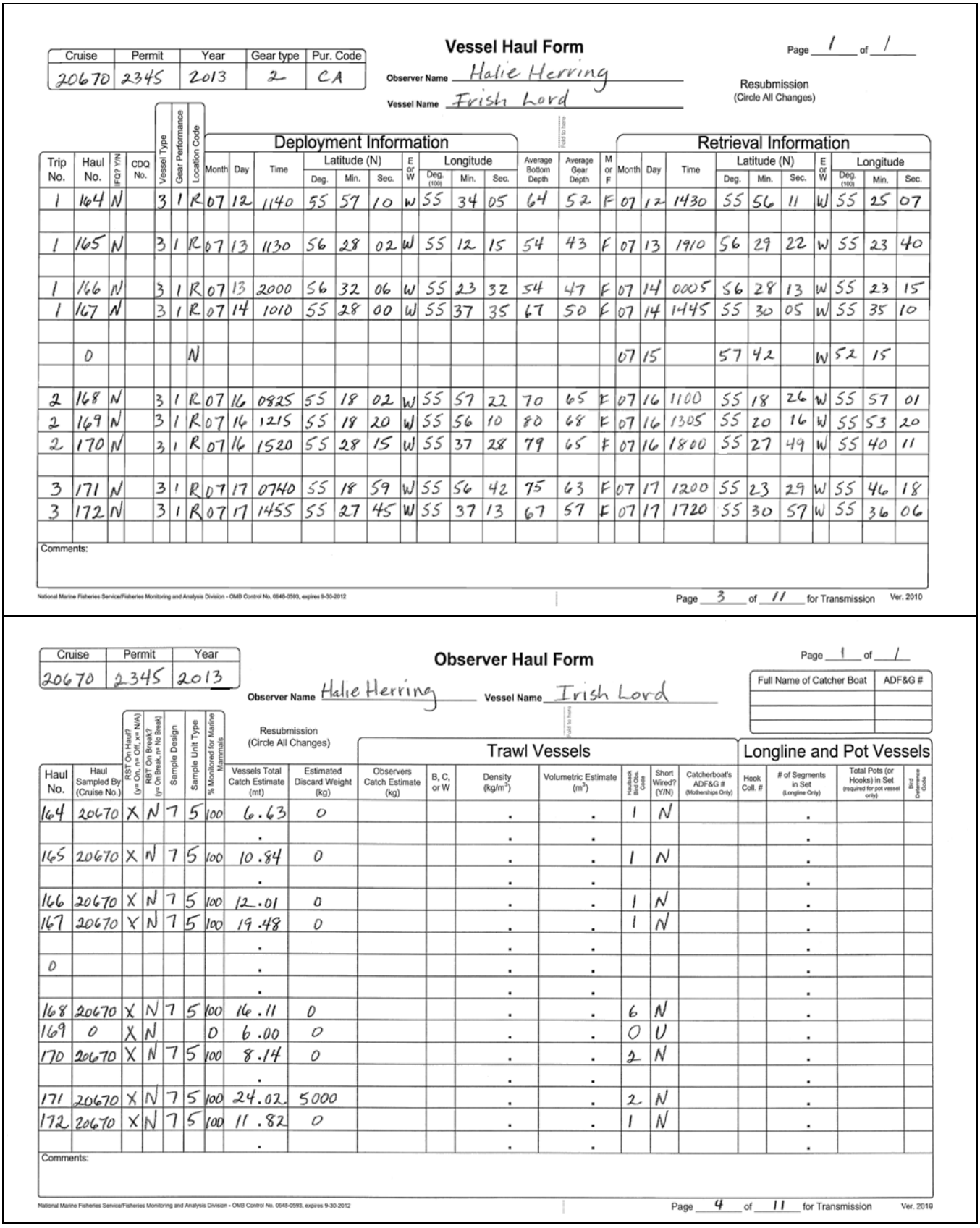
- The Purpose Code is completed correctly. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP).
- Hauls are ordered by retrieval, not deployment.
- Deployment and retrieval positions are recorded for all hauls. Degree, minute and second entries must be two digits.
- Positions have no minutes or seconds greater than 59. Gear deployment and gear retrieval times between hauls do not overlap (except on motherships).
- Retrieval times of 0000 are attributed to the next day.
- Depths are rounded to whole numbers and fishing depths are never deeper than bottom depths.
- "F" or "M" is recorded for every depth recorded.
- "Y" or "N" is recorded in the IFQ column.
- CDQ numbers are recorded with the letter "C" followed by the two digits of the CDQ group number (found in the vessel logbook and on page page 4-14).

Check Observer Haul Form for:

- For catcher boats, plant/processor name, location, and processor permit numbers are completed.
- If discards are unknown, the field is left blank; if discards are zero, a value of zero is entered.
- Hauls are ordered by retrieval, as on the VHF form, with a line space between days.
- Sample Design and Sample Unit Type are complete and accurate for each sampled haul.

Plant/Vessel Offload Form (catcher vessels):

- Plant/processor name and processor permit #'s are completed.
- Landing Report ID # recorded exactly as shown on the fish ticket.
- Entries for Total Delivered are in kilograms or pounds. Must be to the whole kilogram or pound.
- Entries for plant observers are left blank.



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
20670	2345	2013	2	CA

Observer Name: Halie Herring
Vessel Name: Irish Lord
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
1	164	N		3	1	R	07	12	1140	55	57	10	W	55	34	05	64	52	F	07	12	1430	55	56	11	W	55	25	07
1	165	N		3	1	R	07	13	1130	56	28	02	W	55	12	15	54	43	F	07	13	1910	56	29	22	W	55	23	40
1	166	N		3	1	R	07	13	2000	56	32	06	W	55	23	32	54	47	F	07	14	0005	56	28	13	W	55	23	15
1	167	N		3	1	R	07	14	1010	55	28	00	W	55	37	35	67	50	F	07	14	1445	55	30	05	W	55	35	10
	0					N														07	15		57	42		W	52	15	
2	168	N		3	1	R	07	16	0825	55	18	02	W	55	57	22	70	65	F	07	16	1100	55	18	26	W	55	57	01
2	169	N		3	1	R	07	16	1215	55	18	20	W	55	56	10	80	68	F	07	16	1305	55	20	16	W	55	53	20
2	170	N		3	1	R	07	16	1520	55	28	15	W	55	37	28	79	65	F	07	16	1800	55	27	49	W	55	40	11
3	171	N		3	1	R	07	17	0740	55	18	59	W	55	56	42	75	63	F	07	17	1200	55	23	29	W	55	46	18
3	172	N		3	1	R	07	17	1455	55	27	45	W	55	37	13	67	57	F	07	17	1720	55	30	57	W	55	36	06

Comments:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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Observer Haul Form

Cruise	Permit	Year
20670	2345	2013

Observer Name: Halie Herring
Vessel Name: Irish Lord
Page 1 of 1
Resubmission (Circle All Changes)

Full Name of Catcher Boat	ADF&G #

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m^3)	Volumetric Estimate (m^3)	Haulback Bird Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
164	20670	X	N	7	5	100	6.63	0			.	.	1	N			.		
							.				.	.					.		
165	20670	X	N	7	5	100	10.84	0			.	.	1	N			.		
							.				.	.					.		
166	20670	X	N	7	5	100	12.01	0			.	.	1	N			.		
167	20670	X	N	7	5	100	19.48	0			.	.	1	N			.		
							.				.	.					.		
0							.				.	.					.		
							.				.	.					.		
168	20670	X	N	7	5	100	16.11	0			.	.	6	N			.		
169	0	X	N			0	6.00	0			.	.	0	U			.		
170	20670	X	N	7	5	100	8.14	0			.	.	2	N			.		
							.				.	.					.		
171	20670	X	N	7	5	100	24.02	5000			.	.	2	N			.		
172	20670	X	N	7	5	100	11.82	0			.	.	1	N			.		

Comments:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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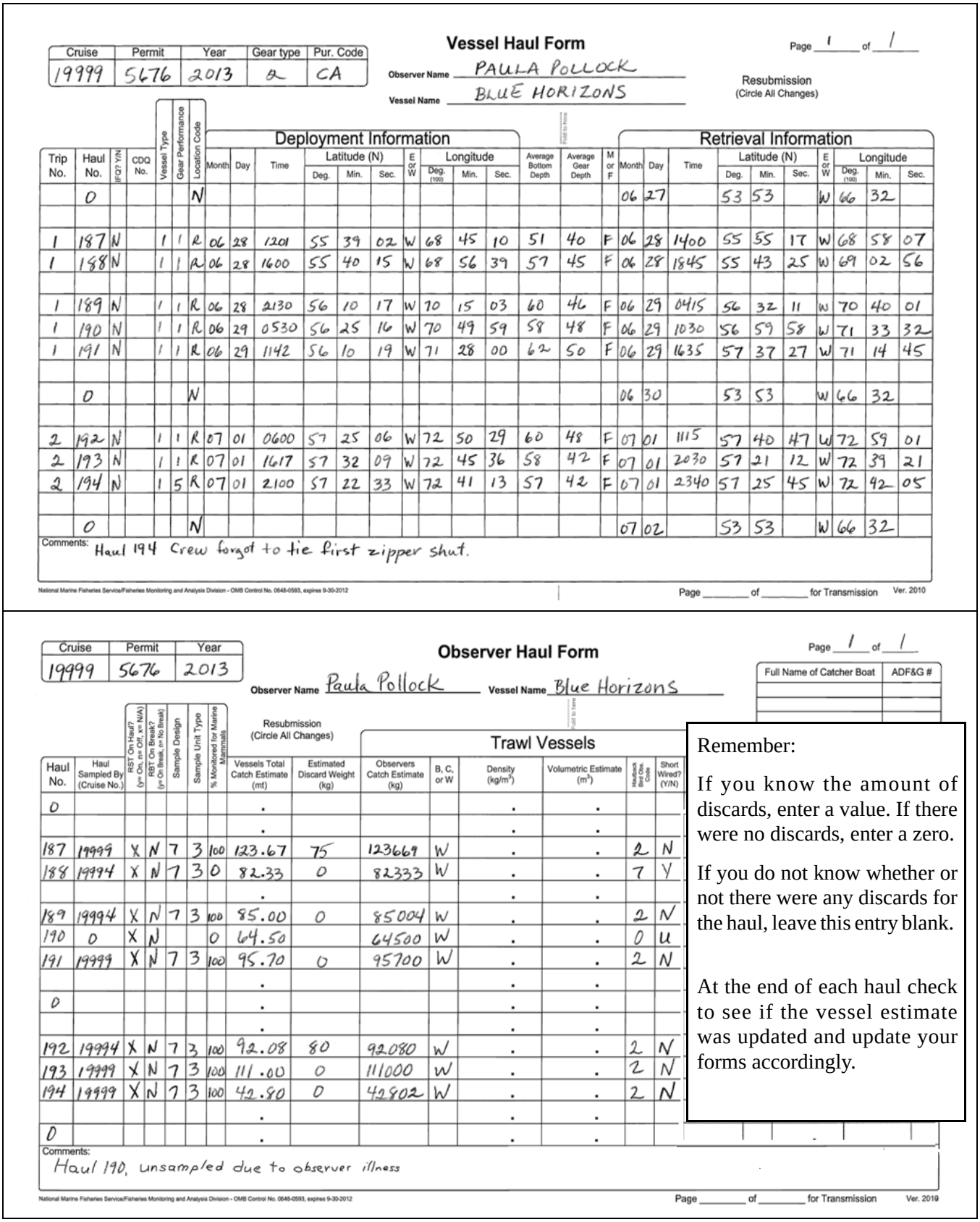
Figure 4-8: Examples of VHF and OHF Forms From a Catcher Vessel Fishing for Pollock



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
19999	5676	2013	2	CA

Observer Name: PAULA POLLOCK
Vessel Name: BLUE HORIZONS
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
	0					N														06	27		53	53		W	66	32	
1	187	N		1	1	R	06	28	1201	55	39	02	W	68	45	10	51	40	F	06	28	1400	55	55	17	W	68	58	07
1	188	N		1	1	R	06	28	1600	55	40	15	W	68	56	39	57	45	F	06	28	1845	55	43	25	W	69	02	56
1	189	N		1	1	R	06	28	2130	56	10	17	W	70	15	03	60	46	F	06	29	0415	56	32	11	W	70	40	01
1	190	N		1	1	R	06	29	0530	56	25	16	W	70	49	59	58	48	F	06	29	1030	56	59	58	W	71	33	32
1	191	N		1	1	R	06	29	1142	56	10	19	W	71	28	00	62	50	F	06	29	1635	57	37	27	W	71	14	45
	0					N														06	30		53	53		W	66	32	
2	192	N		1	1	R	07	01	0600	57	25	06	W	72	50	29	60	48	F	07	01	1115	57	40	47	W	72	59	01
2	193	N		1	1	R	07	01	1617	57	32	09	W	72	45	36	58	42	F	07	01	2030	57	21	12	W	72	39	21
2	194	N		1	5	R	07	01	2100	57	22	33	W	72	41	13	57	42	F	07	01	2340	57	25	45	W	72	42	05
	0					N														07	02		53	53		W	66	32	

Comments: Haul 194 Crew forgot to tie first zipper shut.

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Observer Haul Form

Cruise	Permit	Year
19999	5676	2013

Observer Name: Paula Pollock Vessel Name: Blue Horizons
Page 1 of 1
Resubmission (Circle All Changes)

Full Name of Catcher Boat	ADF&G #

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Haulback Bird Obs. Code	Short Wired? (Y/N)
0							.				.	.		
							.				.	.		
187	19999	X	N	7	3	100	123.67	75	123669	W	.	.	2	N
188	19994	X	N	7	3	0	82.33	0	82333	W	.	.	7	Y
							.				.	.		
189	19994	X	N	7	3	100	85.00	0	85004	W	.	.	2	N
190	0	X	N			0	64.50		64500	W	.	.	0	U
191	19999	X	N	7	3	100	95.70	0	95700	W	.	.	2	N
							.				.	.		
0							.				.	.		
							.				.	.		
192	19994	X	N	7	3	100	92.08	80	92080	W	.	.	2	N
193	19999	X	N	7	3	100	111.00	0	111000	W	.	.	2	N
194	19999	X	N	7	3	100	42.80	0	42802	W	.	.	2	N
							.				.	.		
0							.				.	.		

Comments: Haul 190, unsampled due to observer illness

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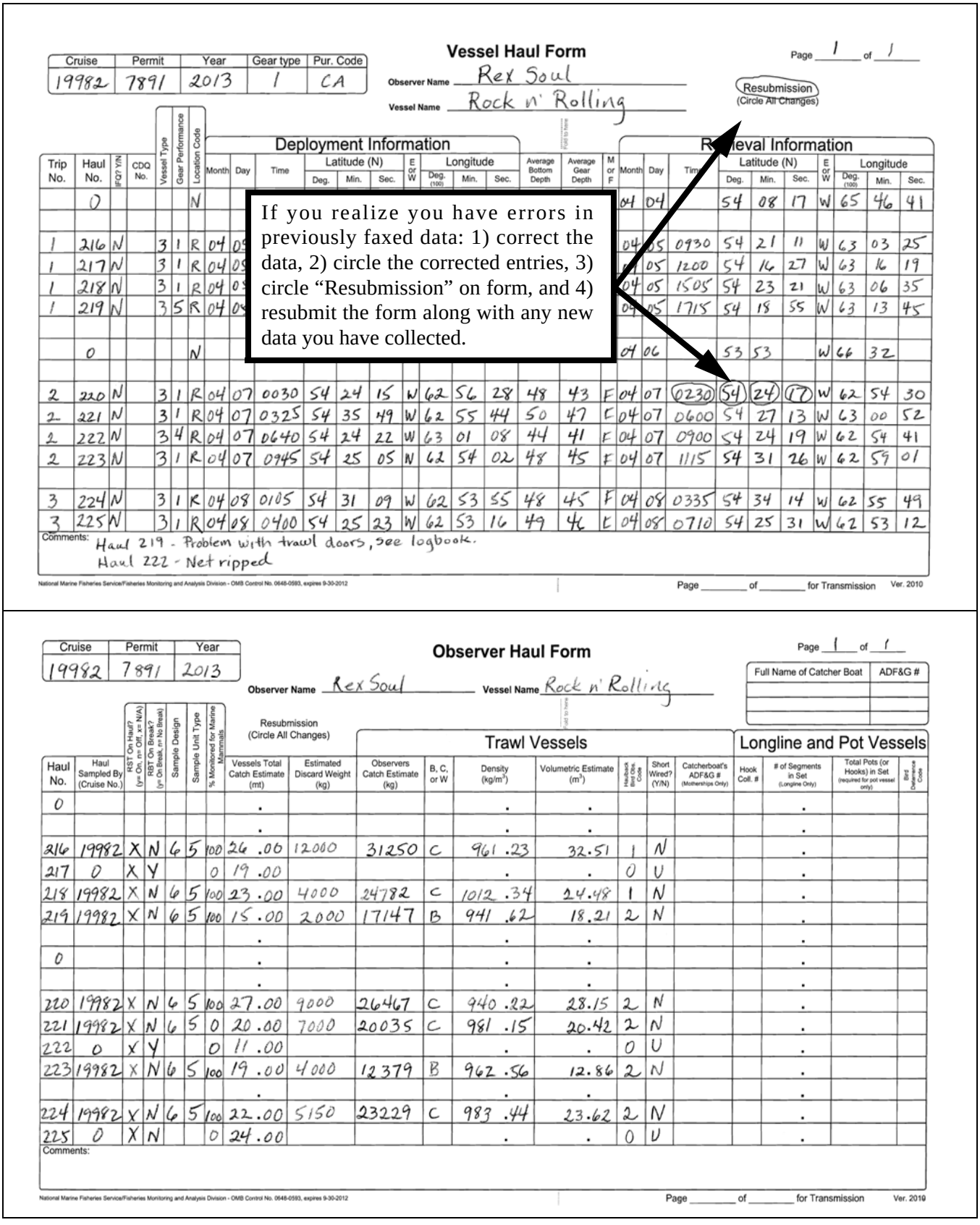
Remember:

If you know the amount of discards, enter a value. If there were no discards, enter a zero.

If you do not know whether or not there were any discards for the haul, leave this entry blank.

At the end of each haul check to see if the vessel estimate was updated and update your forms accordingly.

Figure 4-9: Examples of VHF and OHF Forms From a CP Vessel Fishing for Pollock (Flowscale in Use)



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
19982	7891	2013	1	CA

Observer Name: Rex Soul
Vessel Name: Rock n' Rolling
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
	0					N														04	04		54	08	17	W	65	46	41
1	216	N		3	1	R	04	04												04	05	0930	54	21	11	W	63	03	25
1	217	N		3	1	R	04	04												04	05	1200	54	16	27	W	63	16	19
1	218	N		3	1	R	04	04												04	05	1505	54	23	21	W	63	06	35
1	219	N		3	5	R	04	04												04	05	1715	54	18	55	W	63	13	45
	0					N														04	06		53	53		W	66	32	
2	220	N		3	1	R	04	07	0030	54	24	15	W	62	56	28	48	43	F	04	07	0230	54	24	17	W	62	54	30
2	221	N		3	1	R	04	07	0325	54	35	49	W	62	55	44	50	47	F	04	07	0600	54	27	13	W	63	00	52
2	222	N		3	4	R	04	07	0640	54	24	22	W	63	01	08	44	41	F	04	07	0900	54	24	19	W	62	54	41
2	223	N		3	1	R	04	07	0945	54	25	05	W	62	54	02	48	45	F	04	07	1115	54	31	26	W	62	59	01
3	224	N		3	1	R	04	08	0105	54	31	09	W	62	53	55	48	45	F	04	08	0335	54	34	14	W	62	55	49
3	225	N		3	1	R	04	08	0400	54	25	23	W	62	53	16	49	46	F	04	08	0710	54	25	31	W	62	53	12

If you realize you have errors in previously faxed data: 1) correct the data, 2) circle the corrected entries, 3) circle "Resubmission" on form, and 4) resubmit the form along with any new data you have collected.

Comments: Haul 219 - Problem with trawl doors, see logbook.
Haul 222 - Net ripped

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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Observer Haul Form

Cruise	Permit	Year
19982	7891	2013

Observer Name: Rex Soul
Vessel Name: Rock n' Rolling
Page 1 of 1

Full Name of Catcher Boat	ADF&G #

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Haulback Bird Deterrence Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
0							.				.	.					.		
							.				.	.					.		
216	19982	X	N	6	5	100	26.00	12000	31250	C	961.23	32.51	1	N			.		
217	0	X	Y			0	19.00				.	.	0	U			.		
218	19982	X	N	6	5	100	23.00	4000	24782	C	1012.34	24.48	1	N			.		
219	19982	X	N	6	5	100	15.00	2000	17147	B	941.62	18.21	2	N			.		
							.				.	.					.		
0							.				.	.					.		
							.				.	.					.		
220	19982	X	N	6	5	100	27.00	9000	26467	C	940.22	28.15	2	N			.		
221	19982	X	N	6	5	0	20.00	7000	20035	C	981.15	20.42	2	N			.		
222	0	X	Y			0	11.00				.	.	0	U			.		
223	19982	X	N	6	5	100	19.00	4000	12379	B	962.56	12.86	2	N			.		
							.				.	.					.		
224	19982	X	N	6	5	100	22.00	5150	23229	C	983.44	23.62	2	N			.		
225	0	X	N			0	24.00				.	.	0	U			.		

Comments:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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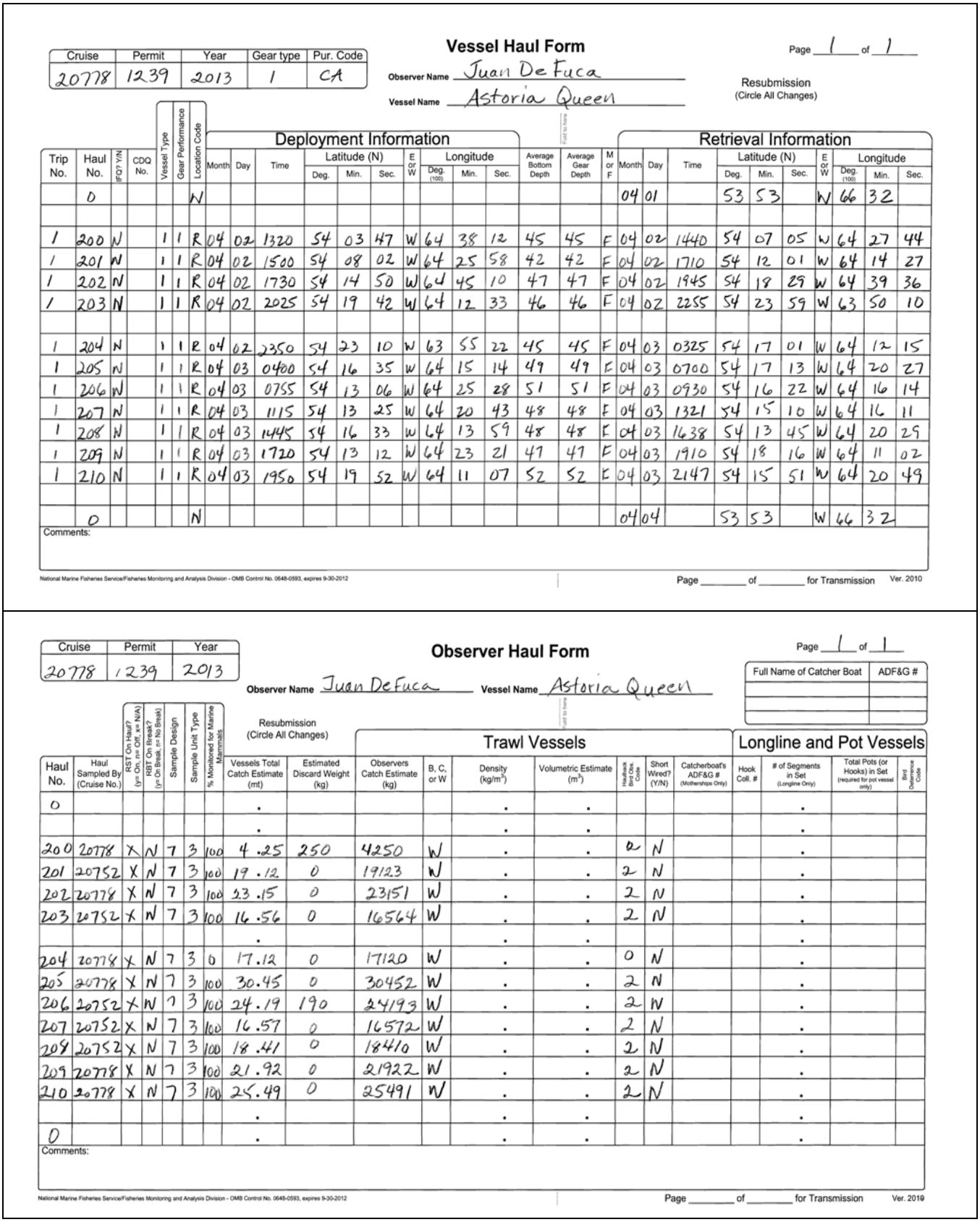
Figure 4-10: Examples of VHF and OHF Forms Form a Catcher Vessel Fishing Pacific Cod



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
20778	1239	2013	1	CA

Observer Name: Juan De Fuca
Vessel Name: Astoria Queen
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N): Deg.	Min.	Sec.	E or W	Longitude: Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N): Deg.	Min.	Sec.	E or W	Longitude: Deg. (100)	Min.	Sec.
	0					N														04	01		53	53		W	66	32	
1	200	N		1	1	R	04	02	1320	54	03	47	W	64	38	12	45	45	F	04	02	1440	54	07	05	W	64	27	44
1	201	N		1	1	R	04	02	1500	54	08	02	W	64	25	58	42	42	F	04	02	1710	54	12	01	W	64	14	27
1	202	N		1	1	R	04	02	1730	54	14	50	W	64	45	10	47	47	F	04	02	1945	54	18	29	W	64	39	36
1	203	N		1	1	R	04	02	2025	54	19	42	W	64	12	33	46	46	F	04	02	2255	54	23	59	W	63	50	10
1	204	N		1	1	R	04	02	2350	54	23	10	W	63	55	22	45	45	F	04	03	0325	54	17	01	W	64	12	15
1	205	N		1	1	R	04	03	0400	54	16	35	W	64	15	14	49	49	F	04	03	0700	54	17	13	W	64	20	27
1	206	N		1	1	R	04	03	0755	54	13	06	W	64	25	28	51	51	F	04	03	0930	54	16	22	W	64	16	14
1	207	N		1	1	R	04	03	1115	54	13	25	W	64	20	43	48	48	F	04	03	1321	54	15	10	W	64	16	11
1	208	N		1	1	R	04	03	1445	54	16	33	W	64	13	59	48	48	F	04	03	1638	54	13	45	W	64	20	29
1	209	N		1	1	R	04	03	1720	54	13	12	W	64	23	21	47	47	F	04	03	1910	54	18	16	W	64	11	02
1	210	N		1	1	R	04	03	1950	54	19	52	W	64	11	07	52	52	F	04	03	2147	54	15	51	W	64	20	49
	0					N														04	04		53	53		W	66	32	

Comments:

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Observer Haul Form

Cruise	Permit	Year
20778	1239	2013

Observer Name: Juan De Fuca
Vessel Name: Astoria Queen
Page 1 of 1

Full Name of Catcher Boat	ADF&G #

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Headrope Bird Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
0							.				.	.					.		
							.				.	.					.		
200	20778	X	N	7	3	100	4.25	250	4250	W	.	.	2	N			.		
201	20752	X	N	7	3	100	19.12	0	19123	W	.	.	2	N			.		
202	20778	X	N	7	3	100	23.15	0	23151	W	.	.	2	N			.		
203	20752	X	N	7	3	100	16.56	0	16564	W	.	.	2	N			.		
							.				.	.					.		
204	20778	X	N	7	3	0	17.12	0	17120	W	.	.	0	N			.		
205	20778	X	N	7	3	100	30.45	0	30452	W	.	.	2	N			.		
206	20752	X	N	7	3	100	24.19	190	24193	W	.	.	2	N			.		
207	20752	X	N	7	3	100	16.57	0	16572	W	.	.	2	N			.		
208	20752	X	N	7	3	100	18.41	0	18410	W	.	.	2	N			.		
209	20778	X	N	7	3	100	21.92	0	21922	W	.	.	2	N			.		
210	20778	X	N	7	3	100	25.49	0	25491	W	.	.	2	N			.		
							.				.	.					.		
0							.				.	.					.		

Comments:

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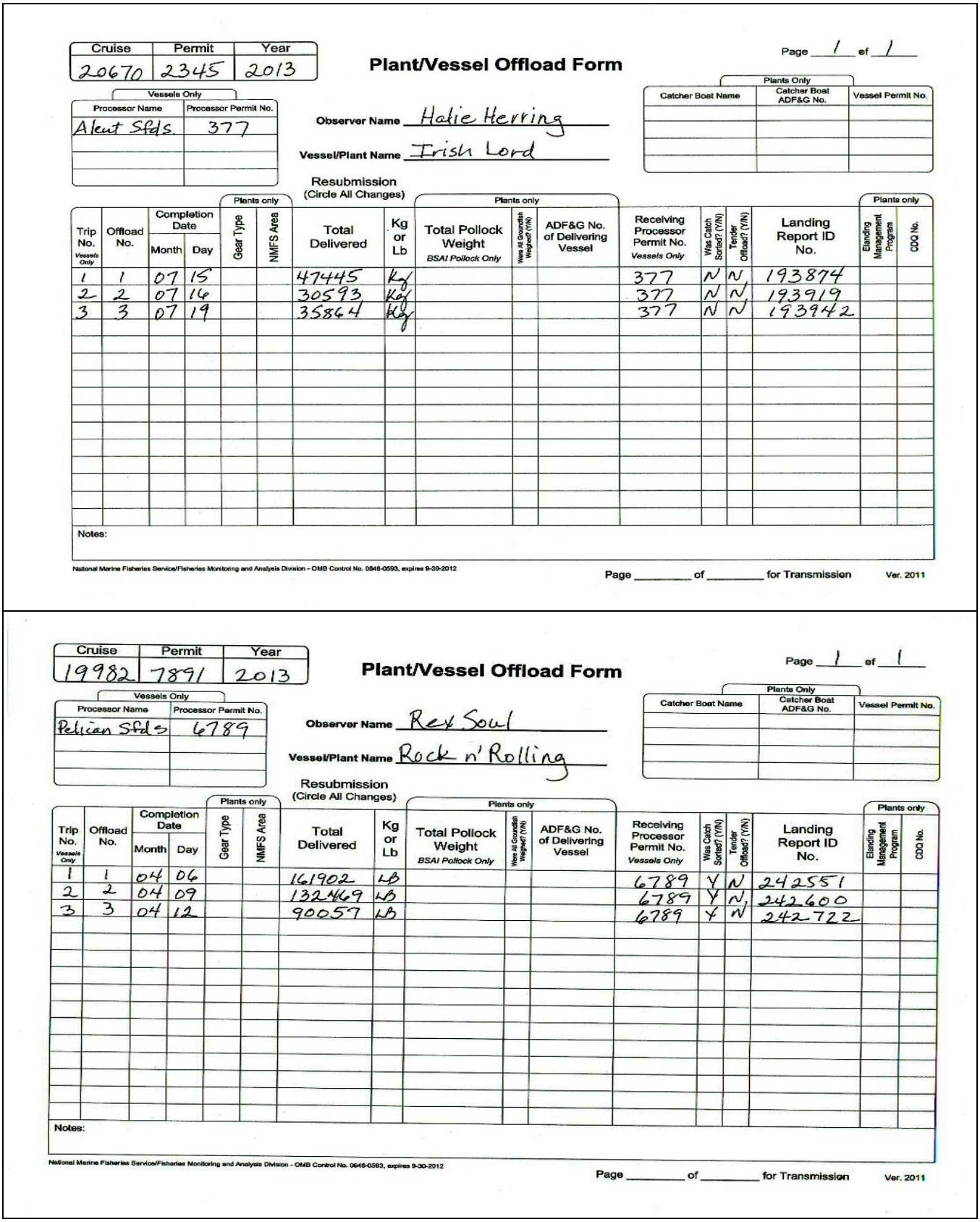
Figure 4-11: Examples of VHF and OHF Forms From a CP Vessel Fishing Flatfish (Flowscale in Use)



Cruise: 20670 | Permit: 2345 | Year: 2013

Plant/Vessel Offload Form

Page 1 of 1

Vessels Only: Processor Name: Aleut Sfds | Processor Permit No.: 377

Observer Name: Halie Herring

Vessel/Plant Name: Irish Lord

Resubmission (Circle All Changes)

Plants Only: Catcher Boat Name | Catcher Boat ADF&G No. | Vessel Permit No.

Trip No. (Vessels Only)	Offload No.	Completion Date Month	Completion Date Day	Plants only: Gear Type	Plants only: NMFS Area	Total Delivered	Kg or Lb	Plants only: Total Pollock Weight (BSAI Pollock Only)	Plants only: Were All Groundfish Weighed? (Y/N)	Plants only: ADF&G No. of Delivering Vessel	Receiving Processor Permit No. (Vessels Only)	Was Catch Sorted? (Y/N)	Tender Offload? (Y/N)	Landing Report ID No.	Plants only: Blending Management Program	Plants only: CDQ No.
1	1	07	15			47445	Kg				377	N	N	193874		
2	2	07	16			30593	Kg				377	N	N	193919		
3	3	07	19			35864	Kg				377	N	N	193942		

Notes:

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Cruise: 19982 | Permit: 7891 | Year: 2013

Plant/Vessel Offload Form

Page 1 of 1

Vessels Only: Processor Name: Pelican Sfds | Processor Permit No.: 6789

Observer Name: Rex Soul

Vessel/Plant Name: Rock n' Rolling

Resubmission (Circle All Changes)

Plants Only: Catcher Boat Name | Catcher Boat ADF&G No. | Vessel Permit No.

Trip No. (Vessels Only)	Offload No.	Completion Date Month	Completion Date Day	Plants only: Gear Type	Plants only: NMFS Area	Total Delivered	Kg or Lb	Plants only: Total Pollock Weight (BSAI Pollock Only)	Plants only: Were All Groundfish Weighed? (Y/N)	Plants only: ADF&G No. of Delivering Vessel	Receiving Processor Permit No. (Vessels Only)	Was Catch Sorted? (Y/N)	Tender Offload? (Y/N)	Landing Report ID No.	Plants only: Blending Management Program	Plants only: CDQ No.
1	1	04	06			161902	LB				6789	Y	N	242551		
2	2	04	09			132469	LB				6789	Y	N	242600		
3	3	04	12			90057	LB				6789	Y	N	242722		

Notes:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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Figure 4-12: Examples of Catcher Vessel Offload Forms

TRAWLER COMPOSITION SAMPLING

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PRIORITIES

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- Collect Gulf of Alaska pollock salmon census data.
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INTRODUCTION

Species composition sampling is high on the Observer Program's priority list, and more time is spent on this task than any other. Species composition sampling is the collection of catch samples from a selected haul.

Fisheries managers base their assessment of catch rate on the results of your species composition samples. The data you collect are used to monitor allowable harvest and are used by scientists for population analysis and stock assessment.

SAMPLING DESIGN GUIDELINES

One of the first things to do when you arrive on a vessel is inspect your sampling station and determine a sampling design. Refer to "TRIP INFORMATION" on page 3-1 for items to look for in a sampling station. When creating a sampling design you must consider:

- Where to collect your sample.
- What sampling biases could occur in your collection and how to minimize them.
- How to collect your sample.
- How many samples you will be able to collect.
- What size sample you will be able to collect.
- How you will process your sample.
- Do you need to use the Random Sampling Table (RST) and/or Random Break Table (RBT).

Draw a diagram of your sampling station in your logbook. In the Daily Notes section, describe the random sample design you intend to use. ***Your sample design will be put to the test once you start sampling, and you may find that you need to make some changes to it.*** When you have settled on a random sample design fill out a Sample Design Detail section in your logbook. On this form describe your sampling design in detail, addressing each of the above topics. Day to day minor adjustments to the random sample design can be documented in the Daily Notes section of your logbook. Refer to your logbook for an example.

You may alter your design as you gain experience, become aware of biases, or as the species composition or target fishery changes. Document all changes in the Daily Notes section of your logbook and explain why they were made. Random sample designs for trawler sampling are discussed in detail starting on page 5-9. If you have problems creating or implementing a sampling design contact your ATLAS inseason advisor or other FMA staff member.

Selecting Hauls to Sample

Observers are expected to sample all hauls if the vessel is taking three or fewer hauls per day or if the boat only fishes for part of the day. Observers on pollock catcher vessels and on vessels that have two or more observers are expected to sample all hauls.

Inexperienced observers should be especially careful until they are familiar with the way catch is handled. You may need to reduce your sampling effort for the first few hauls (fewer and/or smaller samples). Document your methods and the reasons for the reduced sampling effort in your Daily Notes. If you are unable to sample a haul for any reason, you must document the circumstances in your logbook. After

only a few hauls you will be familiar with the catch handling process and able to decide on a sampling design that is right for that vessel and fishery.

Be sure to discuss safe deck practices, haulback procedures and potential sampling needs with the vessel before fishing begins!

Observers on trawlers in the Kodiak fisheries refer to "GOA Shoreside Trawl Fisheries" on page 5-20 for sampling guidelines. If you have trouble following these guidelines, you must document the situation in your logbook.

If it is not possible to sample all hauls brought aboard the vessel (with the exception of the first haul if necessary), you must use either the RST, RBT, or both to determine hauls from which to collect species composition samples. Please refer to "How to Use the RST" on page 2-14 for instructions on using the RST and refer to "How to Use the RBT" on page 2-14 for instructions on using the RBT. ***Please note that using the RST and RBT together is rare on trawl vessels.*** Consult NMFS staff if you frequently use them together as your sampling effort for that vessel will be low.

SPECIES SAMPLING GUIDELINES

The sampling methods you are able to employ will depend greatly on vessel and fishery related factors such as: vessel size, gear, hauling and processing practices, crew assistance, catch diversity, and catch size. There are some guidelines and sampling methodologies that you should try to follow and maintain. These are discussed below.

Preferred Sampling Method

There are several sampling methods available to you for collecting samples. These are covered in "Random Sampling on Trawlers" on page 5-9. As discussed in the section "Introduction to Sampling Theory" on page 2-16, the preferred method is ***systematic random***.

To achieve systematic random sampling on trawlers, the catch size or processing time must be divided into sampling units of equal size. Choosing units to sample systematically results in samples that are equally spaced throughout the entire haul.

When samples are non-biased and spaced equally throughout the haul, there is a higher probability that these samples as a whole are representative of the catch. The fewer the samples, the less likely the catch is being fairly represented.

Fewer, smaller samples make it less certain that the samples are representative. For this reason, several larger samples within a haul are preferred.

Trawler Samples and Subsamples

On trawlers, you will always have samples, but you may not always have subsamples. Subsamples are only taken in those situations when there are ***two*** predominant species in the sample. Subsamples must come from ***within*** samples. In the data, you will use a specific numbering convention to associate a subsample to the sample from which it came. To indicate this relationship in this manual's text, the term "parent sample" is used. For any ***subsample***, the parent sample is the sample from which the subsample was taken. ***A more thorough discussion of subsamples and when to subsample can be found on page 5-19***.

Number of Samples per Sampled Haul

You should take as many individual samples within a haul as feasibly possible. ***At least three discrete composition samples of approximately equal size are required for every sampled haul to allow data users to assess sample variance.***

There may be fisheries and vessel types where it is not possible to collect multiple species composition samples within a sampled haul. In those instances, you must document the circumstances in your observer logbook Daily Notes pages.

Sample Size Considerations

Sample sizes within a haul must be approximately equal to each other and it is preferred that sample sizes be as large as possible. The larger the sample size, the larger the portion of catch contributing species composition information. In the best case scenario, the sample size is the entire haul and everything from within it is accounted for. This best case scenario is rarely a feasible one! Taking multiple random samples and making these samples as large as possible is a compromise between the best case scenario and single small samples. Refer to "At-Sea Sample Sizes" on page

5-16 for specific information regarding sample size options by trawl fishery.

On trawlers, the size of your samples will be influenced by several things, among them:

- the diversity of the catch.
- the space available to you for storing fish from your sample.
- the time you have available to sort fish.
- crew willingness to help sort or slow processing to accommodate sorting.
- whether or not there is a flow scale in use.

When considering how large you can make your samples for any given haul, follow these guidelines:

1. Strive to collect random samples using a random sample design (see “Random Sampling on Trawlers” on page 5-9). When this is not possible, document the reasons in your logbook.

2. Random samples taken within a haul should be of approximately equal size. Catch diversity will be a primary factor in sample size maximums. In order to achieve similar sample sizes over the course of one sampled haul, tailor sample size to accommodate the most diverse portion of the catch

.

Remember: it is just as biased to increase sample sizes within a haul because it has become clean as it is to cut sampling short because the catch has become dirty!

3. Allocate your time appropriately. Maximize sample size based on the amount of time you can afford per haul, keeping in mind all the other sampling related duties you are required to perform. Keep to the RST and/or RBT schedule. The size of any given sample will be additionally influenced by the following factors:

- **General Health -** The amount of time and energy you can spend on composition sampling will be affected by your general health. Most factory vessels operating 24-hours per day will carry two observers and you will each work a 12-hour shift. If you are the sole observer on a factory vessel, you may use the RST and/or RBT which will reduce the number of hauls you need to sample. You may need to reduce sample size to keep up with your other duties, recover from seasickness, or recover from illness.
- **Size of Hauls -** Consider the amount of catch per haul when deciding on a sample size. In some fisheries, 100 mt codends taking 4-8 hours to process are not uncommon. Weighing and counting everything in a haul this size is difficult due to time constraints and high bycatch.
- **Species Diversity -** It takes longer to sample a “dirty” haul (one with high species diversity) than it does to sample a “clean” haul (one with only one or two predominant species). In fisheries with a lot of bycatch, you will need to reduce your sample size in order to process your samples in a reasonable amount of time. Conversely, in clean fisheries you may be able to take much larger samples.

4. **You must sample from unsorted catch** and you must be present to sort, or directly supervise the sorting of, all fish in your sample. If you see or suspect that you are missing individuals in your sample, reduce your sample size and/or change your sampling method. ***You must be certain you are accounting for all of the fish in your sample***.

5. With the exception of the offload salmon census, you cannot selectively sample for any one species. ***Every species that lands in a sample must be accounted for on the species composition data form.*** The species you will encounter can be categorized into three groups:

- **Prohibited species** - The five prohibited species groups are: the king crab group, the Tanner crab group, the salmon group, Pacific halibut, and herring.
- **Non-prohibited species** - This is made up of two groups: bycatch species and target species.

- **Seabirds** - This category encompasses all bird species, both migratory and resident, found in Alaskan waters.

SAMPLE BIAS

The goal of the Observer Program is to obtain unbiased samples of the harvested catch in each target fishery. Bias can be minimized when sampling by employing appropriate sampling methods, sampling from ***randomly chosen*** sample units, and by accounting for other recognized biasing mechanisms.

Recognizing Potential Bias

The vessels you will be working on are not research vessels and most sampling situations you encounter will not be ideal. Assess your collection site for possible biases, document what they are, and how you attempt to avoid them. Some specific sampling biases you need to look for are discussed below.

Deliberate Interference

Federal Regulation 50 CFR 679.7 states that it is unlawful to "interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or the sorting or discarding of catch before sampling." In some fisheries it is advantageous for the vessel to intentionally remove certain species prior to sampling. This is especially true for prohibited species bycatch. The removal of organisms prior to catch sampling is called "pre-sorting." This practice is illegal and biases your samples by misrepresenting the true bycatch rate for these species.

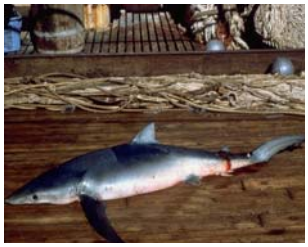
Refer to page 20-2 for the steps to take if you suspect deliberate interference with sampling. There are several ways vessel personnel could sort out individual organisms prior to your sample, so watch for the following:

- **Dumping undesirable catch overboard** - Vessel crew may dump an entire codend overboard, or a portion of one, because of high bycatch levels. This biases your data because you do not have access to the entire catch. Ask the captain not to discard fish from the codend until you have had the opportunity to sample. On factory vessels, this may mean you reduce your sample size and sample on deck. If the captain will not comply, note this in your logbook. If the vessel regularly dumps codends before you can sample, contact your inseason advisor or other FMA staff member. Enter code 6 on the VHF for vessel type if the entire catch on a Catcher Vessel is dumped overboard (see page 4-15).
- **Removing and discarding unwanted species** - Vessels may have crew members in the trawl alley, fish bin, or on the sorting line in order to sort out fish. This activity can potentially bias your sample, depending on when it occurs. If organisms are removed prior to you taking a sample, such that they never had the opportunity to land in your sample, your samples are potentially biased. Inform the captain or factory manager that you must have access to unsorted catch. To the best of your ability, quantify the amount of fish removed each time this occurs and document this information on your Deck Form and in the Daily Notes section of your observer logbook. Notify the Observer Program or NMFS Enforcement personnel of pre-sorting problems as soon as possible. If you feel this may make your position on the vessel unworkable, you can ask NMFS staff not to confront vessel personnel until you have disembarked.
- **Crewmen in the bins** - The setup of some non-AFA groundfish factory vessels is such that it is necessary for a crew member to push the fish out of the bin door or onto a conveyor belt. This is a potential problem because s/he can push certain species away from the conveyor belt where you are sampling, or hold these species until you are finished sampling. Currently, on limited access non-AFA groundfish vessels, there are regulations that restrict crew activity in the bins when the vessel is fishing. Specifically, observers must be able to view all activities inside the bins. For details on these regulations, see "Regulations Specific to Non-AFA Trawl Catcher/Processors Fishing in the BSAI" on page 5-35. On other vessels with bins, there are ways to deal with the problem of crewmen in the bins. These are listed below. If the problem continues, notify the Observer Program or NMFS Enforcement.

  1. Ask the crew member to step out of the bin when you are sampling.
  2. Randomly select times to take your sample.

4. Watch the sorting line to see if concentrations of specific species increase when you are not sampling.
5. Look for halibut and/or salmon being held in the bin. Some boats have areas in the bin where fish can be stored until you leave the factory.
6. Speak with the individual responsible, then talk with the factory managers and the captain. Document these discussions in your Daily Notes.

- **Large animal removal on deck** - Although presorting is never legal, removing large animals on deck to prevent them from entering the factory or RSW tanks is a common practice, and sometimes unavoidable. ***You must ask to be notified if this occurs. Depending on the timing of the removal, you may need to include the animals in your species composition data for that haul*** (see “Accounting for Pre-Sorted Samples” on page 5-22).



Inform the captain the first time pre-sorting occurs. Document *ALL* observations, occurrences, and conversations you have regarding this problem!

Mechanical Biases

In addition to deliberate biasing actions by vessel crew, there are mechanical biases. In order to determine if mechanical bias is affecting your sample population, you must understand how fish flow from the codend to your sample collection point. When assessing fish flow, specifically watch for:

- **Grates** - These sort out large organisms such as sharks, large skates, and large halibut when fish are dumped into the live tanks. Look for grates on deck hatches and bin doors from the deck to the live tank. Count and/or weigh anything you see mechanically pre-sorted from the catch and include this in your species composition data as a discrete sample (see “Accounting for Pre-Sorted Samples” on page 5-22).
- **Small openings** - Small openings can exclude large fish from your sample. Watch for exclusion of large fish at the hydraulic door allowing fish to move from the fish bin to the factory processing belts. Often the crew will keep this door open just enough to allow a steady flow of fish. If the door is not open enough to allow large individuals to pass through, the sample you collect is potentially biased. If you are collecting fish from a trawl alley through an access point in the trawl alley wall (for example by lifting a bin board or gate), make sure the opening is big enough to allow the larger organisms in the haul the same access into your sample as the smaller ones.
- **Inaccessible bins, tanks, or belts** - These will prevent you from setting up a random sampling design because the fish in the inaccessible bin, tank or belt will not have a chance to fall into your sample. While there is little you can do to solve this problem, you should try to randomize your collection as much as possible. Make note of the sampling biases and how you deal with them in your logbook.
- **Conveyor belts** - If a conveyor belt is running too fast or too deep with fish, it is difficult to see and sort bycatch that passes by you. You must be able to account for all individuals in your sample! Ask the crew to slow the belt and run the fish one layer deep. If the vessel crew will not comply, or if you are still unable to sort bycatch from the sample, note this in your logbook and take smaller samples for species composition (*e.g.*, sample sizes of several hundred kilograms as opposed to several tons).
- **Incline belts** - Incline belts can affect a sample in many different ways. Some are steep with small tines that don’t accommodate large fish. Others allow large fish to move up, but at a different rate than the smaller fish. When this occurs and you are not sampling the entire catch, larger fish have less of a chance of falling into your sample. To alleviate this bias, try to take your sample before the incline belt. If you cannot avoid the incline belt, be sure to ***clear all fish*** in front of the incline before and after you collect your sample. Fish that did not make it up the incline belt during your sample collection period must be taken from the base of the incline belt and be included in your sample.

- **Pumping the net** - There are a few vessels that pump fish from their codend into the hold. These vessels use transfer tubes that sort out large individuals. Transfer tubes may also be fitted with grinders. There is no way to account for organisms sorted out in this way. In your logbook, make note of the fact the vessel transfers fish by pump. Include the diameter of the pump tube and the size of the largest organism you observed in the catch. Sample for species composition as if this were not a factor.

Minimizing Sampling Bias by Sample Method

The sampling design you use should take into account any potential biases and limit their effects. Three ways to limit sample biases are:

- **Use random sampling:** By using a random sample design, you will eliminate subjectivity and ensure that every member of the population has an equal probability of occurring in your sample.
- **Maximize your sample size:** Weighing and counting everything in the catch is the best way to obtain information about the catch's population, since the "sample" size in this scenario is the entire catch. In most cases it will not be possible to sample the entire catch and smaller samples will have to suffice. Although larger random samples are preferred, small samples are perfectly viable when they are randomly collected. ***If you have to choose between large, non-random (potentially biased) samples and smaller, random (unbiased) samples, smaller random samples are preferred.***
- **Take multiple samples:** Take as many samples as you can. ***Your sample units must be of relatively equal size***.

Non-Random Sampling Bias

When samples are not collected randomly, fisheries managers cannot assume they are unbiased or use statistical methods of analysis on these data, as they can with random samples. If you determine that you cannot use a random sample design on your vessel, you must document the reasons in your logbook and use a non-random (or "opportunistic") method to collect samples.

Opportunistic Samples

These are samples taken either (1) without pre-selecting when, or from where, you are going to sample, or (2) from the only accessible portion of the catch. The following are examples of opportunistic sampling: taking subsequent samples immediately after you have finished sorting the previous sample regardless of how long it took to sort that sample, sampling from only one area of the codend or deck because all other areas are inaccessible, and taking your sample at the very beginning of a haul because the haul is small and you are worried you are not going to obtain a reasonably sized sample if you don't take it right away. In each one of these examples, not every fish in the population has an equal chance of ending up in your sample; the sampling is opportunistic and potentially biased.

Due to vessel constraints or safety considerations, random sample methods are not possible on some vessels. In these situations, opportunistic samples will have to suffice. If you use opportunistic sampling techniques, document the reasons why you had to do so in your observer logbook.

Sampling Methods to Avoid

Sampling methods to avoid are ones in which you make a decision on when or where to sample based on perceived composition. Never take a sample from a particular area of the haul because you feel the organisms in that area have not been fairly represented in your sample. For example, if you see a rare species while the haul is being dumped, but do not get any in your sample, it is ***not*** appropriate to select an additional portion to sample just because it contains that rare species.

MECHANICS OF SAMPLING ON CATCHER/PROCESSORS

Sampling on a catcher processor or mothership usually takes place in the factory, from a conveyor belt. To minimize bias, the sample collection point should be prior to all sorting activities. Usually, the closer you are to where the catch exits the bin or tank, the less chance any mechanical or crew sorting can occur. If your sample collection point choices are limited, take steps to eliminate sample bias from mechanical size sorters, size sorting incline belts and/or pumps located prior to the collection site.

Sample Collection After an Incline Belt

On many factory trawlers, fish exit a bin or live tank, fill up a trough, then travel up an incline belt before they reach a horizontal sorting belt. To minimize the bias inherent with incline belts, clear the trough and incline belt of fish before taking the sample. If you can, fill the trough with just your sample fish and run this entire amount into your collection containers. Make sure when sample fish are being allowed into the trough, that the hydraulic door from the fish bin is opened enough to eliminate size biasing.

Sometimes it is too difficult to control the quantity of fish going into a cleared trough. If this is the case, have the crew do the following before you take your sample:

1. Close the hydraulic door to the live tank.
2. Clear the trough and incline belt.
3. Open the hydraulic door to the live tank and begin running fish as they would normally.

As you collect the sample from this flow of fish, watch for any organisms that obviously should be in your collection but are not because they cannot make it up the incline belt.

Sample Collection Off a Conveyor Belt

There are three simple methods for collecting unsorted catch off conveyor belts. Just remember to collect before any sorting activities. Any of these methods can be used within your sampling design. They are:

- **Collecting from the flow of fish**: Hold a container under the flow of fish from the live tank or under the flow of fish falling from one conveyor belt to another. If a fish is legitimately part of your sample but too big to fit in the container, you still include it in your sample!
- **Diverting the flow of fish**: Use a diverter board to spill fish into a container. A diverter board is a board hinged to the side of a conveyor belt that, when open, allows catch to spill off the belt.

Conveyor belts and motors can be hazardous! Loose clothing, pieces of equipment, and fingers can become caught or tangled with very unpleasant consequences!

- **Collecting fish directly off the belt**: Collect all catch in a prescribed area of the belt. If there is no place in the factory that allows collection by diverting the flow of unsorted catch you can stop the belt and collect all the catch in an area. To do this:
  1. Close the bin door and clear the belt by running the fish into the factory. You cannot use these fish, since you cannot be sure that they haven't been sorted.
  2. Once the belt is cleared, re-start the flow of fish until the belt contains enough for your sample.
  3. Stop the flow of fish and collect all fish from the belt. If you cannot take all the fish off the belt, use a prescribed area (from point A to point B) and collect all fish in the area, regardless of species or size. Never hand select fish to include in a sample.

MECHANICS OF SAMPLING ON CATCHERS

Obtaining random samples on catcher vessels takes creativity and a thorough assessment of how the catch is processed. Catcher boats usually handle their codends in one of two ways:

1. The catch is dumped directly down hatches into the RSW tanks. This is typical on pollock vessels.

2. The entire catch is dumped into the trawl alley and the crew sorts retained fish into RSW tanks. This is typical on Pacific cod, flatfish, and rockfish vessels.

Sampling from a Codend

If your vessel dumps unsorted catch directly into the RSW tanks, you may have to fill your baskets by catching the fish as they are flowing from the net to the deck, or from the deck into RSW tanks. If you choose this method, any large fish that hit your basket are

included in your sample, even if they don't fit in your basket. You may need assistance from a crew member to hold your basket under the flow of fish.

Always consider your safety when choosing a collection site. Do not position yourself under the codend when taking a sample!

Sampling Using a Checker Bin

If your vessel has checker bins available (checker bins are compartments on either side of the trawl alley), you can divert unsorted catch into them by lifting a bin board. The crew may also be able to dump some of the codend directly into the bins. Depending on the size of samples collected, weigh all the fish, or use random methods to further reduce the sample population within each bin (see page 5-16).

Taking samples from different bins minimizes bias because samples are not coming from only one area of the codend. On some vessels, crew use checker bins to store gear such as extra codends, webbing or chains. If you do not have access to all bins, document in your logbook what bins you can and cannot use to contain samples. If you can only sample from one bin, you may be able to implement a temporal sample design (see page 5-16) to sample over the course of the haul and thereby minimize bias.

Sampling from the Trawl Alley

If catch is dumped onto the trawl deck, take steps to prevent size sorting when selecting your sample. Do not take a sample by shoveling fish into your baskets, by hand selecting fish, or by using your basket as a scoop. Instead, isolate an area from which to collect all fish. You can use an overturned basket to create a "sampling circle" and you would consider any organism touching the rim of the basket as part of the sample. This only works well if the fish are not sliding around while you are collecting them. Another way to isolate a sample is to ask the vessel for extra bin boards; these wooden planks can be used to cordon off an area of the trawl area where you can collect fish for the sample.

In the Pacific cod, rockfish, and flatfish fisheries, the crew will want to start sorting the catch immediately. You must be sure to take your sample before any active sorting by crew or machines happens.

Not looking at the fish while you grab, gaff, or shovel them does not eliminate bias! Fish collected in this manner are potentially size biased if you do not have a random sampling design in place for selecting individual fish.

RANDOM SAMPLING ON TRAWLERS

In order to take random samples from a population, you need to establish a framework that ensures all individuals have an equal probability to be included in your sample. A sample design eliminates subjectivity regarding when to take a sample. Without a defined, documented sampling design, your samples cannot be considered random. For further detail regarding sampling designs, see "Introduction to Sampling Theory" on page 2-16.

Population and Units

On a trawl vessel, the population for species composition is all the individuals caught in a haul. The estimated population that you will use to establish your sample design is often referred to as the "hail weight." The sample units can either be spatial (units of space) or temporal (units of time). When the entire population is available at one time (*e.g.*, when a codend is dumped out on deck) spatial sampling may be most appropriate. When the entire population is available over time (*e.g.*, dumped into a live tank or run across a factory conveyor belt) both spatial and temporal units are viable options.

Censusing a Haul

Random sample designs are used only for sample sizes that are less than the weight of the entire haul. Sampling an entire haul is a true census of the population, and is not subject to sample bias.

Unable to Follow Design

If you abort or alter a sampling design during the sampling of a haul for any reason, mark the "Unable to Follow Design" field for the affected sample or samples on your Deck Form and on the paper form (if required) or in ATLAS. See "Addressing Challenging Sampling Situations" on page 5-13 and document the circumstances in your observer logbook Daily Notes (see "Documenting Design Constraints or Problems" on page 2-19).

Random Sampling on Catcher/Processors

Both temporal and spatial designs are applicable on catcher processors or mothership vessels. Commonly, these vessels have fish bins you can measure or motion compensated flow scales. **Make sure that you have explored *systematic* random sampling from spatial and temporal frames as an option before resorting to *simple* random sampling from spatial or temporal frames.** Systematic designs are discussed beginning on page 5-11. Sample design codes are discussed on on page 2-20 and sample unit types are discussed on on page 2-21.

Record the hail weight used to establish your sample design on your Deck Form. See examples on page 5-44 and page 5-51.

Spatial Frames on Catcher Processors

Spatial sampling designs are the best to use on catcher processors with operational flow scales. You and the crew will have a good estimate of total catch weight before the haul is processed and, because the catch is passing over a flow scale, you will be able to start your sample at specific, randomly chosen weight values. By using the flow scale to determine the weight value to *stop* sampling, you can easily supply a total weight for each of your samples.

Deriving sample weight using the flow scale is easy: sample stop weight minus sample start weight is the size of the sample.

Simple Random Sampling from Spatial Frames on Catcher Processors

A simple random sample is sometimes collected for smaller hauls when you do not have time to collect multiple systematic samples. To accomplish simple random sampling from a spatial frame, determine the amount you can sample at a time. Sampling units must be equal, so size your sampling units to accommodate the level of species diversity you are seeing in the haul (see "At-Sea Sample Sizes" on page 5-16). Divide the total estimated haul weight by your desired sampling unit size and number these units sequentially. Use the random number table (Appendix page A-19), a watch, cards, dice, or other method to pick a unit to sample.

Temporal Frames on Catcher Processors

On vessels without an operational flow scale, temporal frames maybe easier to work with. If it takes several hours to process a haul, it is easier to sample at a given time than an estimated weight value. Factory managers will usually have an idea of how many tons of fish per hour the factory can run. Use this weight value per hour estimate as a guideline for how much time it will take the crew to process the entire haul. Ask the factory manager about estimated run time if haul diversity is high, because it may take more or less time than average to run dirty hauls.

1. Few catcher processors fish without flow scales. Those catcher processors without flow scales will likely have diverse catch. Therefore, samples will have to be small (*i.e.*, 100-200 kilograms as opposed to several thousand). To sample effectively on these vessels you will need to 1) determine the size of sample you can take, and 2) estimate how long it will take to process this sized sample. Divide the total processing time by the number of minutes you estimate it will take to process a sample.

2. The resulting value represents the number of sampling units within the haul.

3. Randomly select a unit as your sample unit. Collect your sample for the duration of the unit (of time) selected. ***One minute is the smallest unit of time NMFS allows for a temporal sample frame.***

See Example 5-1 for a simple random sampling design using temporal units to designate when to collect a spatial sample unit. The unit code for example 5-1 is code 5 "other" (see "Sample Unit Type for Species Composition" on page 2-21).

Your yellowfin sole vessel lands a 3 ton bag. They process about 7-8 tons per hour. The factory manager estimates run time for such a small haul is going to be about 20 minutes. Your sample size is 5 baskets of fish, so you decide you only have time to collect one random sample. You choose a random minute 1-20 and take a 5 basket sample at that minute.

Example 5-1 Simple Random Sampling From a Temporal Frame

Systematic Sampling on Catcher Processors

In addition to the statistical benefits of systematic random sampling, there are practical benefits. With ***simple*** random sampling, it is possible to randomly choose back to back sampling sections. Back to back samples can be difficult to manage, because there may be little time to work up the first sample before you have to accommodate the next. With systematic sampling, you are generally guaranteed some amount of time between samples.

Systematic sampling involves taking a sample during every ”nth” sampling unit, defined as a time interval (for temporal sampling) or space interval (for spatial sampling). For a systematic random design, randomize your sampling start time or space within the first sample section and continue to take samples at equal intervals throughout the rest of the haul or random haul portion. ***To simplify the development of your sample frame for an open ended population, always round the vessel estimate down rather than up when adjusting haul size estimates. This will decrease the chances of overestimating the haul size and not achieving your last sample.***

In order to set up a systematic design, you have to determine two things beforehand: the size of your sampling unit and how many of these you can sample. Once you decide on these two things, you can determine the total number of sampling units in the haul and the sequence of sampled versus unsampled units.

Systematic Sampling from Spatial Frames

Systematic sampling from a spatial frame works very well on vessels with a functioning flow scale. Using the flow scale readout you can determine an exact start and stop weight value for a sample. To create the sample frame, do the following:

1. Determine the size of samples you intend to take. The size of each sample will be dependent on the factors outlined in the section “Sample Size Considerations” on page 5-3. When the catch has low diversity, observers routinely collect multiple samples that when added together equal 1/2 or 1/3 of the entire haul. These samples can be measured in tons. When the catch is more diverse the samples will be much smaller. These samples would likely be measured in hundreds of kilograms rather than tons.

2. Divide the haul estimate size by the intended size of your sample. Number the resulting sampling units sequentially.

3. Divide the number of sampling units in your frame by the number of samples you intend to take. This value represents your sample interval “***i***.”

4. Choose a random number within the value of your sampling interval. This resulting number corresponds to the first sampling unit you will sample. Samples are taken at this randomly selected unit and every “***i”*** units thereafter (see Figure 5-1).

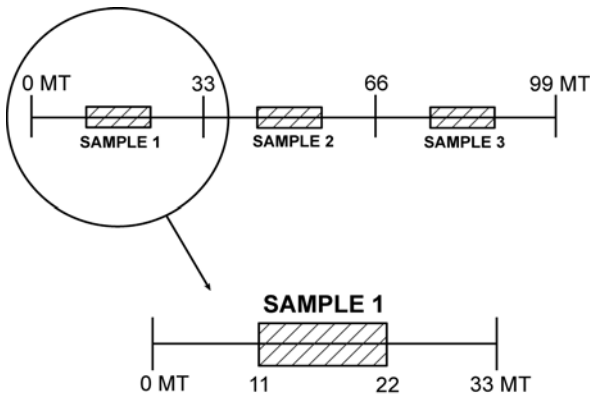
Sample sizes will depend on haul diversity. If the catch is very diverse, reduce sample size as much as you need in order to appropriately account for all organisms in that sample (see Figure 5-1 and Figure 5-2 for further examples).

Systematic Sampling from a Temporal Frame

Example 5-1 could be modified to a systematic sample from a temporal frame by taking small samples (one or two baskets) at systematically spaced intervals. To sample from a temporal systematic frame, divide the total estimated run time by the number of samples intended. This gives you your equally sized sampling intervals for the haul. Use the random number table, a watch, cards, dice, numbered slips of paper, or some other method, to choose a time within the first interval to take a sample. This random number represents the minute at which you will take the first sample. Subsequent samples are taken at the same minute within each sampling interval.

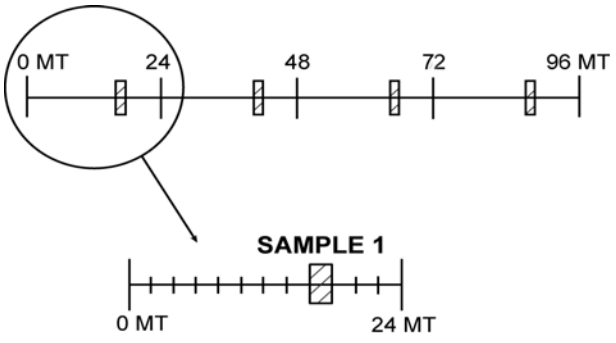
For example, if your number of intended samples is 3 and the estimated run time for the haul is 240 minutes, then your sampling interval is 80 minutes. If the randomly chosen minute within the sampling interval of 80 minutes is 17, you will collect samples at 17 minutes, 97 minutes (= 17 + 80 minute sampling

interval), and 177 minutes (= 97 + 80 minute sampling interval). If you misjudge processing time and find that you can take another sample from your sampling frame, you ***must*** do so. If, in the above example, the vessel is still processing at 257 minutes (177 + 80 minute sampling interval) you will need to take another sample at that time. Refer to Figure 5-4 and Figure 5-6 for further examples of temporal based sample designs.



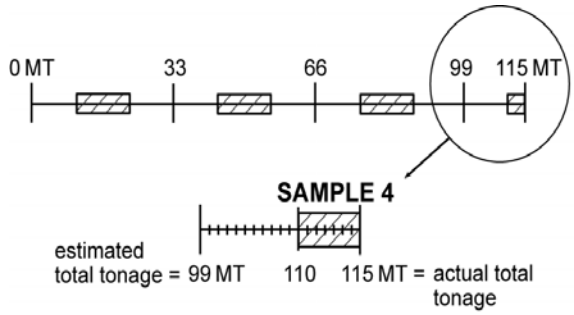
An estimated haul size of 99 metric tons was divided by 11 tons, the amount the observer felt they could sample at a time. The resulting sampling units numbered sequentially (1 - 9). These 9 units were further divided by 3, the minimum number of samples required. A random number was chosen within the resulting sampling interval of 3 "*i*" units. Samples were taken at this random sampling unit and every third sampling unit thereafter, until the end of haul processing.

Figure 5-1: Large Systematic Samples on a Vessel with a Flow Scale and Low Species Diversity



An estimated total haul weight of 96 metric tons was divided by 2 metric tons, the amount the observer felt they could sample at a time. This yielded 48 sampling units. These 48 units were further divided by 4 (the number of samples the observer felt they could take) to obtain a sampling interval of 12 units. A random number 1-12 was chosen to select the starting sampling interval. Samples were taken at this random sampling unit and every 12th sampling unit thereafter, until the end of haul processing.

Figure 5-2: Small Systematic Samples on a Vessel with a Flow Scale and High Species Diversity



You must maintain your sampling design for the entire catch. If the actual haul size is larger than your estimate, extend your sample frame to accommodate the systematic sampling design for the haul. In this example, the observer was sampling 11 tons with 22 tons between each sample. The actual haul weight was 16 metric tons over their estimated weight for the haul of 99 metric tons. In order to maintain their sampling design, the observer began a sample at 110 metric tons (one interval of 22 metric tons after the end of their third sample). The observer would sample a full 11 ton unit or to the end of the haul, whichever came first.

Figure 5-3: Maintain Your Sampling Design for the Entire Catch

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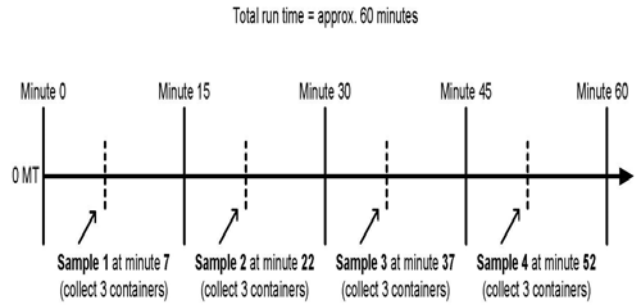


The observer determined that the haul was too diverse to accomplish large sample sizes. They felt they could accommodate 3 full baskets at a time. The total processing time was estimated at 60 minutes, (or sixty 1 minute units). This was divided by 4, the number of samples the observer intended to take. A random minute was chosen within the resulting sampling interval of 15 minutes. Samples were taken at that random minute and every 15 minutes thereafter. It would be most appropriate to collect one minute's worth of fish, because your sampling design is based on time. In practice, this is not feasible when hauls are very dirty. Instead, although you use time to determine when to take your sample, you focus on making sample weights equal in size, rather than the time over which a sample is collected.

Figure 5-4: Small Samples of Equal Weight Sizes Are Collected From the Temporal Frame at a Randomly Chosen Time Unit

Addressing Challenging Sampling Situations

On rare occasions you may not be able to sample the entire originally chosen sample unit or be able to follow your intended sample design. If the original sample unit or design for the haul cannot be followed, indicate this by marking the "Unable to Follow Design" field for the sample or samples affected on the Deck Form and make a record of what happened in your Daily Notes. ***The sample design code and sample unit type you originally intended to sample are recorded on the Observer Haul Form.***

You may not be able to sample the entire originally chosen sampling unit due to unexpected high species diversity. If this happens you will have to abandon your sample collection sometime within one of your randomly chosen units. This usually happens during collection of a large sample with a single predominant species. This situation should be avoided, however, if you are forced to stop collecting a sample before the entire sample has been collected, follow these guidelines:

1. Before you abandon your original design and sample unit, consider whether collecting a subsample for 2 predominant species would allow you to sample your original intended unit size. If you decide to collect a random subsample from the remainder of the unit, record the 2nd predominant in your subsample only. The weight for this species will be accounted for in the subsample. See "Subsampling for Two Predominant Species" on page 5-19 for subsample guidelines.

2. If a subsample is not possible, follow these guidelines for your smaller samples:

- If you are collecting 3 systematic samples and the first sample must be reduced in size from the original design, make all subsequent samples the same size as that first smaller than intended sample. Determine a sample size that is feasible for the remaining units left to be sampled. A good guideline for this is to try to make the new sample size consistent with the first sample that you had to reduce in size. For these smaller subsequent samples, use the start time/weight laid out in your original sample design.
- If you are collecting 3 systematic samples and the 1st sample unit is sampled without incident, but the second sample must be abandoned at some point due to high diversity, the 3rd sample should follow the original intended unit size. If that is not possible, attempt to keep sample 3 of consistent size with sample 2.

If the original sample unit or design cannot be followed, indicate this by marking the "Unable to Follow Design" field on the Deck Form and in ATLAS or on the paper composition form for the sample or samples affected.

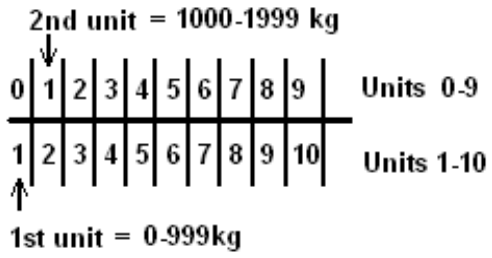
On subsequent hauls, you may not be able to collect large units. In order to achieve similar sample sizes over the course of one sampled haul, tailor the sample size to accommodate the most diverse portion of the catch. Establish a unit size that you know you can sample consistently through the entire haul. If you are constantly sampling less than your intended unit, you must come up with a new unit size, frame and possibly an entirely new sample design. Contact your inseason advisor or visit the field station if questions remain.

Implementing Your Sample Design

The FMA observer program recognizes that collecting data on a commercial vessel can be very challenging. The sampling directions provided in this manual are guidelines that when followed will ensure your data collections are consistent and useful to the data users.

Selecting the Starting Unit

For a systematic sample you must select a starting unit for your sample once you have set up your spatial sample design (remember that for a simple spatial you select only one unit). Example 1: You have 10 units of 1000 kg and ***you randomly select unit 2 as your starting unit; this means you should sample from 1000-2000 kg.*** Example 2: If you have 60 units of 100 kg and ***randomly select unit 33, you should sample from 3200-3300 kg.***



If your units are numbered 1 thru *n* and you multiply your selected unit number by the unit size the resultant number is actually the ***end*** of the unit you need to sample. This would bias your samples by not including the first unit as one to be sampled and the first part of a haul would not be sampled. An easy way to correct this is to start your random number selection at 0. If you have 10 units, instead of selecting 1-10, randomly select a number between 0 and 9. Using example 1 above the selection of "1" would give you your actual starting weight of 1000 kg (1 x 1000 kg). If you have 60 units, instead of selecting 1-60, randomly select a number between 0 and 59. Using example 2 above, the selection of "32" would give you your actual starting weight of 3200 kg (32 x 100 kg).

Collecting Your Sample Unit

It is understood by FMA that you may not be able to begin or end a sample at the exact kilogram or time as outlined in your sampling design. For example, on your vessel you intend to collect 150 kilograms of fish per sample and have used this as the unit size to design

your sample frame. The trough on your vessel holds about 800-1000 kg of fish. If your sample collection point is intended to begin at 5500 kg, then you are expected to be in the factory and ready to begin the sample process when the flowscale reads about 4500 kg (about a trough full of fish). At this time you should have the bleeder close the doors to the live tanks and then clear the trough and belts. If after clearing the belts the flowscale reads 5184 kg, it is appropriate to take your sample even though you are not at the exact weight designated by your sample design. Going over the desired sample point may also occur. The FMA recognizes that in situations like this any attempt to get closer to your designated collection unit will not improve the overall value of your sample.

Over a few days of sampling it is expected that you will be able to figure out the "normal" range of variation within your system and continue to bring your collections more in line with your sample designs. Similarly, your sample size will rarely be the exactly designated weight. For example, it is acceptable if 150 kg is intended for your sample size and after collecting all the fish into your containers, the total weight is actually 167 kg or perhaps 125 kg. Again, over time you will develop a "normal" range for your sample size.

These variations in sample size and sample collection start points are normal variations due to the logistical challenges on commercial fishing vessels and are not considered to be "unable to follow design."

Random Sampling on Catcher Vessels

Random sampling from a temporal or spatial sampling frame on catcher vessels can be very challenging. Try the following methods and document your results.

Make sure that you have explored systematic random sampling from a spatial or temporal frame as an option before resorting to simple random sampling from a spatial or temporal frame. Systematic sampling methods are discussed beginning on page 5-16.

If you determine that sampling using a random design is not possible, you must document your reasons and give an explanation of the sampling methods used.

Spatial Frames on Catcher Vessels

Spatial frames may work on vessels which dump their entire codend onto the trawl alley before sorting retained species into RSW tanks. One way to create a spatial sample frame is to establish a "grid" pattern on the trawl alley. Mark out a grid pattern or use reference marks such as trawl alley boards, hatch, or scupper openings, etc. Number the grid sections and use the Random Number Table (RNT) on A-19, or other method, to pick areas from which to take samples. If you cannot collect all fish from within a grid, further divide the space into equal quadrants and randomly select one of these (see Figure 5-5). Each collection from within a unique grid or quadrant constitutes a distinct sample for the haul.

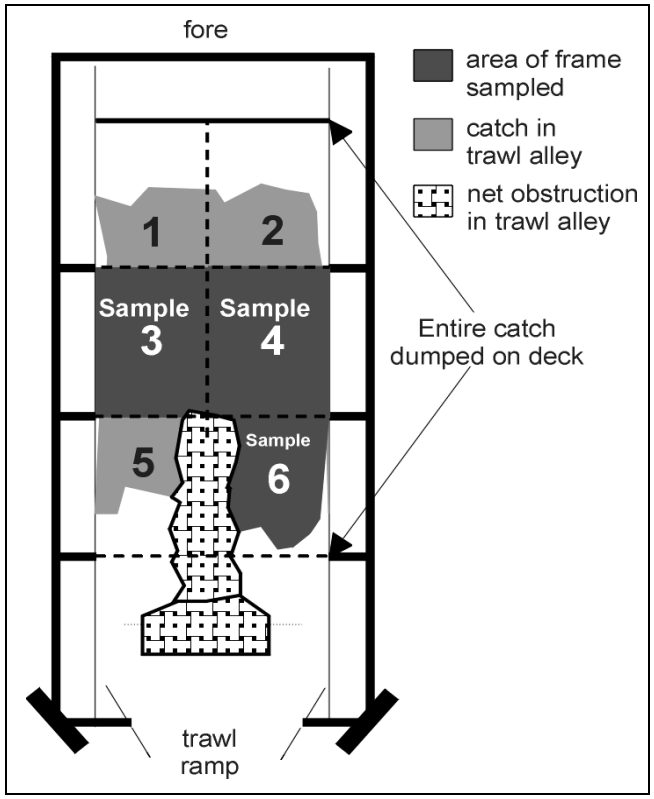


Figure 5-5: Spatial Design Using Trawl Alley

If your vessel has several checker bins available for use, it may be possible to implement another type of spatial design. Number the checker bins and use the RNT to pick which checker bin(s) to draw samples into. Lifting the checker bin boards allows fish to flow from the trawl alley into the bins. Each checker bin of fish constitutes a discrete sample for the haul (see Figure 5-6).

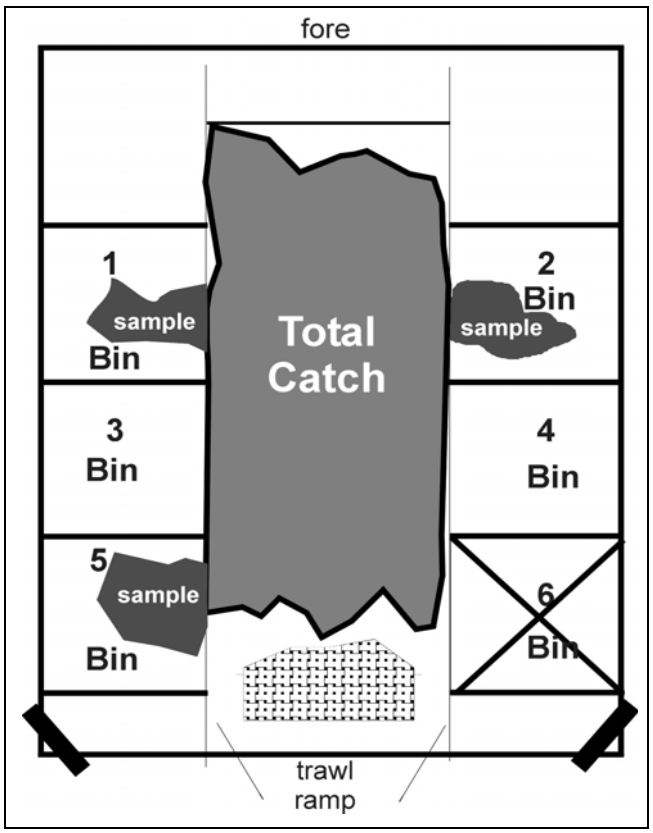


Figure 5-6: Spatial Design Using Checker bins

In the Figure 5-6 example, checker bins were numbered and the observer used the RNT to pick bins 1, 2 and 5 to sample. Bin 6 is unusable (this is documented as a source of potential bias in the logbook). Fish were allowed to flow into the selected bins when the bin boards were lifted. This design yielded three species composition samples for the haul.

Temporal Frames on Catcher Vessels

Temporal frames can be used when the codend is dumped directly into RSW tanks and sampling requires you to divert the flow of fish from the codend into baskets or other containers. Divide the dumping time into equal numbered intervals. Use the RNT or other method to choose time intervals to collect samples. Collect samples from several intervals and record each of these samples as discrete samples for the haul. If the vessel dumps fish rapidly, you may need to take the entire sample from one interval. You always want to try to get multiple samples within a haul, but if you can't, make sure that the interval you use for your one sample is randomly selected! Document your methods and any possible biases in your logbook.

Systematic Sampling on Catcher Vessels

Systematic sampling involves taking a sample during every "Nth" sample unit, defined as a time or space interval. Samples are taken systematically throughout the haul. Of the two frames available to you (spatial and temporal), systematic sampling from a temporal frame is often the most feasible on catcher vessels. Unsorted catch is more likely to be available over time than over space on these vessels. Vessels falling into this category are those that dump their catch directly into a hold, have incline belts out of the trawl alley or run fish into tanks from a below-deck sorting line.

As with CPs, there are practical benefits to systematic sampling on catcher vessels. With simple random sampling, it is possible to randomly choose back to back sampling sections. Back to back samples can be difficult to manage, because there may be little time to work up the first sample before you have to accommodate the next. With systematic sampling, you are generally guaranteed some amount of time between samples.

Systematic sampling from a temporal frame can be particularly useful on bottom trawl catcher vessels with incline belts carrying fish out of the trawl alley. On these vessels, the crew typically sorts from a horizontal belt located directly after the incline belt. Composition samples can be taken from the sorting belt, just prior to crew sorting activities. Estimate the processing time for the catch and use a systematic random temporal method to choose times to collect samples. Because there is an incline belt, you must be aware of any items presorted by this feature and account for them using the methods discussed under "Mechanical Biases" on page 5-6. In these sampling scenarios, you must also be particularly watchful of intentional or unintentional crew pre-sorting

AT-SEA SAMPLE SIZES

It is generally the case that the size of your samples can be larger with clean catch (species diversity is low) than with dirty catch (species diversity is high). Even with clean catch, the factors discussed under "Sample Size Considerations" on page 5-3 play a significant role in sample size maximums.

The captain on your pollock catcher boat says it is going to take approximately 35 minutes to dump their 80 metric ton bag into the RSW tanks. You won't have enough time to collect more than three samples. To ensure that you get three samples, you round the captain's estimate down to 33 minutes for the haul and divide the dumping time into three intervals of 11 minutes each. There is plenty of space on deck to store samples separately from each other, and the collection process is relatively straightforward. You settle on 4 baskets of fish for each sample (a total of 12 for the haul). You choose a random minute between 0 and 10, and take your sample at that minute within each of the eleven minute intervals.

You will have to adjust your sampling approach when the estimated dumping time is more or less than 35 minutes. Sometimes, the haul may get dumped faster than you anticipated, and you either won't get your last sample at all, or you'll get less weight than you planned. When this happens, document the circumstances in your logbook.

Example 5-2 Systematic Sampling from a Temporal Frame on a Catcher Boat

Catch With High Species Diversity: Small Sample Sizes

On bottom trawl catcher vessels and catcher processors when hauls are "dirty" (there are many different species in the catch), it is unlikely you will be able to obtain sample sizes of several tons as you can on catcher processors with flow scales and a clean catch. With high diversity catches, you usually have to resort to taking sample sizes that can be feasibly weighed using the observer scales or the vessel's MCP scale. ***Typically, observers working with high diversity catches are able to routinely sample 300 - 500 kgs for the haul.*** Sample sizes totaling from 300 - 500 kgs for hauls taken by bottom trawl catcher vessels (for example, fishing flatfish and Pacific cod) are common because:

- The catch tends to be smaller,
- The catch is usually dumped on deck for sorting,
- Processing times are quicker,
- Hauls are more frequent,
- The catch composition is usually quite diverse,
- Space is limited,
- The catch of prohibited species is usually higher.

On vessels with flow scales (all catcher processors targeting pollock and a large contingent of bottom trawl catcher processors targeting flatfish and Pacific cod) high species diversity in a catch significantly influences the maximum size of species composition samples.

Catch With Low Species Diversity: Haul Census

This option is only viable if there are one or two predominant species in the catch. Sampling an entire haul for species composition requires that you account for all organisms in the haul. This is a haul census. In order to conduct a haul census the following criteria must be met:

- You must be able to see every organism in the catch as it passes you. If you are missing organisms while attempting a sample of all the catch, alter your approach and collect smaller, more accurate samples instead.
- You cannot leave the sorting area, and you cannot do anything other than sort or supervise the sorting of the catch.
- You must sort out all bycatch from the entire catch. If crew members are assisting you in sorting, you must have direct, visual supervision of them! Make sure that the crew realizes you are sampling and know you want all bycatch species set aside.
- You must be able to weigh and count all the bycatch from the haul.
- You must take a subset sample of the predominant species from within the sample unit.
- In instances where there are two predominant species, a subsample for these two species must be taken from within the sample unit.

To fulfill these requirements, your vessel must be participating in a fishery with very low diversity. In the pollock fishery, hauls may have less than 1% bycatch,

and sampling the entire haul for species composition might be possible. Keep in mind that you must have time, energy, space, and a low-diversity haul!

Even 1% bycatch in a 50 mt haul is 500 kg - about thirteen 40 kg baskets!

Sampling an entire haul may not be possible if you do not have sufficient access to the catch, space to store bycatch, or time to monitor the entire haul. When this is the case, reduce sampling effort and take several samples (a minimum of three) from the haul instead of the entire haul. Adjust your sample size to the diversity seen, as appropriate.

Catch With Low Species Diversity: Large Sample Sizes

This option is only viable if there are two or less predominant species in the catch. While sampling an entire haul is ideal, it is more often the case that observers obtain large samples from within the haul. This is primarily because processing times for large bags can be lengthy and observers have other sampling duties. The strategies and catch composition criteria for sampling over large sampling unit sizes are the same as those for sampling the entire catch; species diversity must be relatively low, and you must be able to collect and weigh all the bycatch from within your sample.

When sampling over large sampling units, you must obtain a defined sample weight. Visual estimates such as "about half the catch" are not acceptable.

Determining Weight of Large Samples by Flow Scale Readout

You must use the certified flow scale to determine your sample weights if you are sampling large sample units during limited access privilege fisheries. Sampling in limited access privilege fisheries is discussed in more detail starting on page 5-34. Keep in mind that you may use the flow scale to obtain sample weights during *any* fishery provided the crew is testing the scale correctly, the scale passes these tests (see "Motion Compensated Electronic Scales" on page 2-25), and there are no more than two predominant species in the catch. The maximum size of the sum of your samples for a haul will ultimately depend on the factors discussed on page 5-3.

Getting a sample weight by flow scale readout is easy and accurate. Record the weight from the readout prior to sampling ***on your Deck Form.*** Remove all non-predominant species from the sorting belt after the flow scale. Record the weight from the scale readout after you have completed your sample for species composition ***on your Deck Form.*** The difference between the end weight and the start weight is the sample weight. How you get the weight of the predominant species will depend on whether there are one or two predominant species in the catch. Refer to the following discussion concerning clean catches with one or two predominant species.

If the flow scale is not working, you must obtain sample sizes via the onboard MCP scale or your observer scales. See "If the Flow Scale is Not Working" on page 5-37 for more information.

Clean Catches With One or Two Predominant Species

On catcher processors with flow scales and a clean catch (a maximum of two predominant species and low amounts of other species), the flow scale can be used to determine sample size and all non-predominant bycatch can be weighed by the observer on the MCP scale. Under these sampling conditions it is expected that you obtain large samples sizes, often several tons in weight. Typically, observers working with clean catches and a flow scale are able to routinely sample 1/3 to 1/2 of the catch. If the haul is small in addition to being clean, you may be able to sample the entire catch. For slightly dirtier catches you can still sample for one or two predominant species but the sample size may need to be smaller and your total sampling fraction will be less than it would be for a cleaner haul. The goal of your random sample collection is to take at least three systematic, consistently sized, large samples.

One Predominant Species
For samples with one predominant species, you allow the predominant species to pass by while you remove all non-predominant bycatch. All bycatch from the sample is weighed and counted. When there is only one predominant species in a sample, you must take a subset sample of this predominant species. Subset samples are discussed on page 2-23 and in this chapter, on page 5-24. The weight of the one predominant species is simply the flow scale sample weight minus the weight of bycatch and the weight of the subset sample.

Two Predominant Species
When there are two predominant species in the catch, all bycatch from within the sample is weighed and counted as above, but you must take a subsample specifically for those two species (see "Subsampling for Two Predominant Species").

Subsampling for Two Predominant Species
When there are two predominant species in a catch, there is no way to determine the proportions of each in a sample without actually weighing them. Having to weigh two predominant species in a sample would significantly limit the sizes of samples an observer could obtain. To supply species specific weight information to resource managers and still maintain large samples, you can take a subsample for the two predominant species in the catch. These subsample data effectively give the relative proportion of the two predominant species in the sample. Management extrapolates subsample data to get the relative weight of the two predominant species in the parent sample and ultimately the entire catch.

On trawlers, when there are two predominant species and minimal other bycatch, take one or more subsamples for those two predominant species. If the catch is so diverse that you have more than two predominant species or cannot account for all other bycatch from within your sample, you should not be subsampling. Consider drastically reducing your sample size so that you can account for all species within the sample! (See "Addressing Challenging Sampling Situations" on page 5-13)

The two predominant species in the parent sample must be identified to the level prescribed in the Species Identification Manual and Rockfish Guide (see "Species Identification" on page 2-8). The only exceptions to this rule are the FMA species groups northern/southern rocksole, arrowtooth/Kamchatka flounder, and shortraker/rougheye rockfish.

When one or both of the two predominant species in the sample are the FMA species groups northern/southern rocksole, arrowtooth/Kamchatka flounder, or shortraker/rougheye rockfish, a subsample for two predominant species may be used. The species group in the parent sample must be identified and recorded to species level in the subsample. This subsample will also serve as the species group subset sample for species identification. There are some specific sampling protocols associated with subsamples:

- Subsamples must come from within a sample.
- The minimum size of an individual subsample for two predominant species is ***80.0 kgs.***
- ***You must continue to take subsamples until both the predominant species occur in the same subsample.*** Typically, if you have assessed the catch correctly, only one subsample will be necessary to account for the two predominant species. If you are finding that it takes multiple subsample attempts to capture both the predominant species in one subsample, you should reassess predominance!
- In cases where multiple subsamples are attempted for two predominant species, each attempt must be documented in your species composition as a discrete subsample.
- Everything that lands in your subsample is documented in the species composition data for that subsample. If you subsample for pollock and squid, and get pollock, squid ***and flathead sole*** in your sample, you report pollock, squid ***and flathead sole*** in the species composition data for that subsample.
- You must follow the numbering scheme for subsamples discussed on page 5-38.
- ***You cannot subsample for prohibited species crab and salmon in trawl samples. See "Counting and Weighing Prohibited Species Crab and Salmon on Trawlers" on page 5-23 for more information.***

If you find that you have taken multiple subsamples for two predominant species and none of these has contained both predominant species for which you subsampled, you cannot enter any of the data for that subsample or its parent sample.

If You Can't Meet the Minimum Sample Size Requirements

The smallest sample sizes suggested for the various sampling situations are the Observer Program's minimums. These minimums should be exceeded whenever possible. If you find that you cannot obtain species composition sample sizes that meet or exceed the Observer Program's minimum expectations, contact your inseason advisor or other FMA staff as soon as possible. Remember to document in the Daily Notes section of your logbook each occurrence when the sum of sample weights for a haul falls below the minimum expected sample size.

Data from smaller than expected samples can be used if the samples were collected in a random, unbiased manner.

GOA Shoreside Trawl Fisheries

The GOA shoreside trawl fleet presents challenges on many levels. The entire fleet is under 120 feet in length. Fisheries are generally short and intense. These two factors require that observers often shuffle between boats in a relatively short time period. This doesn't allow for settling in to a routine on a particular boat, but most of the boats are similar in size and deck layout making sampling similar on each boat. The following are some guidelines to assist you.

Sampling Effort

Most of the time observers are able to sample all hauls made by the boat. As with all boats, it is important for you to talk with the captain prior to the start of fishing to determine the challenges of sampling on that particular boat (*i.e.*, safe areas to sample, how to collect samples, where to stand during haulback, etc.). Due to the short nature of many GOA fisheries, each boat may make only a few hauls during each fishery and it is critical that observers sample as many hauls as possible. In these short fisheries, an observer missing a single haul on a particular vessel may reduce the fleet sample level drastically. The shallow water flatfish fishery may be the exception and may require you to use the RST or RBT. See "Selecting Hauls to Sample" on page 2-13.

The data you collect are vital for management of the marine resource, but remember that ***safety is always your first priority!***

Catch Estimates

It is generally advisable to use codend measurements to estimate catch volume in these fisheries. The deck layout may be complicated and access to make measurements may be dangerous. Work with the captain and enlist the crew's help early on to explain your expectations and to receive their suggestions to help you obtain codend measurements. Bin volume measurements for catch are often not an option due to low catch volume. Catch estimates are not required in the GOA pollock fishery unless the vessel is heavily sorting at sea.

Use your baskets for making density estimates. Using a checker bin for densities is not preferred as the size of the sample is often too small compared to the size of the bin resulting in inaccurate readings for the depth of fish.

Random Sampling Design

Safe access to catch, space limitation, at-sea sorting, and weather all have implications in your ability to utilize an unbiased random sampling design for these boats. As a rule of thumb, ***it is more desirable to obtain multiple samples than a single sample, and it is always better to obtain a random sample than to obtain a non-random sample.***

However, it is understood that in this fleet there may be many instances where you may only be able to obtain one non-random sample. If this is the case, you must document in your logbook the circumstances leading to opportunistic samples.

Following are some methods for collecting random samples in this fleet:

1. Sample from the trawl alley by dividing the area into units. Select a randomized unit(s) from the trawl alley and transport the sample fish to the sample area in multiple observer baskets.

2. Sample from the trawl alley by randomly selecting one or more available checker bins and lifting a bin board to collect a sample.

3. Sample from a large codend by randomly choosing among multiple zipper pulls and having crew insert baskets into the flow of fish. This is usually feasible only in the pollock fishery.

4. Temporal sampling from a sorting belt. A few boats use sorting belts to run the catch for bleeding or for sorting. If all the catch is run over the belt and there is a good estimate of the time it will take to run the fish, then it is possible to institute a temporal frame starting at random time ***N*** and collecting a sample of ***X*** kgs every ***K*** minutes. ***All catch*** must go over the belt and any large species you see fall back down the incline belt ***must be*** accounted for in your species composition. If these two requirements cannot be met, you must choose another method.

Sampling on Trawl Catcher Vessels in the GOA Rockfish Fishery

Sampling strategies and methods in this fishery are no different than for catcher vessels participating in other bottom trawl fisheries. If you observe on a catcher vessel participating in the GOA rockfish trawl fishery, there are three important items that you do need to keep in mind:

1. Participating vessels are required to carry 100% coverage when they are participating in this fishery, regardless of vessel size.

2. Experienced observers who are deployed on participating vessels ***must not take the first haul off***! The fishery is limited, the allocated quota is relatively small, and observer deployments may be only a few days at a time. ***It is critical that observers sample as many hauls as possible!***

3. The ATLAS data entry program is required in all GOA rockfish trawl fisheries. Participating vessels have computers installed with ATLAS, but they do not have the ability to transmit from sea. You ***must*** enter data at sea so it can be transmitted as soon as you arrive at the plant! See “Entering and Transmitting Data Using an USB Flash Drive” on page 18-22.

GOA Pollock Fisheries

In the GOA the vessel observer is responsible for monitoring the offload and for identifying and counting all of the salmon in the delivery. After collecting these data the vessel observer places the salmon in the designated salmon storage area so the plant observer can collect genetic samples and salmon retention data. The plant observer will provide you with breaks as needed. See “GOA Relief Guidelines for Working with the Plant Observer” on page 5-31 and “GOA Pollock: Plant Observer Delivery Break Guidelines” on page 11-5 for more break guidelines. If salmon are discarded at sea, you must identify and count discards of salmon to add to your salmon census sample for the delivery. Careful data recording will aid you when reporting your salmon census data. If any salmon were discarded at sea let the plant observer know the number and species discarded. Salmon discarded at sea must be documented on your Deck Form, in your Daily Notes and you must notify NMFS. Notification should take place the next time your vessel offloads or through inseason messaging if available.

PROCESSING YOUR AT-SEA SAMPLES

Once a sample has been collected, sampled species need to be identified, counted, and weighed. Certain aspects of sample processing will depend on space available for sorting, catch diversity, and the size of your sample. For every sampled haul, you are also expected to collect biological information on one or more species. Methods and details pertaining to collection of biological data can be found in the chapters “FISH MEASUREMENT AND SPECIMEN COLLECTION”, “PROHIBITED SPECIES SAMPLING” and “STOMACH AND ISOTOPE COLLECTION”. Keep in mind that you may also need to collect additional specimen samples or information for a research project assignment.

Identification of Sampled Species

Resource managers rely on species specific data to monitor catch rates and quotas. It is important that observers report sampled fish to species level or, where appropriate, group level. The characteristics you used to identify a species must be documented on a Species Identification Form. You are required to fill out a form for every fish seen on your first contract and every new or rare fish seen on subsequent contracts. FMA staff use these forms to assess your species identifications as

well as your identification skills. You must take the time to complete these forms with the specimen in hand! For details on how and when to complete these, see “Species Identification Forms” on page 2-8.

Accounting for Pre-Sorted Samples

Pre-sorted organisms are recorded as a discrete sample in the species composition data for the haul. Documenting pre-sorted organisms does not validate the illegal practice of pre-sorting.

You must record sample data to account for ***any*** pre-sorted organism. The organisms most often pre-sorted are large sharks, skates, and halibut. Refer to “Sample Bias” on page 5-5 for more information on pre-sorting mechanisms. Follow the guidelines below when assessing the catch for pre-sorted organisms.

- To be considered pre-sorted, organisms must ***not*** have had a chance to be in a composition sample. Typically, this means that the organism was removed from the catch ***prior*** to composition sampling. Examples of pre-sorted organisms include: 1) Crew members actively going into the tank to remove an organism that may have been included in the sample if it were not removed. 2) Organisms that are isolated on deck and could not enter the live tanks because of excluder bars.
- If an organism is removed ***between*** composition samples from the flow of fish into the factory (*e.g.*, from incline belts and/or conveyor belts outside of the tank) or from a part of the deck that is not going to be sampled, it is ***not*** truly pre-sorted. That animal had the chance to land in your sample, it just didn’t land in your sample because of where or when you happened to take it. Examples of organisms not being truly pre-sorted include: 1) Between composition samples a shark is removed from the conveyor belt because it is too large to go over the flow scale. 2) A large halibut is stuck in the live tank door that delivers fish to the factory. A crew member removes that halibut during a period you are not sampling. 3) A crew member on a catcher vessel removes a salmon shark from the trawl alley when you are done collecting your samples.
- If an organism is removed from the flow of fish into the factory (*e.g.,* incline belts and/or conveyor belts outside of the tank) ***while you are sampling*** it is not considered as having been pre-sorted. The organism is considered part of your sample because it would have landed in your sample if it was not removed. This organism must be included in your species composition and its weight added to the final flow scale weight if it did not go over the flow scale. Example: A large shark cannot go over the incline belt during your sample period. A crew member removes the shark from the incline belt and gives you the shark to weigh.
- You must have access to all pre-sorted organisms so the numbers and weights can be determined for your species composition.
- Crab pots, marine mammals, and large items are not recorded as pre-sorted; see “Crab Pots” on page 5-25 and “Marine Mammals and Large Items” on page 5-25 for more information.

Recording Data for Pre-Sorted Organisms

- Count and/or weigh everything you see pre-sorted out of the catch. Document these data on the species composition form as a discrete sample with its own unique sample number. Any pre-sorted samples must be designated as such by checking the “Pre-sorted” circle for that sample.
- For very large halibut, sleeper sharks, longnose skates, or big skates you may use the appropriate length to weight table to derive a weight if you recorded an actual length. Do not use the length to weight tables for estimated lengths. The “Halibut Length to Weight Table” is on page A-40,the “Sleeper Shark Length to Weight Table” is on page A-37, and the “Skate Length to Weight Table” is on page A-39. If you cannot obtain an actual length, enter a value in the field for number of individuals but enter “0” in the weight field. For discard data, use an estimated length to determine weight. Document the situation on your Deck Form, along with any estimated lengths.
- Only use length/weight tables approved by NMFS.

- For organisms other than halibut, sleeper sharks, longnose skates, or big skates that are too large to weigh, record the number of individuals and enter "0" in the weight field. For discard data, use an estimated weight for the pre-sorted individual.
- ***The sample size for this pre-sorted sample is the Observer Estimate for the haul, or the Vessel Estimate if an Observer Estimate was not made. Ensure the weight of the pre-sorted item(s) is included in the Observer and Vessel Estimates. Add the weight of the pre-sorted item(s) to the Observer and Vessel Estimates as appropriate.***
- ***Pre-sorted samples must always be recorded as "Unable to Follow Design."*** Refer to Figure 5-7 for an example of how to record a pre-sorted item on the species composition form.

Counting and Weighing Sample Items

In most fisheries, observers find it easiest to sort their sample, and then count, weigh, and record each species separately. In low diversity fisheries (for example, pollock) you may choose to weigh the unsorted sample and then sort the sample. If you weigh unsorted fish and *then* sort out bycatch, the predominant species weight is the total sample weight minus any bycatch weight.

Generally you will be using some container (*e.g.* a basket) to weigh your fish. ***Remember to tare the scale for this container!*** Check your tare frequently and tare every time you change containers! If your scale is not properly tared the weights will not be accurate. For more information see "Taring Your Scales" on page 2-24. ***Every organism in a trawl sample must have a weight associated with it (with one exception; see "Large Organisms" below)***.Only actual weights taken using a NMFS approved scale or NMFS approved length/weight tables may be used, unless otherwise directed by NMFS staff. ***It is not acceptable for you to make your own weight estimate for any species; doing so will invalidate the data.***

Large Organisms

The one exception to the need for a weight entry is for large items that cannot be weighed and for which a NMFS length/weight table does not exist. For these large items, enter zero in the weight field and notify NMFS.

For large halibut, longnose skates and big skates, and Pacific sleeper sharks that are too large to be weighed on your scales, you may use the appropriate length/weight table to provide a weight in the species composition data if you took a length measurement. Do not use the length/weight tables for estimated lengths. If you cannot take the measurement, document your estimated length on the Deck Form and contact NMFS.

With one exception, trawler species composition data must have weights for all sampled species. Large items that cannot be weighed and do not have a length/weight table are the one exception; for these items, enter zero in the weight field and notify NMFS.

Small Organisms

Small organisms may not register on the scale but must be accounted for in your composition sample. Enter these with a weight of 0.01 kg.

If you cannot supply an actual weight for every organism (except for very large or very small items that cannot be weighed) your data cannot be used.

Prohibited Species in Species Composition Samples

Salmon, king and tanner crab, herring, and halibut are prohibited species that you may encounter in your species composition sample. Along with recording number and weight information, king and tanner crab and all salmon species are required to be identified to and grouped by sex. Additional biological data are also collected from prohibited species. These include the presence of eggs for female crab, scales and genetics for salmon, and viabilities for halibut. See "PROHIBITED SPECIES SAMPLING" on page 12-1 for specific instructions.

Counting and Weighing Prohibited Species Crab and Salmon on Trawlers

Unlike other species encountered in the North Pacific, resource managers regulate the harvest of prohibited species crab and salmon by number and not weight. For this reason you must always provide a number along

with weight for every prohibited species crab and salmon encountered in your trawl samples. ***Subset samples are not appropriate for prohibited species crab and salmon on trawlers!***

When developing your sample design and preparing to sample an individual haul be sure to consider the additional data requirements for prohibited species. Define the sample unit size accordingly to ensure you can complete all your required duties. If you anticipate being overwhelmed with crab or salmon during your sample, you must reduce the size of the sample to ensure you are able to provide an accurate count of these species. ***You cannot subsample for prohibited species crab and salmon encountered in your trawl samples.***

Recording Crab Parts on Trawlers

There is an exception to the rule that a number must be provided for all prohibited species. On trawlers it is common for prohibited species crab to become broken apart, making the determination of a true number nearly impossible. The Observer Program asks that you record data on prohibited species crabs in the following way:

- Identify all whole crabs to species and report their number and weight. For our purposes, a crab is considered whole if it is essentially whole by weight. It is not necessary for a crab to be completely intact to be considered whole.
- Identify loose crab parts to the best of your ability. Carapaces should be identified to species and legs can usually be identified to the appropriate genus group code. Report the weight of these parts on a separate line from any whole crab weight/number values and enter a value of zero for number of crab.

Subset Sampling for Number and Weight on Trawlers

Sometimes, organisms are too numerous, or too broken, to count accurately. If this is the case, the Observer Program allows you to report a portion of those individuals by weight only, without the number of individuals. For each occurrence you must weigh and count ***at least 50 randomly selected individuals. This collection is referred to as a subset sample and these data are reported in your species composition data for the sample. For each species in each sample that you take, the number and weight should be recorded at least once (see Figure 5-15 on page 5-51).***

A subset sample for number and weight provides data users with values necessary to calculate an average weight for the species. On the species composition data form, individuals with weight only are entered on a separate line from those with weight ***and*** number. For the entry that has no number of individuals, a zero is entered in the number field.

Subset samples will be common for those assigned to catcher processor pollock vessels. In this fishery observers often find themselves sampling for one predominant species. Remember that when sampling for one predominant species and using a flow scale, you provide the weight of the predominant species (which often amounts to several tons) by subtracting the weight of bycatch from the flow scale sample weight. A zero is entered in the number field. A subset sample is needed in these instances to provide data users with values necessary to calculate the predominant species average weight.

Other times when you might take a subset sample for number and weight are:

- during clean catch sampling on flatfish vessels using a flow scale.
- when there are numerous brittle stars or jellies in a sample (these may be bits and pieces, or whole animals).
- when there are hundreds of small individuals of one species (usually flatfish).

Refer to Figure 5-15 on page 5-51 for an example of how to record data when you have a subset sample.

If you are sampling for two predominant species, the required subsample will provide the number and weight relationship needed by data users. **Do not confuse the terms subset sample and subsample!** For more information on subset sampling for number and weight, please refer to “Subset Sample for Number and Weight” on page 2-23.

Collecting a subset sample for number and weight is a valuable sampling tool that will allow you to take larger samples, ***but this method is not appropriate for prohibited species crab and salmon on trawlers!***

Please refer to "Counting and Weighing Prohibited Species Crab and Salmon on Trawlers" on page 5-23 for more information about sampling these species.

Subset Sampling for Species Identification on Trawlers

Several species have similar morphological characteristics, making it difficult to distinguish one from the other at first glance. A few of these species also tend to be prolific in certain fisheries. Identifying each fish to species would be a time consuming task if a sample was inundated with representatives from these similar species.

The Observer Program allows for subset sampling of these similar species when they occur in quantity. This compromise yields species specific information important for resource management while allowing observers enough time to process samples and complete other sampling related duties.

The species sets that you can subset sample for on trawlers are: northern/southern rocksole, arrowtooth/Kamchatka flounder, and shortraker/rougheye rockfish.

For more information on species subset sampling, please refer to "Subset Sampling for Species Identification" on page 2-23.

Seabirds

Seabirds occur in samples infrequently. If a seabird lands in your at-sea sample, it is reported in that sample! See "BIRD SIGHTINGS AND INTERACTIONS" on page 16-1 for more information.

Decomposed Fish, Damaged Fish, and Miscellaneous Items

Decomposed fish or fish waste (both code 899) are those organisms in an obvious state of decomposition, with a breakdown of muscle and skin. Miscellaneous items (code 900) are garbage, fishing gear, wood and other debris that may appear in your sample. Decomposing fish must be distinguished from damaged fish. Damaged fish should be identified, weighed, and recorded along with other undamaged fish of the same species.

The true weight of decomposed fish and miscellaneous items must be recorded, but the number of these items is irrelevant. If you are able to count the items, you can report this number in the species composition data. If you are not able to count these items, enter zero in the number field for these individuals.

Combined Samples

There are going to be occasions when you are processing a sample and come across a fish that you think ***might*** belong to a previous sample taken for the haul. When you know that a fish should be included in the species composition data for the haul, but do not know exactly what sample, you must resort to "combining" samples. You only combine those samples that you are unsure of; any intact samples are reported as discrete samples for the haul.

On the Deck Form, mark the samples that will be rolled together as combined by checking the circle next to "Combined" for those samples. The combined samples are reported as one sample in ATLAS or faxed paper form. When reporting combined samples, enter the data for all the samples affected under a single sample number. By combining samples into one in the reported data, you are alerting data users to regard these samples separately from intact samples. Remember, you can have a mixture of combined and non-combined samples for a haul. You combine only those samples you believe may not be intact, complete samples. See Figure 5-17 and Figure 5-18 for Deck Form and paper form examples of documenting combined samples.

Marine Mammals and Large Items

Occasionally marine mammals or large items (such as a boulder or 55-gallon drum) are caught by trawlers. To prevent the weight of mammals or other large objects from being misinterpreted by fishery managers as fish weight, do not include the weight of the item in the Observer Estimate. Also, do not include such items in your species composition samples.

Crab Pots

Trawlers occasionally pick up a crab pot in the net. Record these instances on your Vessel Haul Form (see page 4-13). Crab pots are not included in the Observer Estimate or the species composition sample. Do not include any crab or fish that are in the crab pot in your sample; the items in the crab pot were caught by the

pot, and the pot was caught by the trawl. Note the incident in your logbook, with a description of the pot, any identifying numbers or tags, and an account of the contents.

Crab in the BSAI Pollock Fishery

All vessels participating in the BSAI pollock fishery are required to use pelagic gear. The presence of 20 or more of any species of crab indicates the vessel was non-pelagic fishing, or "fishing the bottom." When more than 20 crab occur in a pollock haul, observers are asked to do the following: 1) count and measure any crab in the composition samples, regardless of species and 2) ***measure all the crab you find.*** If there are too many, measure as many as you can. Record only those crab found within your species composition sample on your Species Composition Form and Length and Measurement Form. If your vessel has ATLAS, enter data from only those crab found within your species composition sample. Clearly label the crab found within your species composition sample and the crab found outside of your species composition sample on your Deck Form. See "Measuring Crab in the BSAI Pollock Fishery" on page 12-4 for more information.

SALMON IN THE POLLOCK FISHERY

Along with the normal species composition requirements of trawl vessels, observers in the pollock fishery have additional sampling requirements for salmon. There are different regulations and observer duties pertaining to salmon in the Bering Sea (BS) and Gulf of Alaska (GOA). Although observer duties are similar there are important differences in the sampling protocols that must be followed. Please be sure to follow the protocols for the region your vessel is fishing in.

Salmon are managed by number, not weight. An accurate count of salmon caught is crucial for stock management!

BS Salmon Retention

There is a cap on the number of Chinook salmon that can be taken as bycatch in the BS pollock fishery. Regulations for the monitoring of salmon for all AFA catcher processors, motherships, catcher vessels and plants receiving BS pollock must be followed.

Management of the BS Chinook salmon caps by industry is dependant on NMFS observer salmon census data.

Observers assigned to AFA pollock CPs, AFA motherships, and to plants receiving AFA pollock CV deliveries must report salmon retention data on the Salmon Retention Form.

BS Pollock Catcher Processors/Motherships

One of your highest priorities aboard an AFA CP/mothership is to collect salmon retention data. All salmon from your species composition sample must be placed in the salmon storage container to be identified and counted for salmon retention. Refer to "Salmon Retention Data in the Pollock Fishery" on page 12-13 for specific protocols required for salmon retention monitoring and instructions on recording salmon retention data.

Requirements for AFA CPs and Motherships

End of Sorting Notification: You must arrange with the crew to be notified that the haul is nearing completion so you can be available to complete the final salmon retention count.

- ***Be sure to let the crew know where to find you. Collecting salmon retention data is one of your highest priorities!***
- ***The vessel is required to stop sorting fish during the salmon count and while biological specimens are collected.***

Salmon Storage Container: All AFA CP vessels and motherships have an approved storage location for salmon to be saved until the salmon retention count is completed by the observer, usually at the end of each haul.

Video Requirement: All AFA pollock CPs and motherships are equipped with a factory video monitoring system (also known as electronic monitoring or EM). The system is used to track the sorting of salmon.

The observer may be fulfilling other duties and is not expected to observe the entire sorting of salmon from the flow of fish.

See "Salmon Data Collection" on page 12-8 for additional sampling requirements for salmon onboard your pollock CP.

Aleutian Islands Pollock Fishery Guidelines

Participation in this small fishery is limited. Sampling requirements depend on vessel type and fishery status. ***Contact NMFS for sampling instructions if you are on an a vessel heading out to fish the Aleutian Islands pollock fishery!*** In most instances, sampling will follow the BS pollock fishery protocols. See "Length and Specimen Priority List for Bering Sea/Aleutian Islands Vessels" on page 13-32 for length and specimen instructions.

SALMON SAMPLING REQUIREMENTS FOR ALL CATCHER VESSELS

Offload Salmon Census and Salmon Retention

In addition to at-sea species composition sampling, the pollock delivery must be monitored in its entirety for salmon bycatch and these salmon data are reported to NMFS. Salmon must be identified to species and counted by an observer for all pollock deliveries. The monitoring of the offload for salmon is referred to as a census. While the offload sampling duties are different for observers dependent on region (BS or GOA) a full accounting of salmon is required in both areas.

Note that if you are on a catcher vessel that receives a codend from another vessel, you do not sample that codend at the plant. The observer on the vessel that caught the fish is responsible for recording all information on their haul forms and acquiring fish ticket information for the transferred haul.

Encountering a Large Number of Salmon in the Offload

On occasion, a vessel delivery will contain ***several hundred to several thousand*** salmon. This is often the case during the fall pollock fisheries. When there are excessive amounts of salmon in a delivery you are ***still required to identify all to species and count them all***. Remember that salmon are managed by number and it is important that salmon counts are accurate.

Salmon Identification: Contentious Fish

If the identification of a salmon is in question:

- Count the gill-rakers on the first arch and record the information on your Deck Form.
- Collect the salmon as a specimen and take it to a NMFS field office.
- If you have a camera available take several photos of identifying characteristics

BERING SEA POLLOCK CATCHER VESSELS

Pollock CVs dump fish into holding tanks onboard and deliver the catch to processing plants. In addition to sampling at sea for species composition, the entire pollock delivery must be monitored for salmon bycatch. ***Monitoring the delivery is required for observed vessels.*** A few specifics about pollock CV duties in the BS:

1. All pollock hauls must be sampled at sea and must have a discard estimate entry on the OHF.

2. In the rare event that a haul is not sampled for species composition the reasons for the haul not being sampled ***must*** be documented in the observer's Daily Notes. You should contact NMFS immediately.

3. All species discarded at sea must be included in the discard estimate.

4. An offload salmon census must be completed by the plant observer for all BS pollock deliveries. ***The vessel observer must assist the plant observer***. See "BS Relief Guidelines for Working with the Plant Observer" on page 5-28.

5. At sea discard of salmon is prohibited in the BS pollock CV fishery. Salmon discarded at sea must be reported to the plant observer so they can include these salmon in their salmon retention report.

6. Any salmon found in your species composition sample or removed from the catch by a crew member must be placed in the RSW tank to be accounted for during the offload.

7. Once you have collected the required FMA ID scale specimens and tagged salmon specimens (if the salmon is tagged) from salmon within your at-sea composition sample, the salmon should be placed in the RSW tank so that they may be accounted for at the plant during the offload salmon census. See "Salmon Data Collection" on page 12-8 for biological data requirements.

8. Salmon discarded at sea must be documented on your Deck Form, in your Daily Notes and you must notify NMFS. Notification should take place the next time your vessel offloads or through inseason messaging if available.

9. Document any at-sea discard of ***unsorted catch*** and notify NMFS immediately.

BS Pollock Offload Salmon Census

For all BS pollock CV deliveries a complete census of the offload for salmon must be completed by the plant observer and vessel observer.

The plant observer and vessel observer are both responsible for monitoring the offload census for salmon bycatch and ensuring that the entire offload is sorted for salmon bycatch. The plant observer is required to report the salmon retention data. The vessel observer assigned to the delivering catcher boat is responsible for providing assistance to the plant observer. See "BS Relief Guidelines for Working with the Plant Observer" on page 5-28 and "Bering Sea Delivery Rules and Relief Guidelines" on page 11-4 for BS pollock delivery information.

Specimen data collected from salmon in the offload salmon census sample are reported along with salmon retention data by the plant observer.

Vessel observers must initial ALL data collected for the plant observer.

The plant is required to stop sorting fish during the salmon count and while biological specimens are collected. It is not acceptable for one observer to watch the sorting line while the other is counting salmon or collecting biological specimens from salmon.

See "Pollock Offload Salmon Census" on page 11-3 for salmon retention rules and duties at BS shoreside/floating processing facilities.

Coordinating With the Plant Observer

Meet with the plant observer before every delivery. At the first delivery, he or she will familiarize you with the processing operation and provide you with a Delivery Weight Verification explanation (see page 11-10). Both observers should discuss the following:

- The best location in the plant to sample for salmon bycatch. BS pollock deliveries should not have after-scale salmon, but if encountered, after-scale should be documented and then added to the salmon retention data by the plant observer.
- The location of the salmon storage container.
- The location of the fax machine for sending data.

This is also an opportunity for the two of you to arrange the schedule for monitoring the offload.

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The delivery weight must be verified. You are responsible for knowing and documenting how all your data were derived!

Pre-Offload Meetings with Industry

Deckloads/Live Tank Transfers and Interrupting Offloads - Pre-offload meetings are essential to ensure ***all Bering Sea pollock deliveries*** are monitored in their entirety for salmon bycatch**.** These meetings are expected to take place when a catcher vessel targeting BS pollock comes in with a deck load, have fish in the live tank, or when an interruption of an offload occurs. See "Pre-Offload Meetings with Industry for Bering Sea Pollock Deliveries" on page 2-31 for further information.

BS Relief Guidelines for Working with the Plant Observer

Monitoring the pollock offload is a shared duty between the plant observer and vessel observer, with each expected to monitor 50% of the offload. Relief provided by the vessel observer is to allow the plant observer to perform other duties. The plant observer may need assistance with collecting salmon retention biological samples.

Follow these guidelines for monitoring the offload:

- Both the plant observer and vessel observer are responsible for ensuring the offload is 100% monitored.
- Observers on catcher vessels delivering BS pollock are responsible for being present and available to assist the plant observer for the entire duration of their offload.

- The vessel observer ***must*** be present at the beginning and end of each offload to assist the plant observer as needed. The vessel observer need not be present if their assigned vessel leaves to fish at the end of the offload. The vessel observer may assist with the collection of salmon retention and biological data.
- Before your offload begins, you should meet with the plant observer to coordinate the offload schedule to ensure the offload is monitored 100% and to work out a fair break schedule. When deciding on the schedule it is important to keep in mind other duties for both the plant and vessel observer.
- During the offload, vessel observers should be aboard their vessel and available to monitor the transfer of fish from the live tank or deck load to the RSW tank, or to complete a partial offload if needed. This will be established during the pre-offload meeting which the vessel observer must attend.
- The vessel observer and plant observer each monitor about 50% of the offload. This will allow the plant observer to complete other plant duties. The plant observer may need their relief at any time within the offload. Keep in mind that your offload may have just started but the plant observer may have been on the sorting line during the last 2-3 hours of the previous offload, so may need their break immediately.
- Observers on break or otherwise not monitoring the sorting of catch must check on the observer monitoring the catch a minimum of once every two hours, unless prior arrangements were made between the plant and vessel observer (more frequent breaks for colder weather, etc.).
- The vessel observer is not to perform plant duties not directly related to monitoring their offload for salmon.
- Relief periods must be recorded in your Daily Notes and on the Deck Form (by the plant observer or vessel observer).

These guidelines for assisting the plant observer are minimums. ***Actions resulting in the offload not being 100% monitored will reflect poorly on the observer's work performance evaluation.*** It is your responsibility to work out a fair schedule with your fellow observer. Both parties should remain flexible and professional. The assistance given (relief and/or assistance with collecting biological data) must be recorded in your Daily Notes and on the offload Deck Form.

See "Bering Sea Delivery Rules and Relief Guidelines" on page 11-4 for additional offload guidelines.

It is unacceptable to miss any portion of an offload. If any of your offload is missed, document the circumstances and contact NMFS immediately.

Finishing an Offload Census

If your vessel completes a delivery and is going back out to sea before you are done with all your offload duties, work with the plant observer to finish the census. If the plant observer is not available and you must return to your vessel, document this thoroughly in your logbook. Notify the Observer Program ***and*** your employer.

Although you may be required to re-board your vessel, you should not be sent to another assignment or to your final debriefing prior to the completion of the offload census. It is your employer's responsibility to ensure that this doesn't happen. If you are put in this situation, contact the Observer Program as soon as possible.

By federal regulation, pollock catcher vessel observers must not be assigned to another vessel or sent to debriefing prior to completing their offload sampling.

GULF OF ALASKA POLLOCK CATCHER VESSELS

Pollock CVs dump fish into holding tanks onboard and deliver the catch to processing plants. In addition to sampling at sea for species composition the entire pollock delivery must be monitored for salmon bycatch. ***Monitoring the delivery is required when there is an observer assigned to the delivering vessel.*** The pollock fleet is required to deliver all salmon to the processing plants for sampling by the plant observer. A few specifics about CV duties for GOA pollock:

1. All pollock hauls must be sampled at sea and must have a discard estimate entry on the OHF.

2. In the rare event that a haul is not sampled for species composition, the reasons for the haul not being sampled ***must*** be documented in the observer's Daily Notes. The observer should contact NMFS immediately.

3. All species discarded at sea must be included in the discard estimate.

4. An offload salmon census must be completed by the vessel observer for all deliveries from the GOA. ***The plant observer may assist the vessel observer.*** See "GOA Vessel Observer Offload Salmon Census" on page 5-30.

5. At sea discard of salmon in the GOA directed pollock fishery is prohibited. Any discard of salmon or of unsorted catch must be documented and reported to NMFS immediately.

6. Salmon discarded at sea in the GOA must be included in your offload census for the trip and reported to the plant observer for inclusion in the salmon retention data.

7. Collect the required FMA ID scale specimens and tagged salmon specimens (if the salmon is tagged) from salmon within your at-sea composition sample and place the salmon in the RSW tank. See "Salmon Data Collection" on page 12-8 for biological data requirements.

8. Any salmon found in your species composition sample or removed from the catch by a crew member must be placed in the RSW tank to be accounted for during the offload.

9. Document any at-sea discard of unsorted catch and notify NMFS immediately.

Gulf of Alaska Salmon Retention

GOA pollock vessels must not sort salmon at sea and are required to deliver all salmon to the processor so that plant observers may collect salmon genetics and retention data. GOA pollock vessel observers do not report salmon retention data.

Observers on board GOA pollock catcher vessels census the offload for salmon at the plant and report species and numbers as an offload species composition sample. Salmon from all deliveries, both observed and unobserved, are sorted into designated bins for the plant observer's data collection.

GOA Vessel Observer Offload Salmon Census

In the GOA, the vessel observer is responsible for sorting salmon during the pollock delivery and reporting the salmon bycatch data from the delivery via the offload species composition sample. The offload census is always required even in the rare event that not all hauls were sampled at sea. ***If you miss part of your offload, continue to census the remaining portion of the delivery.*** Make a note on the Deck Form that part of the offload was missed and record the circumstances in your Daily Notes. Inform your inseason advisor or NMFS field personnel.

Coordinating With the Plant Observer

Plant observers in Kodiak may be assigned to multiple plants simultaneously and are on call 24 hours/day so they may not always be available to assist you. When possible, meet with the plant observer before every delivery. When the plant observer is available he or she will familiarize you with the processing operation and provide you with a Delivery Weight Verification explanation (see page 11-10). Both observers should discuss the following:

- The best location in the plant to sample for salmon bycatch as well as the location to find and check for after-scale salmon (see "Delivery Weight Verification Process (example)" on page 11-10).
- The plant's procedure for salmon sorted from the belt. The location of the salmon storage container if available.
- The location of the fax machine for sending data.
- How to obtain the delivery weight and after-scale salmon numbers.

This is also an opportunity for the two of you to arrange the schedule for monitoring the offload.

The delivery weight must be verified. You are responsible for knowing and documenting how all your data were derived!

GOA Vessel Observer Offload Census Guidelines

Salmon census data from the GOA directed pollock fishery are reported by the vessel observer as an offload species composition sample. Please refer to "PROHIBITED SPECIES SAMPLING" on page 12-1 for additional information regarding sampling salmon.

To Sample Salmon From a GOA Pollock Delivery:

1. Remove salmon from the sorting belt as you encounter them.

2. Record salmon by species and number on the Deck Form. You do not collect weights for salmon during an offload census sample.

3. Place the salmon in the designated storage container or area once you have identified them to species if the plant has one near your sample area. Some plants in Kodiak will have you place the salmon back on the belt and plant personnel will sort them later.

4. Include salmon discarded at sea in your offload species composition sample. Take care not to double count salmon from your at-sea samples during your offload census. If all the salmon caught went into the RSW tank then you will use only the census numbers at the plant (which should already include salmon from your at-sea composition sample placed in the RSW).

5. Report after-scale salmon found while monitoring your offload as part of your offload species composition. Once your offload is complete include only the after-scale salmon numbers provided and verified by the plant observer. You may need to re-submit offload census data once you account for after-scale salmon numbers provided by the plant observer (see "GOA Plant After-Scale" on page 11-6).

6. Report the data as an offload species composition sample.

It is unacceptable to miss any portion of an offload. If any of your offload is missed, document the circumstances and contact NMFS immediately.

In addition to the vessel observer tracking salmon for their offload salmon census, the plant observer will perform an independent salmon count and identification for salmon retention and collect genetic specimens and FMA ID scales. If the plant has a designated storage container near where the monitoring takes place, the vessel observer may place salmon in the bin once they have been identified to species and counted for their offload species composition sample.

Offload Census Deck Form/Composition Form

Record census data on the Deck Form as an offload sample. Number your offloads consecutively starting with ***your*** first offload on the vessel. ***The offload census sample number will always be sample #1.***

On the right side of the Deck Form:

- Show your tally of all salmon species present.
- Indicate any salmon that were sampled for but were not present by entering a "0" for their tally.

On the left side of the Deck Form:

- Record the salmon species found in your offload census (including any discarded at-sea if this occurred).
- Enter "0" for salmon weight on the Deck Form and "0.00" for salmon weight on the Species Composition form.

Please see "Example of a GOA Pollock Catcher Vessel Offload Census Sample" on page 5-48.

Complete the Deck Form with the same rules as at-sea species composition data. ***The sample weight for the offload census is the total delivery weight obtained from the fish ticket.*** Record the census information on the paper Species Composition form or in ATLAS. You must have a single line of entry for each species in ATLAS and on the Species Composition Form. Document any significant or unusual events on the Deck Form.

Salmon are managed by number, not weight. An accurate count of salmon caught is crucial for inseason and stock management!

GOA Relief Guidelines for Working with the Plant Observer

The vessel observer is responsible for the pollock offload census in the GOA. If you expect your offload to take 5 hours or longer, you should make arrangements to have the plant observer give you a break from sampling. The plant observer should meet your vessel upon arrival for delivery. Discuss when you want a break and agree upon a reasonable schedule with the plant observer. The plant observer will have other sampling duties, so it is important to be flexible

when arranging breaks. Refer to the plant section for more detailed offload break guidelines for GOA plant observers (“GOA Pollock: Plant Observer Delivery Break Guidelines” on page 11-5).

Salmon sorted from the offload may be placed in a designated area to be saved for the plant observer or they may be returned to the belt. The plant observer collects data from these salmon.

The entire offload must be monitored, therefore you cannot leave the sorting area at any time fish are running unless the plant observer takes over! The plant observer, or dock personnel, should be able to give you an estimate for when your offload will begin. Delivery schedules are tentative, and can change with little notice, so stay in touch with your vessel to ensure you don’t miss part of the delivery. If you do miss a portion of your offload, continue your offload census. You must notify your inseason advisor or NMFS field staff, and document the reason and amount of time missed in your Daily Notes. Do not use the “Unable to Follow Design” field on your Deck Form for offload species composition samples.

It is unacceptable to miss any portion of an offload. If any of your offload is missed, document the circumstances and contact NMFS immediately.

Finishing an Offload Census

If your vessel completes a delivery and is going back out to sea before you are done with all your offload census duties, arrange for the plant observer to finish the census for you. If the plant observer is not available and you must return to your vessel, document this thoroughly in your logbook. Notify the Observer Program ***and*** your employer. Assisting vessel observers is a priority for plant observers, so it should be a rare event that he or she is not available to relieve you.

Although you may be required to re-board your vessel, you should not be sent to another assignment or to your final debriefing prior to the completion of your offload census for salmon. It is your employer’s responsibility to ensure that this doesn’t happen. If you are put in this situation, contact the Observer Program as soon as possible.

By federal regulation, pollock catcher vessel observers must not be assigned to another vessel or sent to debriefing prior to completing their offload sampling.

When There are No Salmon Encountered in the GOA Offload Census

On rare occasions you will monitor an offload and find no salmon. Knowing that there are no salmon in an offload is just as important to fisheries managers as knowing how many there were.

To capture these data on a Deck Form and a paper composition form, record the date of the offload, your cruise number, vessel permit, sample number “1,” and offload number in the header portion of the form. Record the total delivery weight as the sample size, fill in the keypunch values with zero and write “no salmon” across the sample block (see “Ex. of Paper Form Species Composition: Samples From One Haul and GOA Offload Samples” on page 5-49). Fill in the circle “No Fish in Sample” on the Deck Form and paper Species Composition Form. In ATLAS enter “N” in the “Species Comp in sample?” box for that offload sample.

CATCHER VESSELS ACTING AS TENDERS

If you are on a catcher vessel that receives a codend from another vessel, do not sample that codend at the plant. The observer on the vessel that caught the fish is responsible for recording all information on their haul forms and acquiring fish ticket information for the transferred haul.

OBSERVERS DELIVERING TO MOTHERSHIPS

It is unusual for catcher boats delivering to a mothership to carry an observer. If you find yourself aboard a catcher boat delivering a few hauls to a mothership before delivering landed catch to a shoreside plant, your duties will depend on how the fish are being delivered (see “Observers Delivering to Motherships” on page 6-6).

If the haul is delivered as a codend, the mothership observer is completely responsible for recording and sampling this haul. Do not record this haul on your Vessel or Observer Haul Forms. It will be accounted for by the mothership observer. Your only duties are to obtain haul information to give to the mothership observer and monitor the haul back for marine

mammal and bird interactions. Report interactions at the trip level on the appropriate form. If the captain usually gives haul information to the mothership, you must verify that all the data the mothership observer will need was given.

If your vessel is dumping fish into RSW tanks, and then pumping the fish to a mothership, you should sample these hauls as if they were being delivered to a shoreside processor (see "SHORESIDE PLANTS AND FLOATING PROCESSORS" on page 11-1). Inform the mothership observer that you sampled the hauls when you transmit haul information. For non-pollock hauls, obtain vessel and observer estimates and sample for species composition. For pollock hauls, no observer estimates are required. Obtain a vessel estimate and sample for species composition. Ensure that you track any salmon discard and relay this information to the mothership observer. Collect length frequency and specimen data from sampled hauls. All data you collect will go on your forms, under your cruise number.

ESTIMATING PERCENT RETAINED

Each species reported in the species composition samples for a haul must have an associated estimation of percent retained. A fish is considered fully retained (100% retained) when more than 15% of its round weight is turned into product. Round weight is the weight of the whole fish, prior to processing. ***Percent retained is only an estimation, and your effort and time spent obtaining it should be minimal!***

Percent retained is often difficult to estimate because discard can happen in a variety of places. Make your estimation based on what you see happening, on a haul by haul basis. Potential types of discard include fish falling off belts, dumping of large portions of catch at sea and size sorting of fish. ***If the vessel dumps a portion of catch at sea, none of the species groups should be considered fully retained.*** For example, if 30 mt of an 80 mt net is dumped overboard, 3/8ths of all the species have been discarded. Therefore, you would record no more than 5/8ths (or 63%) of any group as retained.

The percent retained you report for a species must be consistent for the species over all the samples collected during that haul.

The percent retained you report for a species in a sample must represent the haul level retention for that species. See Example 5-3 for an example of determining percent retained.

During the processing of your third sample for the haul (out of 6 total), the vessel decides to dump the rest of the catch because the fish have been sitting on deck too long and are rotten. You estimate that the amount of fish overboard is about 50% of the entire catch. Initially, for your first two samples, yellowfin and rocksole were being 100% retained. Ultimately, 50% of the entire catch was dumped overboard; the percent retained for yellowfin and rocksole was 50% for the haul. For every instance that yellowfin or rocksole showed up in your samples, you would record 50% in the percent retained column. Fish that were 0% retained initially would still be 0% retained.

Because the percent retained value must represent the haul level retention for a species, you may find it easier to fill out the percent retained column for fish in your samples *after* you have finished sampling the haul.

Example 5-3 Determining Percent Retained

Percent Retained on Catcher/Processors

In most cases aboard CP vessels, percent retained will be your visual estimation. Sometimes a CP will put up product and later discard it to make room in their freezer for a more valuable product. This is called "high-grading" and it should be noted in your logbook as a possible regulation infraction. Since you will not know which hauls the product came from, do not change your earlier figures for percent retained.

Percent Retained on Catcher Vessels

Everything that is delivered to the processing plant from a catcher vessel is considered retained. The processor may later discard it or even give it back to your vessel for discard, but as long as it was delivered, it is considered retained. When recording Offload census data there is no percent retained associated with composition records recorded at the offload level.

Fish that were discarded at sea ***prior*** to delivery should be considered as not retained. Estimate the amount of each species discarded and adjust the reported percent retained value accordingly.

Percent Retained and Improved Retention/Improved Utilization (IR/IU)

Through industry initiative, the North Pacific Fishery Management Council created a program to reduce bycatch and improve utilization of harvested groundfish. Since 1998, Improved Retention/Improved Utilization (IR/IU) standards have required all vessels to retain and utilize 100% Pacific cod and pollock in the BSAI and GOA when the open access fishery for these species is not closed. In January of 2003, IR/IU regulations were expanded to the shallow water flatfish complex for vessels fishing in the GOA.

The Groundfish Retention Standard (GRS) program further regulates non-AFA groundfish trawl catcher processors with requirements for the amount of groundfish that must retained and the amount that must be made into a primary product.

Once the fisheries for IR/IU species are closed, vessels are required to keep the maximum retainable amount for these species. ***Note that your sample is not covered under the IR/IU regulations, so fish discarded as a result of you working up your sample (e.g., taking otoliths, sexing fish, or completing a stomach sample) do not need to be factored into percent retained.***

Vessel personnel might challenge you on your percent retained estimations for IR/IU species. You should document your conversations if this happens. ***Do not make any changes to your percent retained methodology because of the IR/IU regulations, or pressure from the crew.*** The fishing industry has been informed that percent retained estimates are visual estimates only. If vessel personnel have questions about this regulation, refer them to the Alaska Regional Office or to the NMFS Office of Law Enforcement; see page A-51 for the contact numbers.

LIMITED ACCESS PRIVILEGE PROGRAM FISHERIES

In the Bering Sea and Gulf of Alaska, vessels you observe on will be participating in either limited access or limited access privilege program fisheries (LAPP). Vessels fishing LAPP fisheries are specifically regulated by the American Fisheries Act (AFA), Community Development Quota (CDQ) Program, the non-AFA trawl catcher/processor LAPP in the BSAI (referred to as Amendment 80), the Central GOA Rockfish Program, and/or laws associated with the Groundfish Retention Standards (GRS) program in the BSAI.

The majority of sampling protocols are the same regardless of whether the vessel is fishing limited access or LAPP. For example, there are the same safety concerns and biasing mechanisms, you still must strive to sample randomly using sampling designs endorsed by the FMA, and there are preferred sizes and numbers of samples per sampled haul. You should be aware of some specific sampling protocols for vessels fishing in the LAPP fisheries. Specific policies are noted by vessel type and fishery below.

AFA/CDQ Pollock Catcher Vessels

Pollock catcher vessels operating in an AFA co-op or fishing CDQ have the same sampling protocols as limited access pollock fisheries (see previous discussions on sampling mechanics and designs on catcher vessels). These vessels will not have an observer sampling station or motion compensated platform scale.

The vessel must retain all halibut Prohibited Species Quota (PSQ) and crab PSQ until it is counted and sampled by you. Halibut PSQ and crab PSQ may be discarded at sea after you sample it.

CDQ Non-Pollock Trawl Catcher Vessels

Few non-pollock trawl catcher vessels have participated in CDQ fisheries. This may be because their catch is typically diverse and bycatch rates can be very high. These vessels will not have a certified observer sampling station or MCP scale. The vessel must provide space on deck for you to sort and store samples and a place to hang your scale. Finally, prohibited species must be discarded by the vessel after you have had an opportunity to sample those species. Inform the plant observer of any at sea discards.

For each haul, obtain observer estimates using codend or bin volume estimates. Densities should also be taken for each haul. If an observer estimate is not possible, report the vessel's estimate only and leave the observer estimate blank.

Since the catch is usually diverse, you will most likely take small samples at sea for all species. In rare cases, with very small hauls, you may be able to sample the entire catch. As the vessel observer on a non-pollock

trawl catcher vessel you have no duties at the plant other than notifying the plant observer of any at sea discards and obtaining a total delivery weight for the delivery. It is the plant observer's responsibility to monitor the offload. Data should be faxed each time the vessel delivers.

AFA, CDQ and Non-AFA Limited Access Groundfish on Trawl Motherships and Catcher/Processors Fishing in the BSAI

Regardless of the fishery, trawl CPs and motherships fishing in the Bering Sea or Aleutian Islands who are participating in the limited access privilege fisheries are required to carry two observers, have the ATLAS program, a NMFS-certified observer sampling station, a flow scale and a MCP scale. The vessel is required to test the flow scale daily (see "Flow Scale Testing" on page 2-26).

All catch landed by the vessel must be weighed on the flow scale and ***hauls cannot be mixed.*** Your duties and responsibilities will be the same no matter what species the vessel targets. The vessel's operating requirements will be the same as well, regardless of the species fished.

It is your responsibility to test the platform scale daily (see "Platform Scale Testing" on page 2-25). It is common for both AFA and non-AFA trawl CPs to participate in a variety of fisheries during any given trip. If catch coming onboard may be designated as CDQ, the vessel should provide you advance notice, but the vessel has up to two hours after completion of weighing all catch in the haul to officially designate a tow as CDQ in their logbook. As the observer, you should only be concerned with whether they treat potential CDQ catch appropriately and whether the catch is designated as CDQ when you record your catch weight information from the vessel's logbook.

Since motherships must coordinate their record keeping with the delivering vessel, they cannot designate catch as potential CDQ and then change it to non-CDQ. Their catch should be designated prior to landing it. Check the logbook information carefully when filling out your haul forms, since a vessel may be fishing for several CDQ groups or participating in multiple fisheries.

Even though vessels are required to weigh all catch, there are certain fish (*e.g.*, sharks, halibut, etc.) that are too large to go over a flow scale. If this occurs, measure the item and use the appropriate length weight table to obtain the weight if a length weight table is available. If a length weight table does not exist for that species, measure the item, estimate the weight, and add that estimate to the final flow scale weight for the haul. ***Contact your inseason advisor each time part of the catch is not weighed on the flow scale. Your message should include the haul number, what wasn't weighed, the item's estimated weight, the item's length and the flow scale weight***. Document the situation in your logbook so there is a record of why the Observer Catch Estimate is greater than the flow scale total for the haul. If the item not weighed falls under the category of "pre-sorted," it must be accounted for as a unique sample, with the circle next to "Pre-sorted" on the species composition form checked (see "Accounting for Pre-Sorted Samples" on page 5-22).

Regulations Specific to Non-AFA Trawl Catcher/Processors Fishing in the BSAI

Amendment 80 was implemented in 2008. This action allocates several non-pollock trawl groundfish species among fishery sectors in the Bering Sea and Aleutian Islands. Additionally, it facilitates the formation of harvesting cooperatives in the non-AFA trawl catcher/processor sector. Vessels fishing under Amendment 80 regulations are often referred to Amendment 80 vessels.

All Amendment 80 vessels must meet the following requirements in addition to those described above for CPs.

1. Vessels are prohibited from having more than one operational belt, or other catch conveyance device, between the flow scale and sample collection point.

2. Observers must be able to view all activities inside the bins. There are three ways Amendment 80 CPs fishing in the BSAI can satisfy this requirement:

- **Option 1: Limited tank access** - No crew are allowed inside the bin unless the flow of fish has been stopped between the tank and the sample collection point, all catch has been cleared between these two points, and the observer has been given notice that crew must enter the tank. The observer

must be given the opportunity to monitor crew activity in the bin. When informed by the observer that all sample collection activities are completed for the haul, the crew may enter the tank without stopping fish flow or clearing belts as above.

- **Option 2: Line of sight** - From the sample collection point and sampling station, the observer must be able to see all areas of the bin where crew could be located. NMFS approved viewing ports would satisfy this requirement. ***Currently, no vessels are approved under this option***.
- **Option 3: Video** - The vessel may use cameras, monitors and a digital recording system to capture activity in all parts of the bin. The observer must be able to monitor bin activity with this system.

Many vessels participating in the Amendment 80 fisheries have chosen the third option, involving installation of video cameras to monitor bin activity. ***If Option 2, line of sight, or Option 3, video, fail to meet the standard of allowing the observer to view crew activity in the bin, the vessel must revert to Option 1, limited tank access option.*** See."Amendment 80 Catch Monitoring Requirements §679.28 and §679.93" on page 20-14.

3. Retaining unsorted catch on deck outside of the codend without an observer present is prohibited, except in the case that fish is accidentally spilled from the codend during hauling or dumping at which point the fish must be placed in the live bin or back in the codend.

4. Sample stations must be able to contain 10 observer basket's worth of fish at one time. This space may include vertical storage space as well as deck space in addition to space adjacent to the sample station.

5. The vessel participant must provide the opportunity for a pre-cruise meeting. Pre-cruise meetings help to establish a professional working relationship between the crew and the observer early on in the deployment, clarify what is expected of each participant according to regulations, and provide both the vessel crew and observer the opportunity to discuss specific issues before they become a problem.

Amendment 80 Vessels Subject to BSAI Limits While Fishing in the GOA

Amendment 80 CPs subject to BSAI limits while fishing in the GOA are not restricted by the same regulations as those required in the BSAI. These vessels are not required to have a flow scale, regardless of size or processing facilities onboard. They do not have to carry two observers, offer the opportunity for a pre-cruise meeting or have a certified sampling station.

When fishing in the GOA, Amendment 80 CPs that are subject to BSAI limits must have only one operational sorting line from the fish bins, must have a bin monitoring system in place (described above), cannot hold fish on deck, and cannot mix hauls.

Currently, there is one catcher processor vessel, the Golden Fleece, exempted from the regulations specific to vessels subject to BSAI limits while fishing in the GOA. The Golden Fleece is required to carry an observer 100% of the time, but does not need to provide a flow scale, certified sample station, pre-cruise meeting, or bin monitoring system. They can hold fish on deck and they can mix hauls.

Regulations Specific to CPs Participating in the Central GOA Rockfish Fishery

CPs participating in the GOA rockfish fishery are subject to the same regulations as those vessels participating in LAPP fisheries in the BSAI (see page 5-35). These vessels must have a bin monitoring plan in place, a flow scale, certified observer sampling station, two observers onboard, no mixing of hauls, no catch dumped on deck, etc.

Sample Sizes in LAPP Fisheries

Sample size guidelines and determining factors discussed in previous sections of this chapter are applicable to the LAPP fisheries. In those instances when a flow scale must be in use, you may be able to increase sample sizes well over those you would take on vessels fishing the same species without a flow scale.

Catcher Processors Fishing AFA and CDQ Pollock

These vessels are required to have flow scales and the fishery tends to be clean, so sample sizes of several tons are common for composition data. Remember that, even in the pollock fishery, bycatch may be too diverse for you to achieve very large sample sizes. If

the catch is diverse, drop your sample size to the size necessary to account for all species in the sample (see "Catch With High Species Diversity: Small Sample Sizes" on page 5-17 and "Catch With Low Species Diversity: Large Sample Sizes" on page 5-18). Remember, you must be able to account for all species for which you are sampling!

Vessels Fishing Limited Access Non-AFA Groundfish

The catch in non-AFA limited access hauls tends to be high in diversity. The level of diversity impacts sample size; the higher the diversity, the smaller the sample size has to be. Drop your sample size to the size necessary to account for all species in the sample (see "Catch With High Species Diversity: Small Sample Sizes" on page 5-17). Remember, you must be able to account for all species for which you are sampling!

IF THE FLOW SCALE IS NOT WORKING

If you are on a CP or mothership vessel participating in a LAPP fishery, ***you never measure the codend to obtain an observer estimate of catch.*** This holds true even if the flow scale is broken, has faulted (*i.e.*, not weighed a portion of catch), or has failed the daily test. If the flow scale is not working, ***leave the observer estimate blank, and make sure to enter a vessel estimate value in the vessel estimate field for that haul!***

If the flow scale is not working, sample weights can only come from the motion compensated platform (MCP) scale or your observer scales. The options for sample sizes in this case would be limited: 1) samples would have to be small enough to weigh on the MCP or observer scales, or 2) the haul would have to be clean enough that you could sample the *entire* haul (weigh all bycatch on your scales).

If the vessel has questions about flow scale requirements, refer them to the Alaska Regional Office in Juneau at (907) 586-7228. Do not refuse to sample or tell the vessel they can't fish if the flow scale or platform scale is not functioning (see page 2-26). ***Simply inform your inseason advisor of the situation and NMFS will take any necessary action.***

DECK FORM INSTRUCTIONS

The waterproof raw data forms provided by the Observer Program are meant to be taken out on deck. On ATLAS vessels these replace the paper species composition form. ***Never recopy raw data and always return to your debriefing interview with your original data.*** The Deck Forms are an important component of your data documentation. It is important to fill out the forms completely and legibly!

All raw species composition data collected by you must be documented on the Deck Form provided by the Observer Program, whether your vessel has ATLAS or not.

On vessels with ATLAS enter data from the Deck Form directly into the ATLAS system. On non-ATLAS vessels information on the Deck Form must be transcribed to a paper species composition form and faxed (see "Paper Form Instructions" on page 5-40).

The Deck Form is double sided with two sample blocks available on each side. The header information at the top of the Deck Form must be filled out and pertains to both sample blocks below it. You may have one haul's worth of samples on one side of a Deck Form and another haul's worth of samples on the other side, ***but you cannot mix two haul's worth of data on a single side of the Deck Form.*** You must maintain a separate set of forms for each vessel you are deployed to.

Multiple samples and subsamples taken within a haul should be maintained completely independent of each other with their own unique sample number and sample block (or blocks) on the Deck Form. If you have to combine samples later, simply check the circle next to "Combined?" for the affected samples (for information on combined samples see "Combined Samples" on page 5-25).

Note that the only time you will have subsample data on trawlers is when you have subsampled for two predominant species (see "Subsampling for Two Predominant Species" on page 5-19). Subsamples have a specific numbering system associated with them, explained on page 5-38.

Maintain a separate set of forms for each vessel.

Deck Form Rules for Trawlers

Examples of completed Deck Forms can be found starting on page 5-43. ***The following Deck Form rules must be followed on all vessels and all fields must be filled out completely:***

Observer Name/Vessel Name - For each vessel assignment, write your name and the vessel's name across the top of the first page.

Date, Cruise, Permit: Enter the date (in mm/dd/yy format) the haul was retrieved. The date on this form must correspond to the retrieval information on the Haul Form. Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on page A-27.

Haul No., Offload No: For each sample taken within a haul, enter the haul number the sample came from and leave the offload number blank. If the composition data are from an offload census, enter the offload number for the sample and leave the haul number field blank. Hauls can be numbered sequentially beginning with the number 1, or you can follow the captain's numbering convention ***if the captain is not repeating haul numbers with each new trip.*** Number offloads sequentially for the vessel, beginning with the number 1. Haul numbers and offload numbers ***must*** match entries on your haul and offload forms.

Haul number and offload number must be unique for the vessel. If you disembark the vessel and then embark again at a later date, you can continue numbering the hauls from the number where you left off, continue with the captain's numbering convention (if s/he is not repeating haul numbers), or skip a few numbers (*e.g.*, if you numbered hauls of the first trip 1, 2, 3, and 4, you could number hauls of the next trip as 11, 12, 13, 14).

Haul numbers do not have to be sequential (although it is easier if they are), but they do have to be unique for the vessel.

Page_ of_ for Vessel/Plant, Page_ of_ for Haul/Offload: For each vessel assignment and form type, pages are numbered consecutively starting with 1.

Sample number: Every sample taken from within a haul must have a unique identifying sample number. Number samples taken within a haul sequentially, starting with the number 1. You do not need to make sample numbers between hauls unique; you can start with the number 1 for the first sample of every sampled haul.

If the composition data are from an offload census, enter a sample number of 1.

Subsample Number: For trawler sample data, the only time you will have a ***subsample*** block of data is when there are two predominant species in a sample. Subsamples must be numerically linked to the parent samples they came from. You do this by using a numbering convention designed specifically for subsamples: every subsample number must be three digits in length, with the first digit designating the parent sample from which the subsample came, and the next two digits indicating the number of that subsample for the parent sample. Subsample numbering convention is explained further below:

- The first subsample of sample number 1 for a haul should be numbered 101, the second subsample for sample number 1 of a haul should be numbered 102, the third 103, and so on...
- The first subsample of sample number 2 for a haul should be numbered 201, the second subsample for sample number 2 of a haul should be numbered 202, the third 203, and so on...
- The first subsample of sample number 3 for a haul should be numbered 301, the second subsample for sample number 3 of a haul should be numbered 302, the third 303, and so on...

Sample and Subsample Size: On trawlers**,** every sample and/or subsample must have a sample weight. Record the total weight of catch in your sample, in kilograms, and circle the "kgs" text.

If the composition data are from an offload census, the delivery weight is the sample weight.

# of Sampled Hooks: Not used for trawl vessels.

Presorted: If the sample represents pre-sorted species, check the circle next to "Presorted" for the sample. See page 5-22 for more information on accounting for pre-sorted species.

Combined: If the samples for a haul are going to be combined in the reported data, check the circle next to the word "Combined" for ***only those samples that will be combined.*** When these data are entered into ATLAS

or on a paper form samples designated as combined are rolled up into a single sample entry. See "Combined Samples" on page 5-25 for a description of when samples must be reported as a "Combined Sample."

Unable to Follow Design: If the original sample unit or design cannot be followed for a sample, you should indicate this on the Deck Form by marking the "Unable to Follow Design" field. Pre-sorted samples must always be recorded as "Unable to Follow Design." This field is sample specific. When entering data into ATLAS, this field is labeled "Sampled As Designed." If you checked this field on your Deck Form you must enter ***No*** (as an "N") in ATLAS, otherwise the field will default to ***Yes*** ("Y").

No Fish in Sample: For trawl vessels, if there are no fish in your offload census, mark this field on the top of your Deck Form.

Species: List each species encountered in the sample by their common name.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and sex. Record an "M" or "F" for these species when sex is determined. Leave the sex field blank for any non-prohibited species.

Number: Enter the number seen for each species listed. If you do not have a number for individuals seen of that species, enter a zero in the number field for that species. Use as many lines and columns as necessary for each species.

- If you subsampled for two predominant species, you must enter a zero in the number and weight column of the parent sample that included those species. ***Number and weight information on the two predominant species is entered in the subsample(s) taken specifically for those two species.*** Parent sample entries with a zero placeholder in the weight and number columns alert the database and data users to expect subsample data for the parent sample. See sample number 3 in Figure 5-8 for an example of how to document number data in a parent sample that has a subsample associated with it. See subsamples 301 and 302 in Figure 5-9 for an example of documenting subsample data. Refer to page 5-19 for information on subsampling for two predominant species.
- For decomposed fish (code 899) and miscellaneous items (code 900) you can enter the actual number of items or, if counting individuals in these categories would be too tedious and time consuming, you may enter a zero in the number field for these individuals.
- GOA offload census Species Composition Deck Form- Record the number of all salmon from at-sea and your offload. Do not report zero numbers for salmon species not encountered.

Weight: Enter the weight of each species written with a well defined decimal. Weights must be recorded to the nearest 0.1 or 0.01. If you feel that your scale cannot be read accurately to the tenth, you must fill in at least a trailing zero. ***Do not enter weights to more than two decimal places.*** If a species in your sample was too small to weigh (*e.g.*, one brittle star) ***enter the weight as 0.01 kg***.

For trawlers, all species in the composition samples must have an associated *actual weight* (with the exception of large items too big to be weighed which must have a zero in the weight field). If you do not have the weight for any given species, the sample data cannot be included in your data transmission. You may use the length/weight tables to determine the weight of halibut and longnose and big skates that exceed the capacity of your scales. For halibut use the "Halibut Length to Weight Table" on page A-40 to derive weight. For longnose and big skates use the "Skate Length to Weight Table" on page A-39 to derive weight. To use these tables you must have an actual length. Estimates of lengths are not acceptable. Use as many lines and columns as necessary for each species.

- Remember that for samples with two predominant species, you enter zero in both the number and weight columns. The weight and number information are captured by your subsample(s) for the species.
- Remember that the rules for recording data in the offload census are different than for regular composition samples. Refer to "GOA Vessel Observer Offload Salmon Census" on page 5-30 for more information on the offload census and recording these data.
- Record salmon with a weight of 0.00 kg in the offload census.

Percent Retained: Enter your rough estimate of the percentage of each species kept. Retention applies to organisms kept for any reason, including consumption on the vessel, processing, delivery, or for a home pack. Record the percent retained to the nearest whole number without the "%" symbol. Refer to "Estimating Percent Retained" on page 5-33 for more specifics regarding the protocol for documentation of percent retained.

Keypunch: In the spaces to the right of the word "Keypunch," write the calculated sum for species number and species weight values you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunches are a valuable tool for staff who edit your data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries. If you are sloppy with your keypunch calculations, staff have to investigate each discrepancy. This is a waste of valuable time for both you and for staff. Ensure you double check your keypunch summaries!

Length, viability, injury, specimen, tally data, notes: Each sample block on the Deck Form has a blank area for recording sample specific data such as sex/length/weight information, specimen information, halibut assessments, notes pertaining to any biases to the sample, etc. Make comments about anything unusual with the catch or your sampling technique for the haul. More complete descriptions of these notes should be documented in your logbook. Making note of unusual occurrences on your species composition form will assist in the debriefing process, and help you distinguish one haul from others. ***All raw data must be documented!***

Tally K/P: This box on the lower right side of the Deck Form is not used by observers on trawlers.

PAPER FORM INSTRUCTIONS

If the vessel does not have ATLAS, you must transfer your raw data from the Deck Form to a paper species composition form. You must fax paper forms to the Seattle NMFS office after every trip.

Three samples will usually fit on one species composition page. Each sample must be documented as a distinct sample for that haul (except in cases of combined samples which are rolled up into one sample on the paper form or in ATLAS; see "Combined Samples" on page 5-25). Unlike the Deck Forms, samples from two or more hauls can go on a single page. On paper forms, you do not need to start a new page for each sampled haul. Maintain a separate set of forms for each vessel you are assigned.

Ensure that your entries to the paper composition form exactly match your entries on your Deck Form.

Cruise Number, Vessel Permit, Observer Name and Vessel Name: Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on A-27. Write your full name and the name of the vessel on the lines provided at the top of the form.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing. You can continue to use the form until all sample blocks are filled with data; just be sure to enter the correct header information for each new sample.

Haul No., Offload No.: Copy the sample's haul or offload number from your Deck Form.

Sample Number: Copy the sample number from your Deck Form for that haul.

Subsample Number: Copy the subsample number from your Deck Form for that haul.

Presorted: If the sample represents a presorted sample, check the "Presorted"' circle. Make sure your raw data Deck Form reads the same!

Combined: When these data are entered into ATLAS or on a paper form, samples designated as combined on the Deck Forms for the haul are rolled up into a single sample entry. See "Combined Samples" on page 5-25 for a description of when samples must be reported as a "combined sample." If the sample represents a combined sample, check the circle next to "Combined." Make sure your raw data Deck Form reads the same for all samples you had to combine!

Unable to Follow Design: If the original sample unit or design for a collected sample cannot be followed, you should have indicated this on the Deck Form by marking the "Unable to Follow Design" field. Pre-sorted samples must always be recorded as "Unable to Follow Design." If the field is marked on the Deck Form, be sure to mark it on the paper composition form.

No Fish in Sample: For trawl vessels, if there are no fish in your offload census, mark this field for the offload species composition sample.

Sample Size: Copy the sample size from your Deck Form for that haul. Circle "Kgs" to indicate the weight is in kilograms. Enter sample size with two digits following the decimal point for the clarity of the faxed data.

# of Sampled Hooks: Not used for trawl vessels.

Species Name and Species Code: List each species (or species group) encountered by their common name (or group name) and enter the associated species code. Species codes can be found starting on page A-1. Enter the code that corresponds to the most specific identification you were able to make. ***Consolidate the data for the number and weight of a single species into a single line of entry.*** These calculations must be documented on your Deck Form or in your logbook.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and by sex. Record an "M" or "F" for these species when sex was determined. ***Leave the column blank when sex was not determined.*** Leave this column blank for halibut, herring, and all other species. Do not put halibut condition codes in this column.

Number: Copy the number of individuals sampled per species from the raw data on the Deck Form. If you do not have a number for individuals seen for that species, enter a zero in the number field for those individuals.

- Remember that for samples with two predominant species, you enter zero in both the number and weight columns. The weight and number information are captured by your subsample or subsamples for the species.
- Remember that for decomposed fish (code 899) and miscellaneous items (code 900) you can enter the actual number of items, or, if counting individuals in these categories would be too tedious or time consuming, you may enter a zero in the number field for those individuals.
- GOA offload census - Record the number of all salmon from at-sea and your offload. Do not report zero numbers for salmon species not encountered.

Weight in Kgs: Copy the weight value from the raw data on the Deck Form for the haul/species. Enter weights with two digits following the decimal point printed on the form for the clarity of the faxed data. Even if you feel that your scale cannot be read accurately to the tenths, you must fill in trailing zeros. ***Always enter weights to only two decimal places.***

For trawlers, all species must have an associated ***actual weight*** (except large unweighed items and items too small to weigh). If you do not have the weight entry for any given species the sample data cannot be included in your data transmission. For halibut, longnose skates, big skates, and sleeper sharks that exceed the capacity of your scales use the appropriate length/weight table. To use these tables you must have an actual length; estimates of lengths are not acceptable. Use as many lines and columns as necessary for each species.

- For species that were too large to weigh (*e.g.*, a presorted salmon shark) enter the weight as 0.00 kg.
- For species that were too small to weigh (*e.g.*, one brittle star) enter the weight as 0.01 kg.
- Remember that for samples with two predominant species, you enter zero in both the number and weight columns. The weight and number information are captured by your subsample or subsamples for the species.
- Remember that the rules for recording data in the offload census are different than for regular composition samples. Refer to "GOA Vessel Observer Offload Salmon Census" on page 5-30 for more information on the offload census and recording these data.
- Record salmon with a weight of 0.00 kg in the offload census.

Percent Retained: Enter your rough estimate of the percentage of each species kept. Retention applies to organisms kept for any reason, including consumption on the vessel, processing, delivery or for a home pack. Record the percent retained to the nearest whole number, without a "%" sign. Refer to page 5-33 for additional instructions regarding estimating and recording percent retained.

If the vessel made any product from more than 15% of a fish, the whole fish is considered retained.

Keypunch Check: In the spaces to the right of the words "Keypunch check," write the calculated sum for species codes, species number, species weight, and percent retained values you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunches are a valuable tool for staff who enter your faxed data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries they made. If you are sloppy with your keypunch calculations, staff have to investigate each discrepancy. This is a waste of valuable time for both you and for staff. Ensure you double check your keypunch summaries!

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your species composition data for errors.

Check Species Composition for:

- Pages numbered properly, no skipped or duplicate numbers.
- Every page has your cruise number and vessel permit.
- All fields with pre-printed decimals have numbers recorded to two decimal places and all written decimals are distinct with data recorded to no more than two decimal places.
- Transcription errors between the raw data Deck Form and paper form or ATLAS entries.
- All repeated fields are filled in; you cannot use arrows!
- Your handwriting is clear and legible.
- Haul numbers correspond with dates and hauls listed on the VHF.
- Species names match species codes.
- All species codes are listed with corresponding necessary data.
- Sex codes are included only for salmon, Tanner and king crab species. Record all prohibs of the same sex/species as a single entry on Paper Forms.
- If sex is unknown, the sex field is left blank.
- Species weights are recorded for each line of entry.
- All weights are in kilograms.
- Accurate keypunches of numbers, weights, species codes (paper forms), and percent retained (paper forms) are on the top line.
- Percent retained values are entered for all species and are in whole numbers.

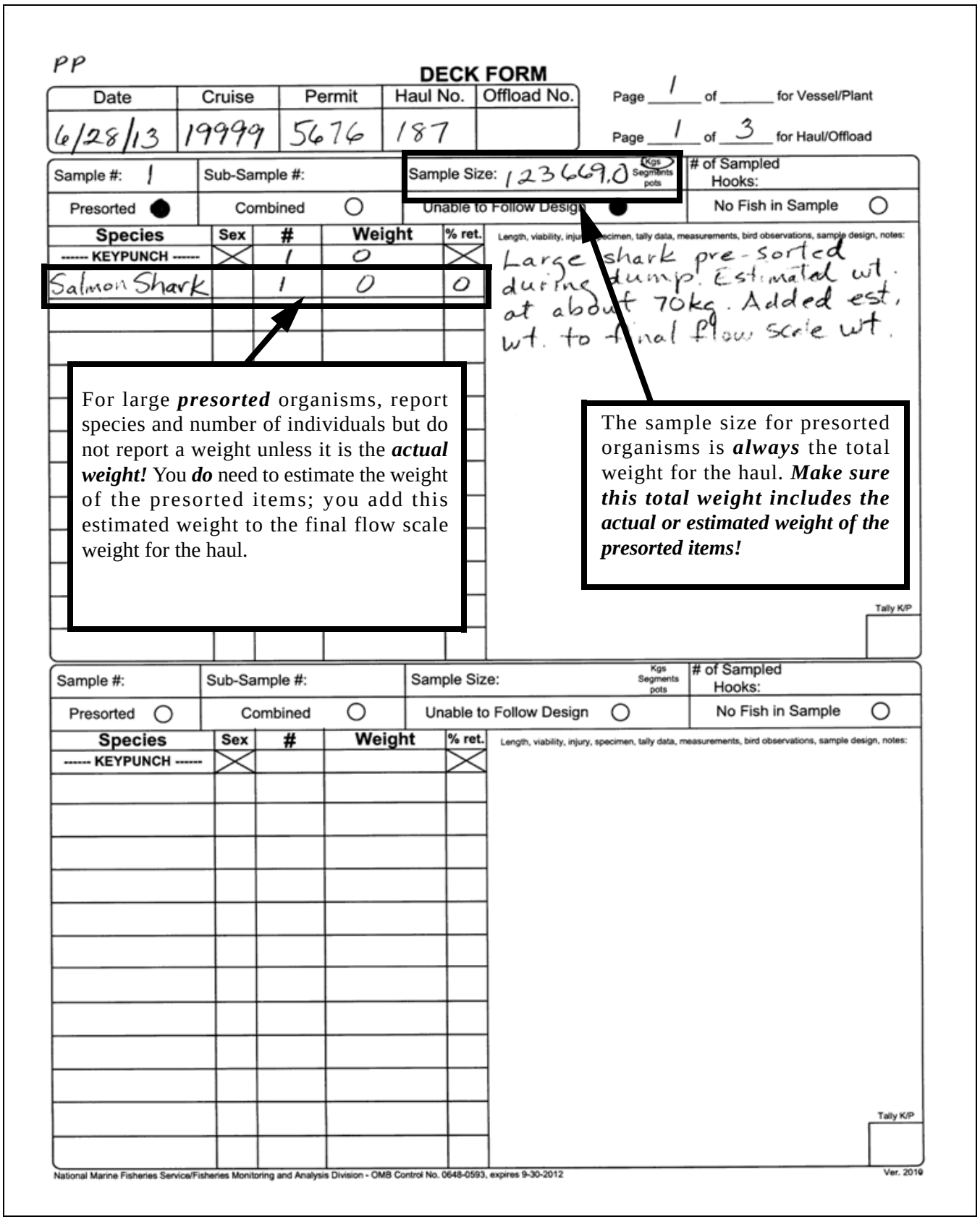


Figure 5-7: Example of Presorted Sample Data From a Pollock CP

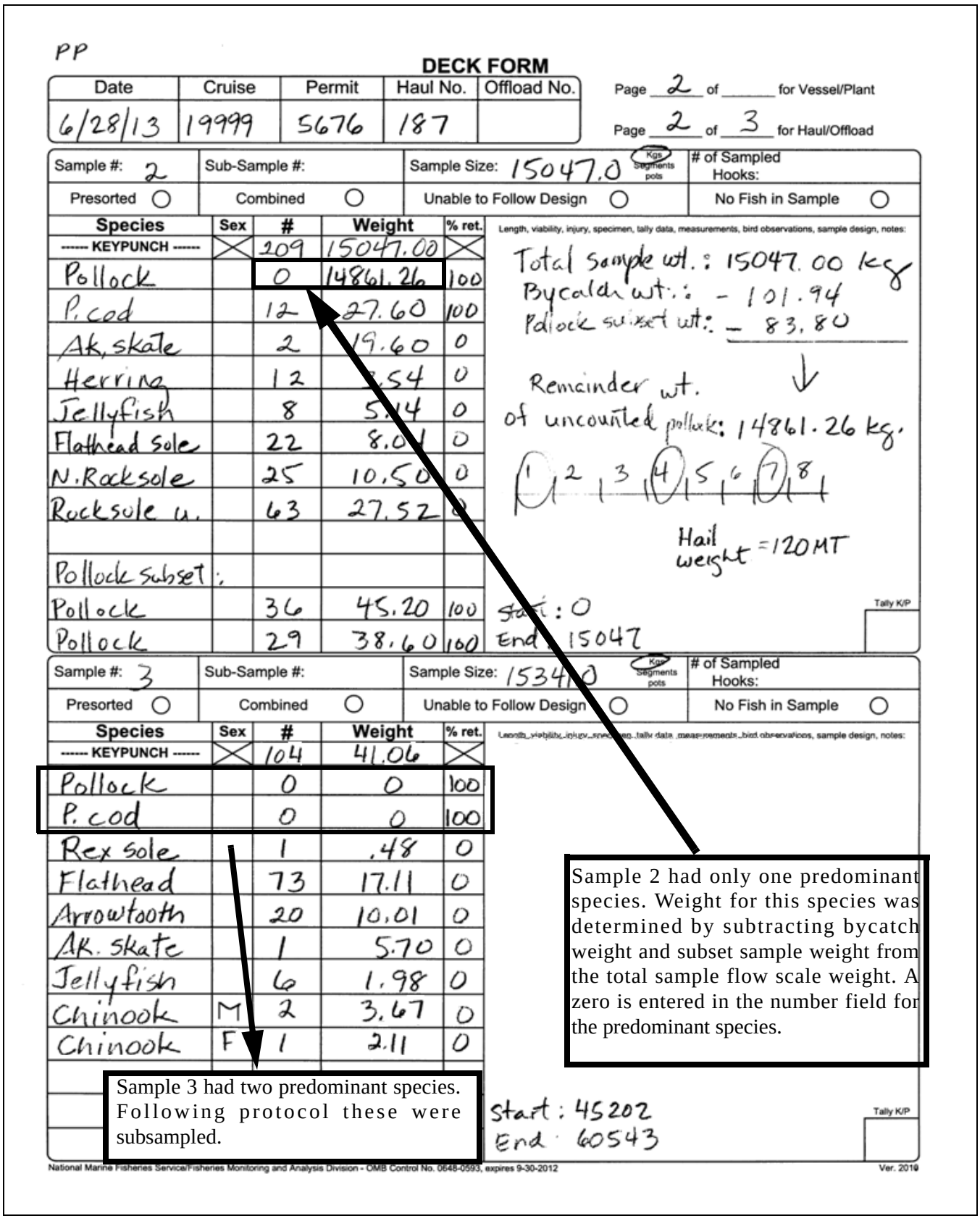


Figure 5-8: Example of Sample Data for One and Two Predominant Species on a Pollock CP

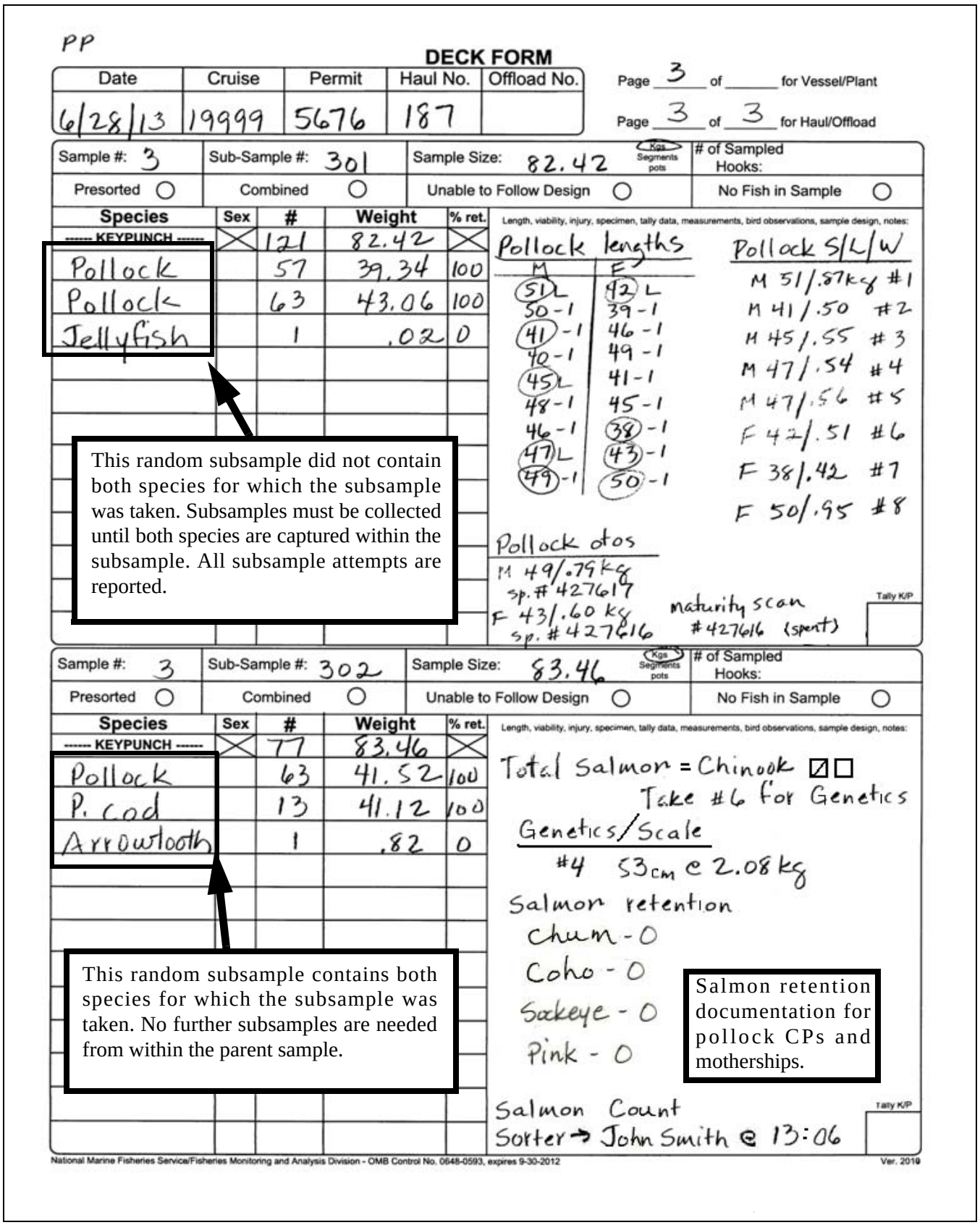
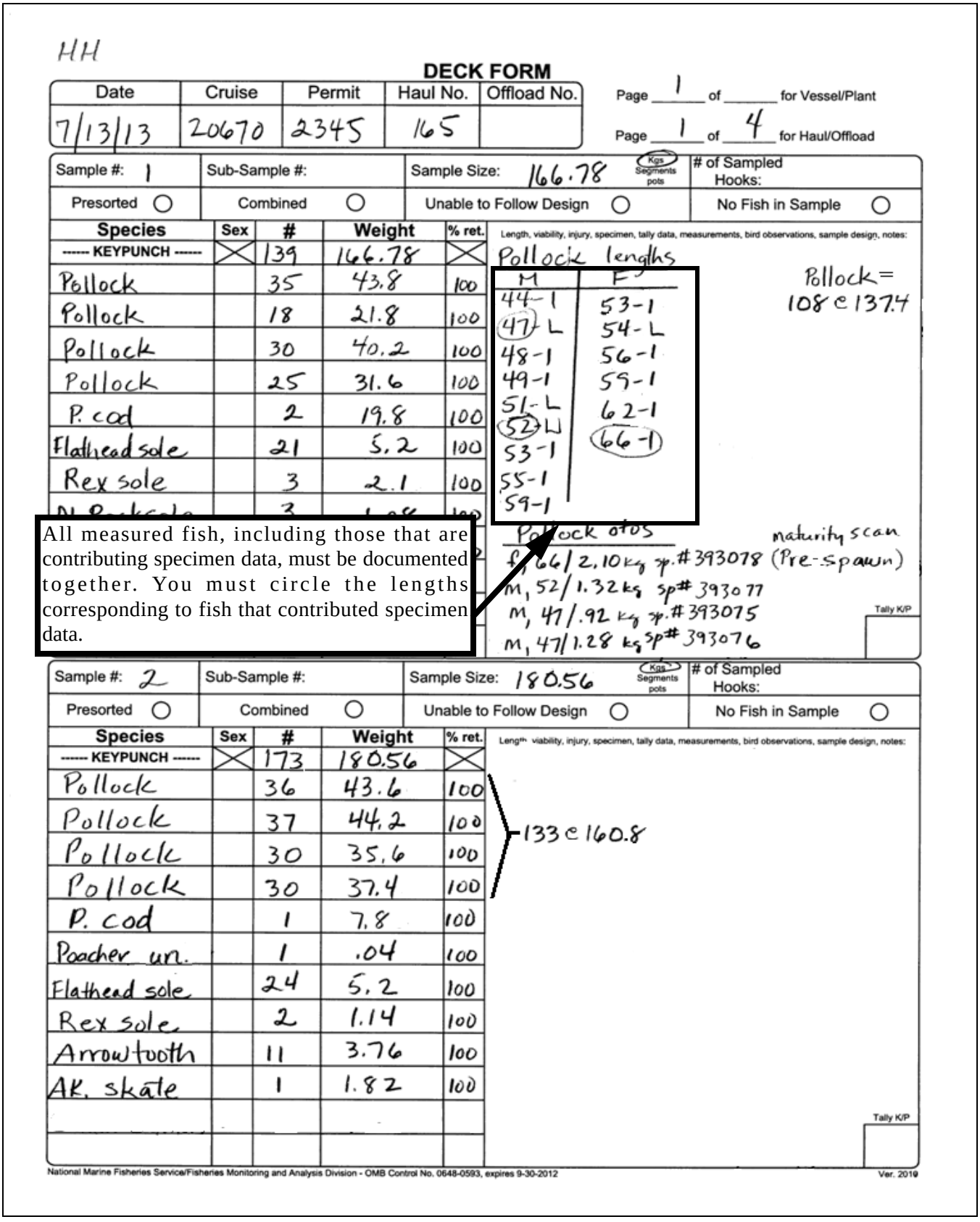


Figure 5-9: Example of Subsample Data for Two Predominant Species on a Pollock CP



HH

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/13/13	20670	2345	165	

Page 1 of _____ for Vessel/Plant

Page 1 of 4 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 166.78 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	139	166.78	X
Pollock		35	43.8	100
Pollock		18	21.8	100
Pollock		30	40.2	100
Pollock		25	31.6	100
P. cod		2	19.8	100
Flathead sole		21	5.2	100
Rex sole		3	2.1	100
N. Rockfish		3	1.08	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Pollock lengths

M	F
44-1	53-1
(47) L	54-L
48-1	56-1
49-1	59-1
51-L	62-1
(52) L	(66-1)
53-1	
55-1	
59-1	

Pollock = 108 @ 137.4

All measured fish, including those that are contributing specimen data, must be documented together. You must circle the lengths corresponding to fish that contributed specimen data.

Pollock otos

maturity scan

f, 66/2.10kg sp.# 393078 (Pre-spawn)

M, 52/1.32kg sp# 393077

M, 47/.92 kg sp.# 393075

M, 47/1.28 kg sp# 393076

Tally K/P

Sample #: 2 | Sub-Sample #: | Sample Size: 180.56 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	173	180.56	X
Pollock		36	43.6	100
Pollock		37	44.2	100
Pollock		30	35.6	100
Pollock		30	37.4	100
P. cod		1	7.8	100
Poacher un.		1	.04	100
Flathead sole		24	5.2	100
Rex sole		2	1.14	100
Arrowtooth		11	3.76	100
AK. skate		1	1.82	100

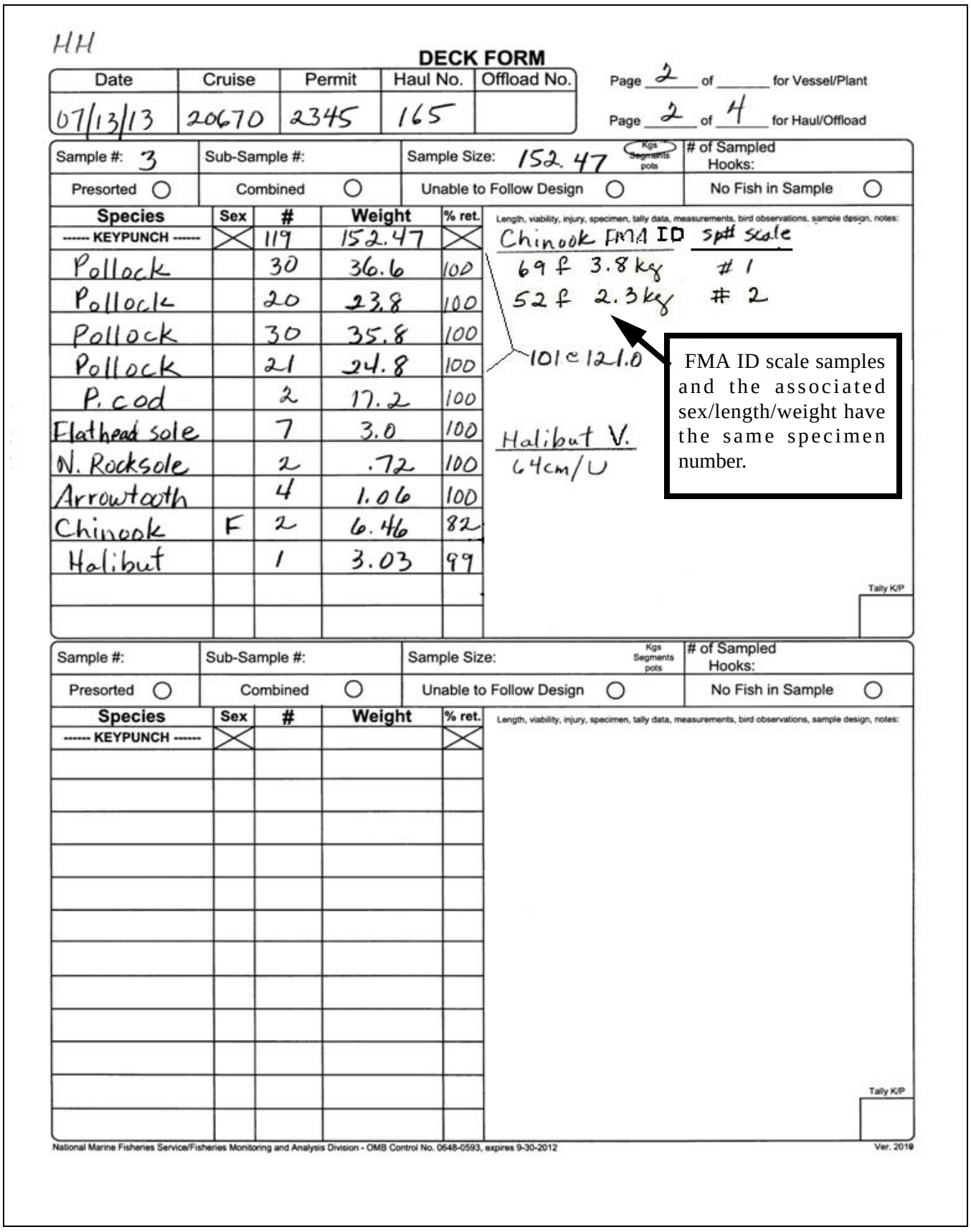
Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

133 @ 160.8

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2010

Figure 5-10: Example of Sample Data From a Pollock Catcher Trawler In the GOA.



HH

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
07/13/13	20670	2345	165	

Page 2 of _____ for Vessel/Plant

Page 2 of 4 for Haul/Offload

Sample #: 3	Sub-Sample #:	Sample Size: 152.47 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	119	152.47	X
Pollock		30	36.6	100
Pollock		20	23.8	100
Pollock		30	35.8	100
Pollock		21	24.8	100
P. cod		2	17.2	100
Flathead sole		7	3.0	100
N. Rocksole		2	.72	100
Arrowtooth		4	1.06	100
Chinook	F	2	6.46	82
Halibut		1	3.03	99

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Chinook FMA ID sp# scale

69 f 3.8 kg #1

52 f 2.3 kg #2

101 ≤ 121.0

Halibut V.

64cm/U

Tally K/P

FMA ID scale samples and the associated sex/length/weight have the same specimen number.

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

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Figure 5-11: Example of GOA Pollock Catcher Trawler Sample Data

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DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/15/13	20670	2345		1

Page 3 of 3 for Vessel/Plant

Page 1 of 1 for Haul/Offload

Sample #: 1	Sub-Sample #:	Sample Size: 47444.78 (Kgs) Segments pots	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X	53	0	X
Chinook		47	0	
Chum		5	0	
Coho		1	0	

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Offload #1, Hauls 164-167

Salmon in delivery

Chinook - ☑☑☑☑☑☑☑☑☑☑ (47) L

Chum - ☑ (5)

Coho - 1

Sakeye - 0

Pink - 0

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: Kgs Segments pots	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

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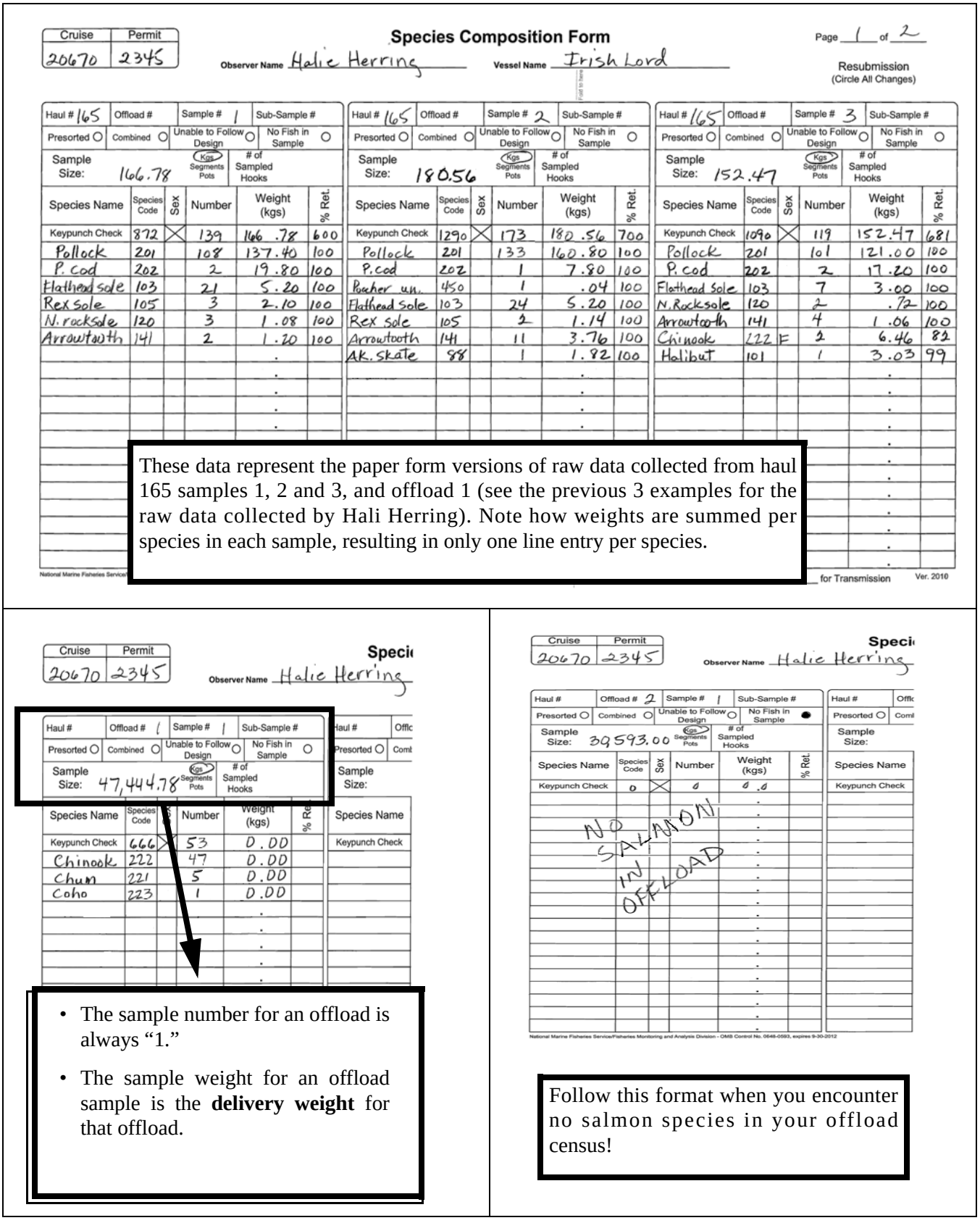
Figure 5-12: Example of a GOA Pollock Catcher Vessel Offload Census Sample



Species Composition Form

Cruise: 20670 | Permit: 2345 | Observer Name: Halie Herring | Vessel Name: Irish Lord | Page 1 of 2 | Resubmission (Circle All Changes)

Haul # 165 | Offload # | Sample # 1 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 166.78 | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	872	X	139	166.78	600
Pollock	201		108	137.40	100
P. cod	202		2	19.80	100
Flathead sole	103		21	5.20	100
Rex sole	105		3	2.10	100
N. rocksole	120		3	1.08	100
Arrowtooth	141		2	1.20	100

Haul # 165 | Offload # | Sample # 2 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 180.56 | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	1290	X	173	180.56	700
Pollock	201		133	160.80	100
P. cod	202		1	7.80	100
Pacher un.	450		1	.04	100
Flathead Sole	103		24	5.20	100
Rex Sole	105		2	1.14	100
Arrowtooth	141		11	3.76	100
AK. Skate	88		1	1.82	100

Haul # 165 | Offload # | Sample # 3 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 152.47 | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	1090	X	119	152.47	681
Pollock	201		101	121.00	100
P. cod	202		2	17.20	100
Flathead Sole	103		7	3.00	100
N. Rocksole	120		2	.72	100
Arrowtooth	141		4	1.06	100
Chinook	222	F	2	6.46	82
Halibut	101		1	3.03	99

National Marine Fisheries Service/ for Transmission Ver. 2010

These data represent the paper form versions of raw data collected from haul 165 samples 1, 2 and 3, and offload 1 (see the previous 3 examples for the raw data collected by Hali Herring). Note how weights are summed per species in each sample, resulting in only one line entry per species.

Cruise: 20670 | Permit: 2345 | Observer Name: Halie Herring

Haul # | Offload # 1 | Sample # 1 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 47,444.78 | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	666	X	53	0.00	
Chinook	222		47	0.00	
Chum	221		5	0.00	
Coho	223		1	0.00	

- The sample number for an offload is always "1."
- The sample weight for an offload sample is the **delivery weight** for that offload.

Cruise: 20670 | Permit: 2345 | Observer Name: Halie Herring

Haul # | Offload # 2 | Sample # 1 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ● | Sample Size: 39,593.00 | Kgs / Segments / Pots | # of Sampled Hooks

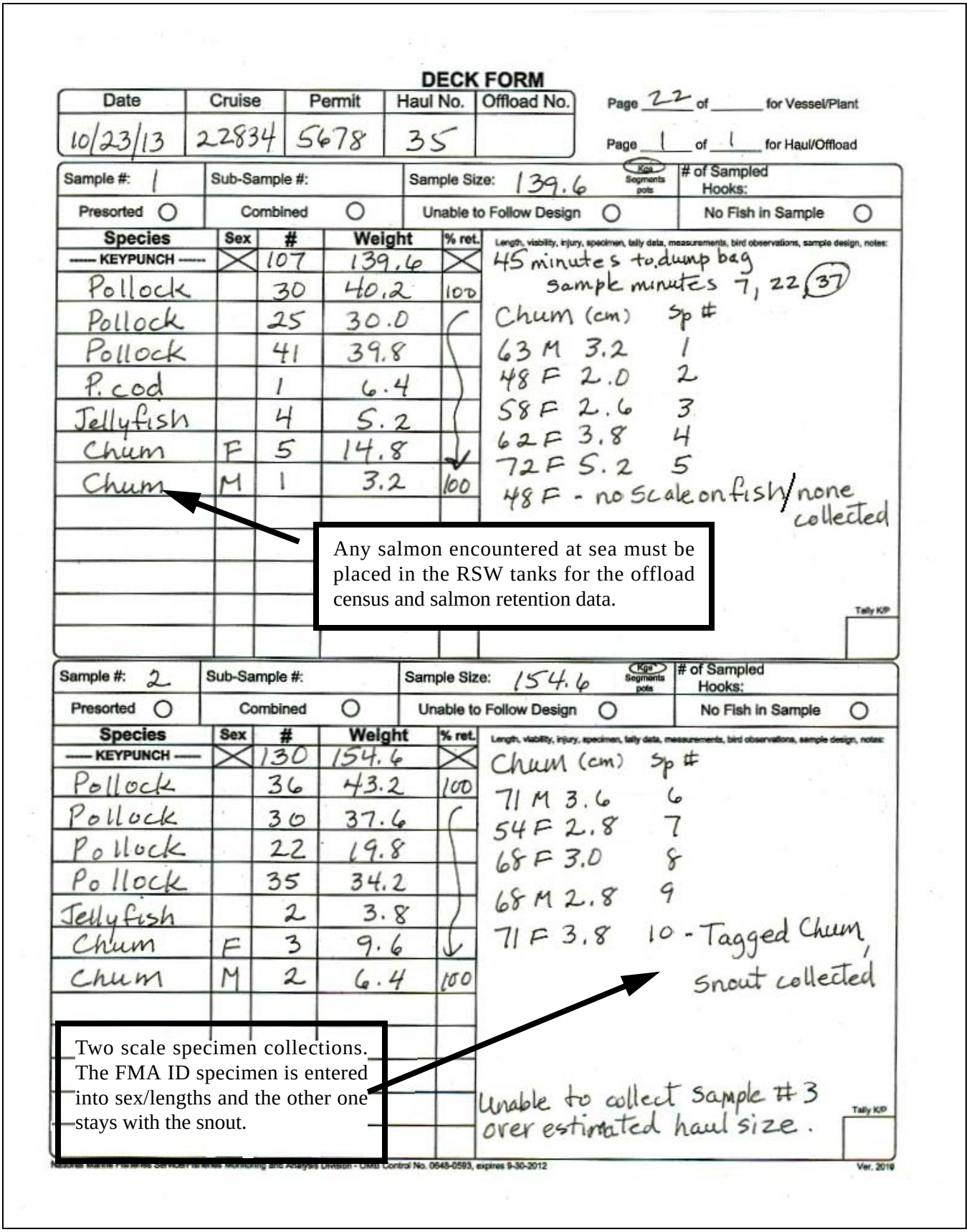
Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	0	X	0	0.0	

NO SALMON IN OFFLOAD

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Follow this format when you encounter no salmon species in your offload census!

Figure 5-13: Ex. of Paper Form Species Composition: Samples From One Haul and GOA Offload Samples



DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
10/23/13	22834	5678	35	

Page 22 of _____ for Vessel/Plant

Page 1 of 1 for Haul/Offload

Sample #: 1	Sub-Sample #:	Sample Size: 139.6 Kge Segments pots	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X	107	139.6	X
Pollock		30	40.2	100
Pollock		25	30.0	(
Pollock		41	39.8	
P. cod		1	6.4	
Jellyfish		4	5.2	
Chum	F	5	14.8	
Chum	M	1	3.2	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

45 minutes to dump bag
sample minutes 7, 22, (37)

Chum (cm)		Sp #
63	M	3.2 1
48	F	2.0 2
58	F	2.6 3
62	F	3.8 4
72	F	5.2 5

48 F - no scale on fish/none collected

Any salmon encountered at sea must be placed in the RSW tanks for the offload census and salmon retention data.

Tally K/P

Sample #: 2	Sub-Sample #:	Sample Size: 154.6 Kge Segments pots	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X	130	154.6	X
Pollock		36	43.2	100
Pollock		30	37.6	(
Pollock		22	19.8	
Pollock		35	34.2	
Jellyfish		2	3.8	
Chum	F	3	9.6	
Chum	M	2	6.4	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Chum (cm)		Sp #
71	M	3.6 6
54	F	2.8 7
68	F	3.0 8
68	M	2.8 9
71	F	3.8 10 - Tagged Chum, snout collected

Two scale specimen collections. The FMA ID specimen is entered into sex/lengths and the other one stays with the snout.

Unable to collect sample #3 over estimated haul size.

Tally K/P

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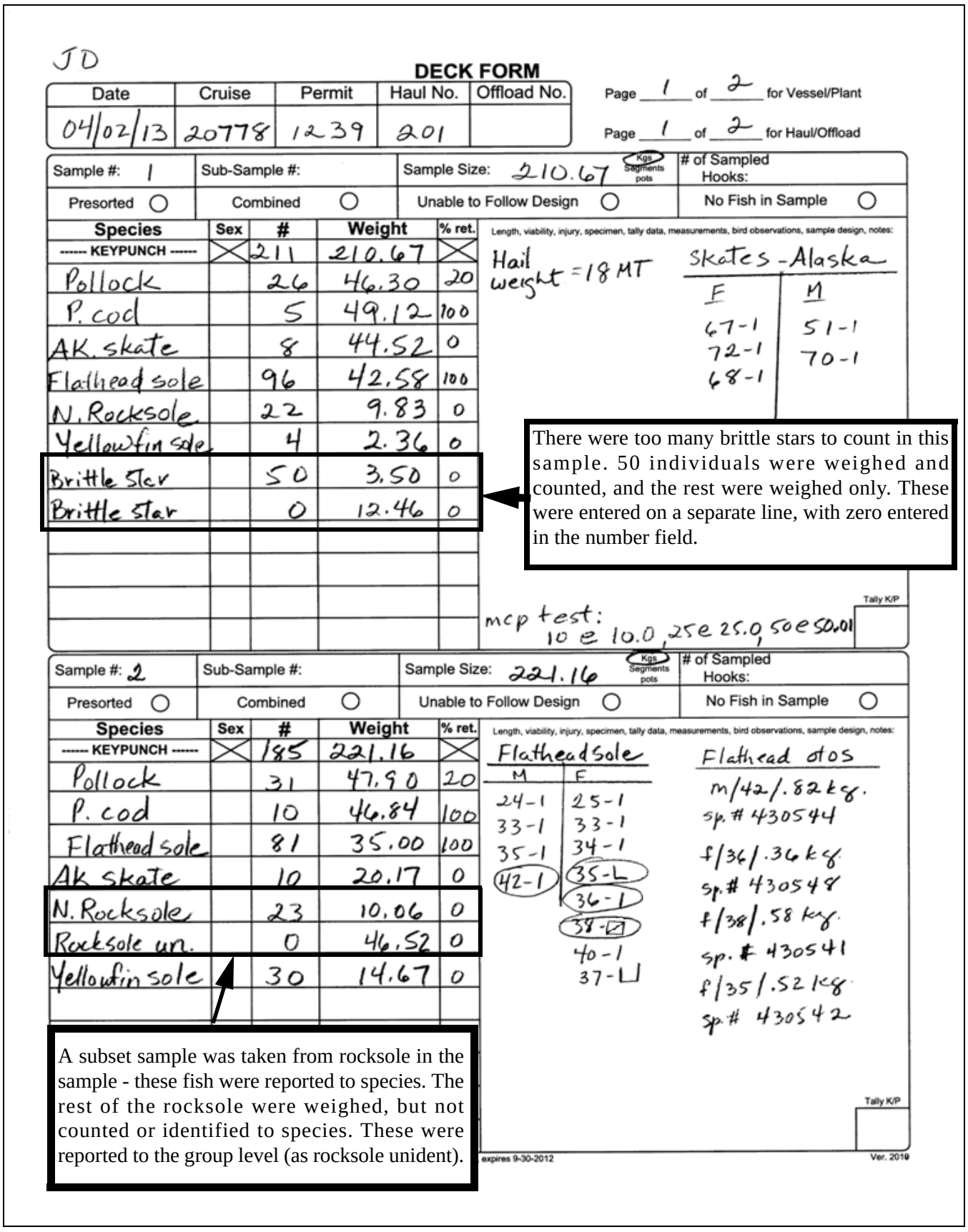
Figure 5-14: Example of Documenting Data From a Bering Sea Catcher Vessel



JD

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
04/02/13	20778	1239	201	

Page 1 of 2 for Vessel/Plant

Page 1 of 2 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 210.67 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	211	210.67	X
Pollock		26	46.30	20
P. cod		5	49.12	100
AK. skate		8	44.52	0
Flathead sole		96	42.58	100
N. Rocksole		22	9.83	0
Yellowfin sole		4	2.36	0
Brittle Star		50	3.50	0
Brittle Star		0	12.46	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Hail weight = 18 MT

Skates - Alaska

F	M
67-1	51-1
72-1	70-1
68-1	

There were too many brittle stars to count in this sample. 50 individuals were weighed and counted, and the rest were weighed only. These were entered on a separate line, with zero entered in the number field.

mcp test: 10 e 10.0, 25e 25.0, 50e 50.01

Tally K/P

Sample #: 2 | Sub-Sample #: | Sample Size: 221.16 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	185	221.16	X
Pollock		31	47.90	20
P. cod		10	46.84	100
Flathead sole		81	35.00	100
Ak skate		10	20.17	0
N. Rocksole		23	10.06	0
Rocksole un.		0	46.52	0
Yellowfin sole		30	14.67	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Flathead Sole

M	F
24-1	25-1
33-1	33-1
35-1	34-1
42-1	35-L
	36-1
	38-1
	40-1
	37-L

Flathead otos

m/42/.82 kg. sp.# 430544

f/36/.36 kg sp.# 430548

f/38/.58 kg. sp.# 430541

f/35/.52 kg sp.# 430542

A subset sample was taken from rocksole in the sample - these fish were reported to species. The rest of the rocksole were weighed, but not counted or identified to species. These were reported to the group level (as rocksole unident).

Tally K/P

expires 9-30-2012 Ver. 2019

Figure 5-15: Example of Documenting Data From Samples on a Flatfish Vessel

JD

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
04/02/13	20778	1239	201	

Page 2 of 2 for Vessel/Plant

Page 2 of 2 for Haul/Offload

Sample #: 3	Sub-Sample #:	Sample Size: 202.52 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	140	202.52	X
Pollock		32	47.52	20
P. cod		9	50.76	100
AK. skate		6	27.11	0
Rex sole		8	4.21	0
N. Rock sole		14	5.39	0
Halibut		21	22.96	0
Yellowfin sole		3	1.43	0
Arrowtooth		2	3.82	0
Fish waste		6	8.35	0
Great sculpin		3	14.22	0
Flathead sole		36	16.75	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Northern Rock sole

M	F
(31-L)	37-1
33-1	33-1

Northern Rock sole otos

m/31/.29 kg

sp.# 450913

Flowscale final weight: 19,123 kg.

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

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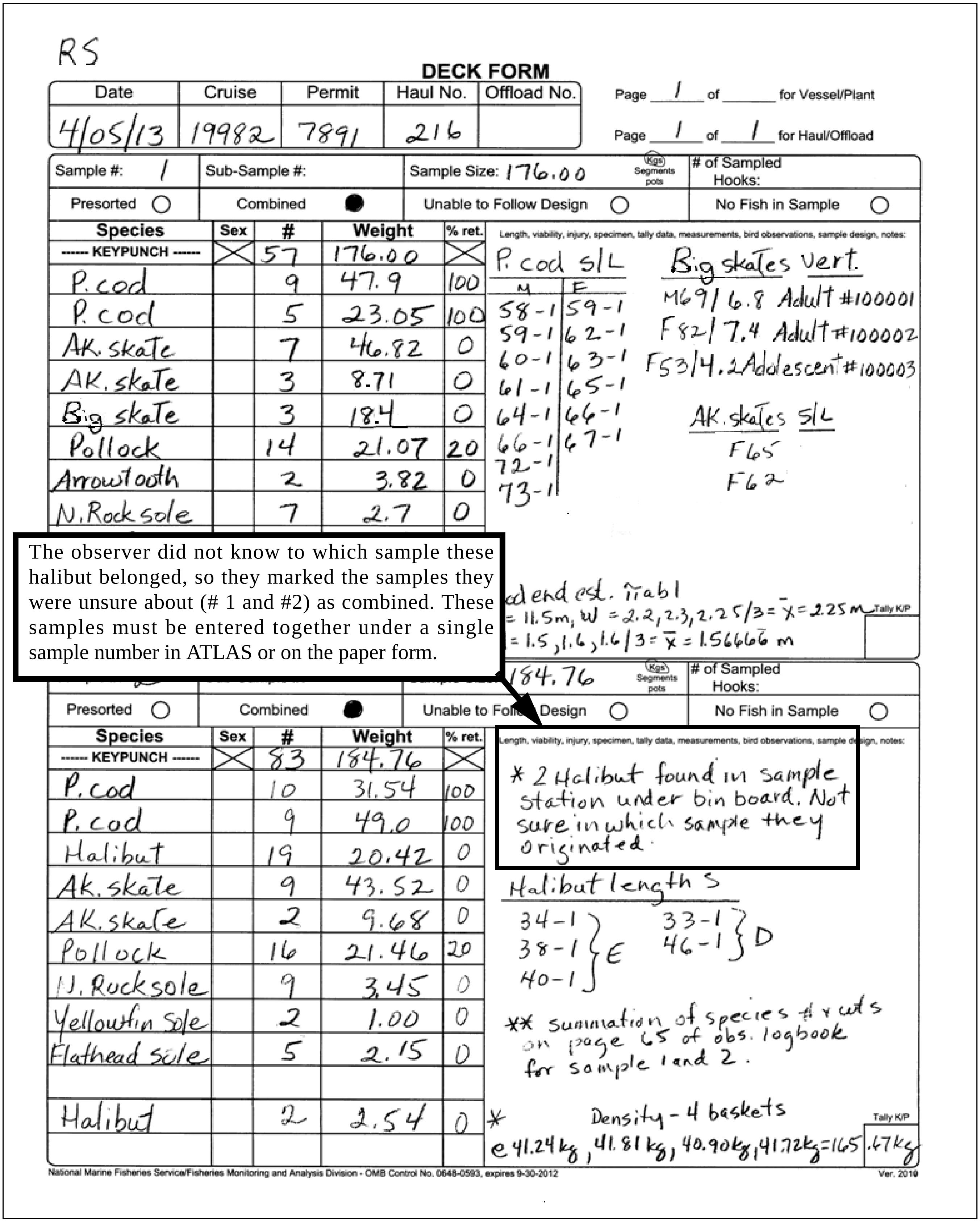
Figure 5-16: Example of Documenting Data From Samples on a Flatfish Vessel



RS

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
4/05/13	19982	7891	216	

Page 1 of ___ for Vessel/Plant

Page 1 of 1 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 176.00 (Kgs) | # of Sampled Hooks:

Presorted ○ | Combined ● | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	57	176.00	X
P. cod		9	47.9	100
P. cod		5	23.05	100
AK. skate		7	46.82	0
AK. skate		3	8.71	0
Big skate		3	18.4	0
Pollock		14	21.07	20
Arrowtooth		2	3.82	0
N. Rock sole		7	2.7	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

P. cod S/L
M: 58-1, 59-1, 60-1, 61-1, 64-1, 66-1, 72-1, 73-1
F: 59-1, 62-1, 63-1, 65-1, 66-1, 67-1

Big skates Vert.
M69/6.8 Adult #100001
F82/7.4 Adult #100002
F53/4.2 Adolescent #100003

AK. skates S/L
F65
F62

...d end est. Trabl
= 11.5m, W = 2.2, 2.3, 2.25/3 = x̄ = 2.25 m
= 1.5, 1.6, 1.6/3 = x̄ = 1.56666 m

The observer did not know to which sample these halibut belonged, so they marked the samples they were unsure about (# 1 and #2) as combined. These samples must be entered together under a single sample number in ATLAS or on the paper form.

Sample Size: 184.76 (Kgs) | # of Sampled Hooks:

Presorted ○ | Combined ● | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	83	184.76	X
P. cod		10	31.54	100
P. cod		9	49.0	100
Halibut		19	20.42	0
Ak. skate		9	43.52	0
AK. skate		2	9.68	0
Pollock		16	21.46	20
N. Rocksole		9	3.45	0
Yellowfin Sole		2	1.00	0
Flathead Sole		5	2.15	0
Halibut		2	2.54	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

* 2 Halibut found in sample station under bin board. Not sure in which sample they originated.

Halibut lengths
34-1, 38-1, 40-1 } E
33-1, 46-1 } D

** summation of species # & wts on page 65 of obs. logbook for sample 1 and 2.

* Density - 4 baskets
e 41.24 kg, 41.81 kg, 40.90 kg, 41.72 kg = 165.67 kg

Tally K/P

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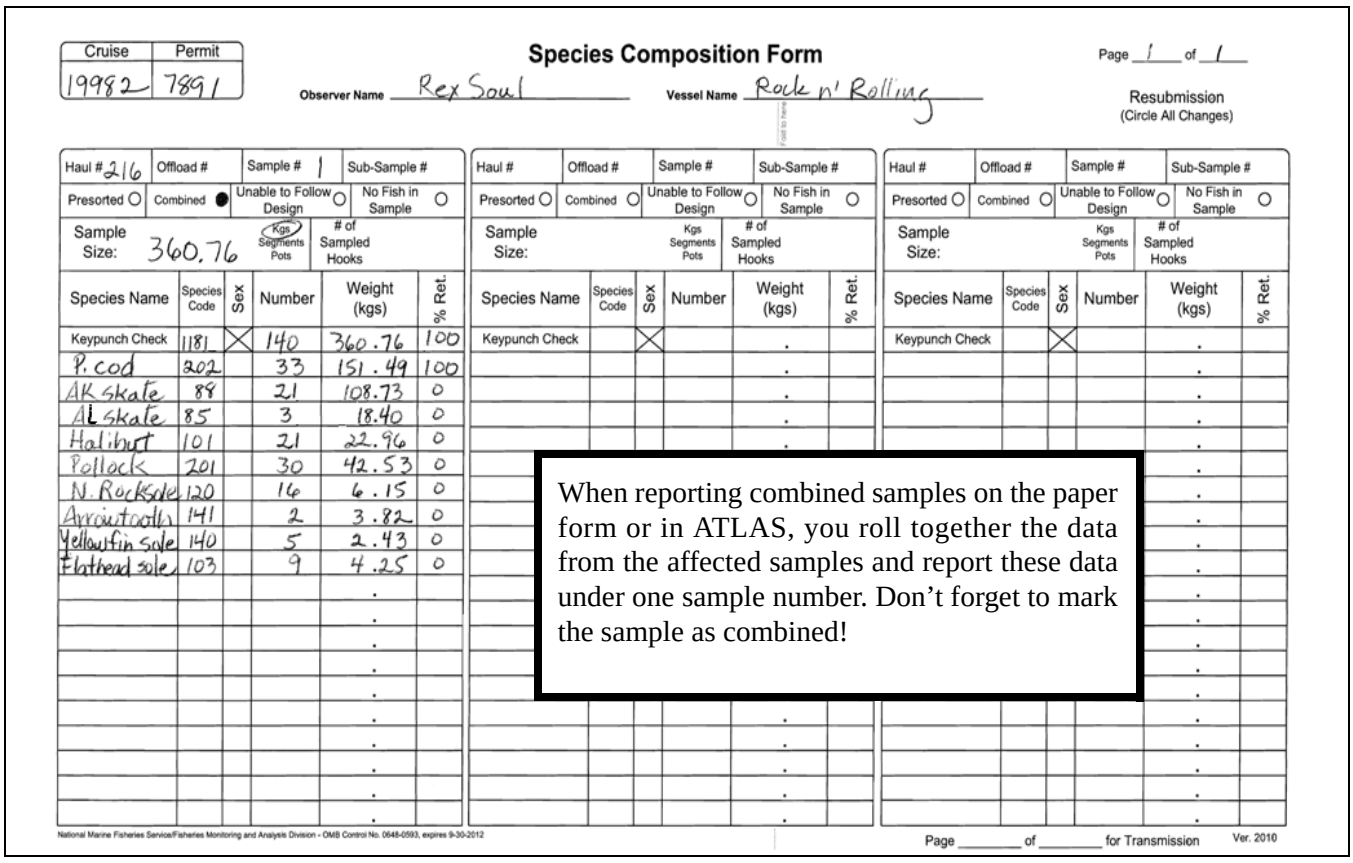
Figure 5-17: Combined Sample Documentation: Deck Form Example



Cruise: 19982 | Permit: 7891

Species Composition Form

Page 1 of 1

Observer Name: Rex Soul | Vessel Name: Rock n' Rolling

Resubmission (Circle All Changes)

Haul # 216 | Offload # | Sample # 1 | Sub-Sample #

Presorted ○ | Combined ● | Unable to Follow Design ○ | No Fish in Sample ○

Sample Size: 360.76 | Kgs (Segments, Pots) | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	1181	X	140	360.76	100
P. cod	202		33	151.49	100
AK Skate	88		21	108.73	0
AL Skate	85		3	18.40	0
Halibut	101		21	22.96	0
Pollock	201		30	42.53	0
N. Rockfish	120		16	6.15	0
Arrowtooth	141		2	3.82	0
Yellowfin sole	140		5	2.43	0
Flathead sole	103		9	4.25	0

Haul # | Offload # | Sample # | Sub-Sample #

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Sample Size: | Kgs (Segments, Pots) | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check		X			

Haul # | Offload # | Sample # | Sub-Sample #

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Sample Size: | Kgs (Segments, Pots) | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check		X			

When reporting combined samples on the paper form or in ATLAS, you roll together the data from the affected samples and report these data under one sample number. Don't forget to mark the sample as combined!

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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Figure 5-18: Combined Sample Documentation: Paper Form Example of Deck Form in Figure 5-17

MOTHERSHIP DATA COLLECTION

Table of Contents

PRIORITIES

- Your safety!
- Collect data and specimens from marine mammal and endangered seabird mortalities.
- Rehabilitate endangered and threatened seabirds.
- Collect salmon retention data.
- Verify and record fishing effort information for delivering catcher boats and for your vessel if operating as a CP.
- Send data to FMA as directed (see “Sending Data” on page 2-32).
- Sample for species composition.
- Monitor for marine mammals.
- Document any compliance concerns.
- Measure and assess viabilities of Pacific halibut.
- Measure and sex other prohibited species.
- Collect biological data from the appropriate species.
- Collect sexed length frequencies from the appropriate species.
- Complete research projects.
- Record sightings of bird “species of interest.”
- Record marine mammal sightings.

INTRODUCTION

A mothership is a factory vessel which routinely takes unsorted catch from other vessels. Unsorted catch is usually delivered by codend transfer but may be transferred by brailer, pumping, or another method. Some catcher/processors will act as motherships occasionally, intermittently taking catch from smaller delivering catcher boats while fishing for themselves. There are six vessels that have acted in the capacity of a CP Mothership in the recent past: the Seafreeze Alaska, Arctic Storm, Arctic Fjord, Katie Ann, Ocean Rover and the Seafisher. Three vessels act exclusively as motherships: the Ocean Phoenix, the Golden Alaska and the Excellence. These boats do not have the capability to fish for themselves. The Golden Alaska and the Excellence occasionally receive pumped fish, but the majority of their deliveries are from codend transfer.

All of the CPs and vessels acting exclusively as motherships listed above are part of a co-op allowed under the American Fisheries Act (see "Limited Access Privilege Programs" on page 1-5). When these vessels participate in the Bering Sea pollock fishery, they carry two or three observers. For more information on the roles of each observer, see "Working with Two Observers" on page 2-29.

Pumped Deliveries

Vessels that routinely pump fish from delivering catcher vessels are considered to be floating processors, or "floaters." The Northern Victor and the Arctic Enterprise are floating processors. The fish delivered to these vessels have the potential to be sorted at sea, and the vessel acts the same as a shoreside plant. Follow the directions in "SHORESIDE PLANTS AND FLOATING PROCESSORS" on page 11-1 if your vessel is acting as a floater. If your vessel meets the description of a floater, but is not listed as one, contact NMFS for information on how to report delivered catch.

Please let me know if there are any gear problems or marine mammal interactions reported by the catcher boats. Thanks!

Del.#	Vessel Name	Date Set	Time Set	Set Latitude	Set Longitude	Bottom Depth	Fishing Depth	Date Retrieved	Time Retrieved	Retrieval Latitude	Retrieval Longitude	Catch Estimate
40	M.D.	01/25	1830	54.36'	165.39'	92F	65F	01/26	0025	54.37'	165.39'	36.90
41	D.L.	01/25	1810	55.29'	164.49'	85F	68F	01/25	2030	55.29'	164.48'	39.50
42	Ald.	01/25	2315	54.30'	165.43'	95F	61F	01/26	0335	54.30'	165.64'	38.32

Figure 6-1: Observer Radio Schedule Worksheet (example)

CATCH INFORMATION (HAUL FORMS)

As an observer on a mothership, your most important duty is gathering catch information. This will often take longer than on catcher/processors and involves coordination and cooperation with the vessel personnel. The fishing effort information required on the Vessel Haul form should come from the vessel's NMFS logbook. Check carefully to ensure that the data are accurate, reasonable, and that no transcription errors are made when you copy data to this form. The data requested on the Observer Haul Form are those items which you are responsible for calculating or verifying. ***The instructions on how to fill out each of these forms follows. See "Documenting Fishing Effort" on page 4-2 and "Completing Haul Forms on Trawl Vessels" on page 4-13 for rules and instructions on how to fill out the Vessel and Observer Haul Forms.*** The particulars that are specific to motherships are listed and explained below.

Maintain only one set of Vessel and Observer Haul Forms. List self-made tows and deliveries together, in the order which they occurred. Most motherships will have a radio schedule for when they gather fishing data from the catcher boats. This is usually done by the captain, mate, purser, or in rare cases, the observer. If a crew member is getting haul data for you, make sure that they are gathering complete and accurate data from the catcher boats. You should use the delivery schedule to match up specific hauls to a catcher boat. Most motherships will follow a catcher boat delivery order, but these change frequently, and may not be reliable. Some observers create a "worksheet" for the person doing the radio schedule, although most vessels will already have one. See Figure 6-1 as an example of an Observer Radio Schedule worksheet.

If the vessel acts as a tender only and does not fish for itself record non-fishing day positions only.

Rules for Completing VHF on a Mothership

Codend Delivery Rules

1. **Trip Number:** Record the trip number associated with the haul. Trip Form instructions are given in the chapter "TRIP INFORMATION" on page 3-1.

2. **Vessel Type:** Enter a "2" to indicate that the vessel received unsorted catch.

3. **Gear Performance:** Gather this information from the delivering vessels. If no problems are reported, the default answer is "1."

4. **Location Code:** Enter a "R."

5. **Date and Time of Gear Deployment:** You will need to get these data from the catcher vessels. Remember that hauls must be listed by catcher vessels' date of gear ***retrieval***, so ***deployment*** dates and times may be out of sequence! Write the dates in two digit format (*e.g.*, 01/01 for January 1st).

6. **Deployment Position, Average Bottom Depth, and Average Gear Depth:** Collect these data from the catcher boats. Degree, minute and second entries must be two digits.

7. **Date and Time of Gear Retrieval:** Enter the day and time the catcher boat retrieved these hauls. It may be easier to fill these columns out first, so that your haul order is established before filling out the date, time and position of the beginning of the set. Write the dates in two digit format (*e.g.*, 01/01 for January 1st).

8. **Retrieval Position**: Enter the corresponding latitude and longitude of the catcher boat's retrieval position.Degree, minute and second entries must be two digits.

Pumped Fish Delivery Rules

1. **Vessel type:** Enter a "4" to indicate that the vessel received potentially sorted catch.

2. **Gear Performance:** Gather this information from the delivering vessels. If no problems are reported, the default answer is "1."

3. **Date and Time of Gear Deployment and Bottom Depth and Gear Depth:** Leave these columns blank. Often, pumped fish are made up of several hauls, so these data are not applicable.

4. **Date of gear retrieval:** Enter the day on which the delivery occurred. Write the dates in two digit format.

5. **Time of gear retrieval:** Enter the time when the delivery occurred.

6. **Location code:** Enter a "D" and the corresponding latitude and longitude of the mothership when it received the delivery. If your vessel is in port when it accepts the pumped fish, you may use one of the port locations given on page 4-16. If your mothership is floating, you will need to record the latitude and longitude.

Rules for Completing OHF information on a Mothership

1. **Full Name of Catcher Boat/ADF&G #:** Enter the name of the delivering catcher boat and it's ADF&G number in the box located on the top right hand side of the OHF. You only need to list each boat once per data set. When all the lines on the first page are used up, go on to page 2, etc. Keep the catcher boat list together on the first several pages of your OHF.

2. **Vessel Estimate:** Enter the catch estimate made by mothership personnel in mt.

3. **Density and Volumetric Estimate:** Leave these columns blank.

4. **Haulback Bird Obs. Code:** This is always entered as "0" for No Monitoring.

5. **Short Wired:** This is always entered as "U" for Unknown.

6. **Catcher Boat's ADF&G #:** Enter the ADF&G number for the catcher boat which made this delivery.

Haul Order for CP Motherships

Vessels that act intermittently as motherships while fishing for themselves will have two vessel logbooks (DCPLs): one for their activity as a catcher processor and one for their activity as a mothership. Typically, the captain will use a different haul numbering system between these two catch logs. It can be difficult for the observer to keep self fished hauls distinct from received hauls if they do not use a separate numbering system for the two types of catch on their haul forms. ***If you number self fished and received hauls consecutively, your haul number assignments for self fished hauls will differ from the captain's haul number assignment for those same hauls.***

There is an easy solution to this problem that many observers on CP motherships have used in the past. Remember that haul numbers do not have to be in consecutive ascending order, ***but haul retrieval dates do***. You ***must*** list hauls on the haul forms in ascending order by retrieval data, whether self fished or not. Instead of numbering self fished hauls and received hauls in consecutive order, use the vessel's numbering system for self fished hauls, and apply a distinct numbering system to received hauls.

You can even apply a distinct numbering system to each of the delivering vessels. For example, if you had three vessels delivering to your catcher processor, you could number hauls from one vessel in the 1000 range, hauls from the second in the 2000 range and hauls from the third in the 3000 range. Because you cannot have duplicate haul numbers, you should determine the number range you assign to each delivering vessel based on your CPs haul numbering system. For example, if your CP started their haul numbering at 500, you would want to number hauls from delivering vessels starting in the 1000 range, at least by doing this, you are giving yourself plenty of room to maintain the skipper's numbering system for self caught hauls (from 500 to 999) and are in little danger of running into a situation of overlapping haul numbering systems.

Haul Order for Motherships

Vessels acting as motherships exclusively document haul data in only one DCPL. The date and time the delivering vessel retrieves the catch ***always*** determines the date of the catch. This date and time will not necessarily be the same day the catch was delivered to the mothership. Although the retrieval time determines the date on the VHF, it has no bearing on the order in which codends are delivered to your mothership. ***Often, codends are delivered out of sequence. It will be easiest for you to use the order of delivery to number the catches coming aboard***, since that is the way the vessel will be numbering the hauls in their logbook. Your retrieval times will be out of sequence, but most of your haul numbers will correspond to the vessel's delivery numbers. Using this method, the only haul numbers which may not match the vessel's delivery numbers are those retrieved around midnight, or 0000 hours.

When filling out the VHF, you may find it easier to fill out the gear ***retrieval*** information first. You will avoid recording hauls on the wrong date if these columns are completed before recording gear ***deployment*** information. An example of changing the sequence of deliveries in order to keep the haul date correct is shown with delivery 40 in the worksheet example (see Figure 6-1). Note that this delivery has been renumbered as Haul 41 in the VHF example, (see Figure 6-2). Hauls 40 and 41 are out of sequence because Haul 40 (the vessel's 41st delivery) was actually hauled back the day before it was delivered, but the mothership received Haul 41 (the vessel's 40th delivery) first. Note the reason why you deviated from the vessel delivery number in your logbook, or in the "Notes" section of the Observer Haul Form.

Vessel Type

On a CP acting as a mothership the "vessel type" code and the ADF&G column distinguish which hauls were self-made and which were deliveries. Use a vessel type "1" for self-made tows, and leave the ADF&G column blank. Use a vessel type "2" for codend deliveries. If your mothership pumps fish from the hold of another vessel, enter a vessel type "4," indicating the delivery of potentially sorted catch. For all deliveries, enter the catcher boat's ADF&G number in the appropriate column (see Figure 6-2). At the top of the OHF, list the vessel names and corresponding ADF&G number for all catcher boats delivering to your mothership. One list per data set is sufficient; you do not need a list on each page.

Seabird Interactions and Sightings

Report observed bird interactions or sightings at the trip level on the Bird Interaction, Activity and Species Form. See page 16-1 for a description of seabird data priorities.

Monitoring for Marine Mammals

On a mothership, it is not possible to watch the true haul back of the delivered codend for marine mammal interaction, since this is done on the catcher boat. It is possible to monitor the catch during the dumping of the codend. If you cannot monitor every delivery, this should be done on as many ***randomly selected*** catches as possible. If you monitor the dumping of the haul, record this haul as monitored for marine mammals. If there is an observer aboard the delivering catcher vessel contact him/her to determine if there were any

marine mammal encounters during the haul back. If your vessel, or the catcher boats, report marine mammals nearby or possibly interacting with gear during haul back or delivery, this should be noted in your logbook.

OBSERVER ESTIMATES

All motherships accepting pollock in the Bering Sea must have a motion compensated flow scale, as required by the American Fisheries Act. On these vessels, ***observer estimates should be taken from the final flow scale read out***. If you are on a mothership that is not regulated by the AFA and does not have a flow scale, use the best method for obtaining independent catch estimates (see "Observer Estimates of Catch Weight" on page 4-5) and contact your inseason advisor.

CODEND DELIVERY DUTIES

Treat these deliveries as if your vessel caught the fish. Standard CP prioritized duties should be followed for each haul. These are:

- Collect and report salmon retention data.
- Obtain an independent observer estimate (i.e. the final flow scale weight).
- Sample for species composition.,
- Collect biological data.
- Collect length frequency samples on prohibited and predominant species.
- Complete standard and research projects.

Refer to the individual manual section regarding each one of these duties. See "BS Pollock Catcher Processors/Motherships" on page 5-26 for CP sampling guidelines.

Codend Delivery Problems

Usually codend transfers go smoothly. There are two situations that may complicate your ability to get delivery data or observer estimated catch weights. The first is when the codend is lost during transfer. In this situation, obtain the haul data from the delivering catcher boat and ask them for an estimate of catch weight. Document this in the vessel estimate column of your OHF and leave the observer estimate field blank. Contact your inseason advisor to alert them of the incident.

The second situation is when the codend "leaks" fish during transfer. This may happen when the zipper is not secured. If you see fish spilling out from a codend during delivery, make an estimate of the tonnage lost and enter this weight to the estimated discard weight column in the OHF, and add it to the flow scale read out for your observer estimate. Again, notify your inseason advisor that the observer estimate did not come exclusively from the flow scale weight.

PUMPED FISH DELIVERY DUTIES

These fish have the potential to be sorted at sea, so they are treated differently than those delivered by codend transfer. If the flow scale is not being used, you should try to make an independent estimate and contact your inseason advisor. If the delivery is made up of several hauls, it may be too large to be pumped into a bin at once, or may be pumped into unmarked tanks. In these cases, record only the vessel's estimate. Do not record an observer estimate. Note any difficulties you had in obtaining independent estimates in your logbook. ***Do not sample these hauls for species composition or collect any biological data.*** If your vessel takes nothing but pumped fish, contact a FMA Division office for recording and sampling duties.

TARING YOUR SCALES

Generally you will be using some container (*e.g.* a basket) to weigh your fish. ***Remember to tare the scale for this container!*** Check your tare frequently and tare every time you change containers! If your scale is not properly tared the weights will not be accurate. For more information see "Taring Your Scales" on page 2-24.

RANDOM SAMPLE AND BREAK TABLE USE

All exclusive motherships regulated by the AFA are required to carry two observers. The Ocean Phoenix carries three observers. Therefore, it is rare that a mothership observer will need to use either the Random Sample or Random Break Tables. If there is more than one observer aboard a mothership and an RST or RBT must be used, use the lead observer's tables and document the circumstances in all observers' logbooks.

If you are the only observer on a CP which is taking outside deliveries, use one of the RSTs, or the RBT (page 2-14) if you cannot sample all hauls. Record the appropriate codes on the Observer Haul Form (see page 4-16).

If you are the only observer aboard an exclusive mothership, you will likely need to use both the RST and RBT. If you find that you cannot get enough rest and complete your observer duties while using both tables, ***contact your inseason advisor and document the issue in your logbook.*** Your inseason advisor will be able to give you suggestions on how to proceed.

Length Frequency and Biological Data

Mothership observers take length frequencies and biological data following the same protocol as other observers (see page 13-1). If you are the only observer aboard the mothership, you may need to reduce the number of length frequencies and biological data taken. If you cannot keep up with all your duties when following the RST and RBT, ***contact your inseason advisor and document the issue in your logbook.*** Your inseason advisor will be able to give you suggestions on how to proceed. Observers on motherships carrying two observers should be able to collect length frequencies and biological data according to the Priority Lists starting on page 13-32.

Salmon Retention Data

Collect salmon retention data as you would on a CP. See "BS Pollock Catcher Processors/Motherships" on page 5-26 and "Salmon Retention Data in the Pollock Fishery" on page 12-13 for information.

Observers Delivering to Motherships

It is unusual for catcher boats delivering to a mothership to carry an observer. If you find yourself aboard a catcher boat delivering a few hauls to a mothership before delivering landed catch to a shoreside plant, your duties will depend on how the fish are being delivered (see "Observers Delivering to Motherships" on page 5-32).

If the haul is delivered as a codend, the mothership observer is completely responsible for recording and sampling this haul. Do not record this haul on your Vessel or Observer Haul Forms. It will be accounted for by the mothership observer. Your only duties are:

- Obtain haul information to give to the mothership observer.
- Monitor the haul back for marine mammal interactions.
- Monitor the haul back for bird interactions.
- Record non-fishing day positions for any day all codends are delivered to the mothership and no fish are brought onboard your vessel.

If the skipper usually gives haul information to the mothership, you must verify that all the data the mothership observer will need was given. ***Report interactions at the trip level on the Marine Mammal Interaction Form or the Bird Interaction, Activity and Species Form.***

If your vessel is dumping fish into RSW tanks, and then pumping the fish to a mothership, you should treat these hauls as if they were being delivered to a shoreside processor. Obtain an observer estimate and sample for species composition. Collect length frequency and age data from sampled hauls. All data you collect will go on your forms under your cruise number.

Reviewing Forms for Errors

Data sets from Motherships are often very large.To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. ***Both the lead and second observers must work together in editing and reviewing the data for errors.*** Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your data for errors.

Check All Forms For:

- Your name and vessel name on the first page of each form type.
- Pages numbered properly, no skipped or duplicate numbers.

- Every page has your cruise number and vessel permit number.
- Leading zeros are present only for dates, times, and haul weights of zero weight (0.00 on Observer Haul Form).
- All fields with pre-printed decimals have numbers listed to two decimal places.
- Actual values are entered (no “arrow down” except on Length and Specimen form).
- Your handwriting is clear and legible.

Check Observer and Vessel Haul Forms For:

- Every day on the vessel has an entry.Non-fishing days have a non-fishing position with a haul number of zero. Document non-fishing days in your logbook.
- No duplicate haul/set numbers.
- No decimals other than those already printed on the page.
- Every haul has a vessel estimate, estimated discard weight, and an observer catch estimate.

Check Vessel Haul Form for:

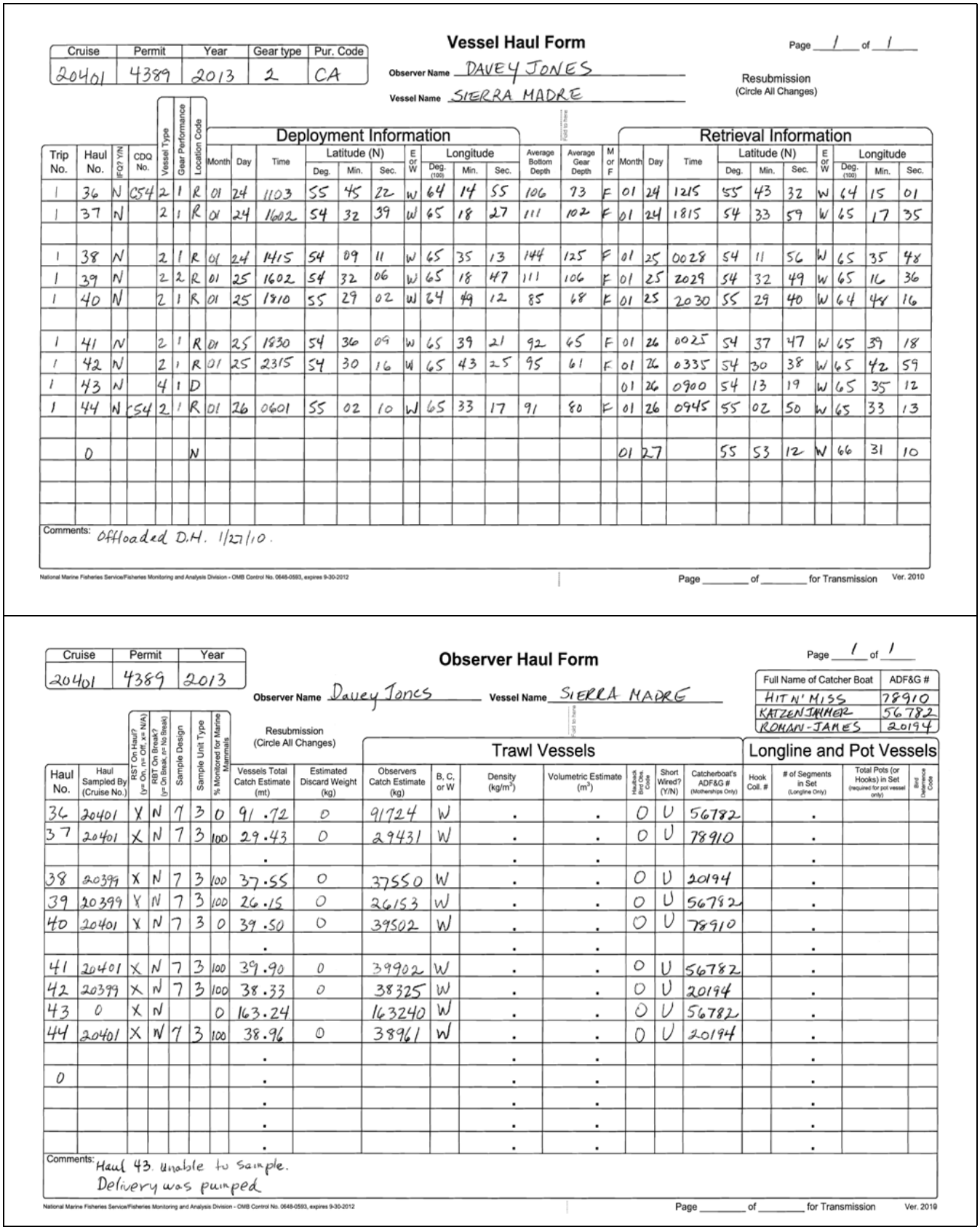
- Set and retrieval positions are recorded for all hauls/sets.
- Positions have no minutes greater than 59.
- Degree, minute and second entries are in two digit format.
- Retrieval times of 0000 are attributed to the next day.
- Depths are rounded to whole numbers and fishing depths are never deeper than bottom depths.
- “F” or “M” is recorded for every depth recorded.
- A “Y” or “N” is recorded in the IFQ column.
- CDQ numbers are recorded with the letter “C” followed by the two digits of the CDQ group number (found in the vessel logbook).

Check Observer Haul Form for:

- Full name of catcher boat and the ADF&G #s are completed in box at top of page.
- Vessel estimates are in metric tons and estimated discard weight and observer catch weight are recorded in kilograms.
- For each delivery to a mothership, the delivering catcher boat’s ADF&G# is recorded.
- Haul back bird observation code is always 0 for No monitoring.
- Short wired entry is always “U” for unknown.

Check Species Composition Forms for:

- Haul numbers correspond with dates and hauls listed on the VHF.
- All ***raw data*** are on the Deck Forms.
- No species codes are listed without corresponding data.
- Sex codes are included only for salmon, tanner and king crab species.
- If sex is unknown, the sex field is left blank.
- Sample weights are recorded for each line of entry. All entries must have a weight with the exception of organisms too large to weigh, recorded as presorted samples and zeros indicating a subsample for 2 predominant species.
- ***Organisms that are too small to weigh must have an entry of 0.01 kg***
- Decimal points are distinct and recorded to no more than two decimal places.
- All weights are in kilograms.
- Percent retained numbers are entered for all species and are whole numbers.
- All Deck Forms are initialed.



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
20401	4389	2013	2	CA

Observer Name: DAVEY JONES
Vessel Name: SIERRA MADRE
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
1	36	N	C54	2	1	R	01	24	1103	55	45	22	W	64	14	55	106	73	F	01	24	1215	55	43	32	W	64	15	01
1	37	N		2	1	R	01	24	1602	54	32	39	W	65	18	27	111	102	F	01	24	1815	54	33	59	W	65	17	35
1	38	N		2	1	R	01	24	1415	54	09	11	W	65	35	13	144	125	F	01	25	0028	54	11	56	W	65	35	48
1	39	N		2	2	R	01	25	1602	54	32	06	W	65	18	47	111	106	F	01	25	2029	54	32	49	W	65	16	36
1	40	N		2	1	R	01	25	1810	55	29	02	W	64	49	12	85	68	F	01	25	2030	55	29	40	W	64	48	16
1	41	N		2	1	R	01	25	1830	54	36	09	W	65	39	21	92	65	F	01	26	0025	54	37	47	W	65	39	18
1	42	N		2	1	R	01	25	2315	54	30	16	W	65	43	25	95	61	F	01	26	0335	54	30	38	W	65	42	59
1	43	N		4	1	D														01	26	0900	54	13	19	W	65	35	12
1	44	N	C54	2	1	R	01	26	0601	55	02	10	W	65	33	17	91	80	F	01	26	0945	55	02	50	W	65	33	13
	0					N														01	27		55	53	12	W	66	31	10

Comments: Offloaded D.H. 1/27/10.

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Observer Haul Form

Cruise	Permit	Year
20401	4389	2013

Observer Name: Davey Jones
Vessel Name: SIERRA MADRE
Page 1 of 1
Resubmission (Circle All Changes)

Full Name of Catcher Boat	ADF&G #
HIT N' MISS	78910
KATZENJAMMER	56782
ROMAN-JAMES	20194

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Haulback Bird Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
36	20401	X	N	7	3	0	91.72	0	91724	W	.	.	0	U	56782		.		
37	20401	X	N	7	3	100	29.43	0	29431	W	.	.	0	U	78910		.		
							.				.	.					.		
38	20399	X	N	7	3	100	37.55	0	37550	W	.	.	0	U	20194		.		
39	20399	X	N	7	3	100	26.15	0	26153	W	.	.	0	U	56782		.		
40	20401	X	N	7	3	0	39.50	0	39502	W	.	.	0	U	78910		.		
							.				.	.					.		
41	20401	X	N	7	3	100	39.90	0	39902	W	.	.	0	U	56782		.		
42	20399	X	N	7	3	100	38.33	0	38325	W	.	.	0	U	20194		.		
43	0	X	N			0	163.24		163240	W	.	.	0	U	56782		.		
44	20401	X	N	7	3	100	38.96	0	38961	W	.	.	0	U	20194		.		
							.				.	.					.		
0							.				.	.					.		
							.				.	.					.		
							.				.	.					.		
							.				.	.					.		

Comments: Haul 43 Unable to sample. Delivery was pumped

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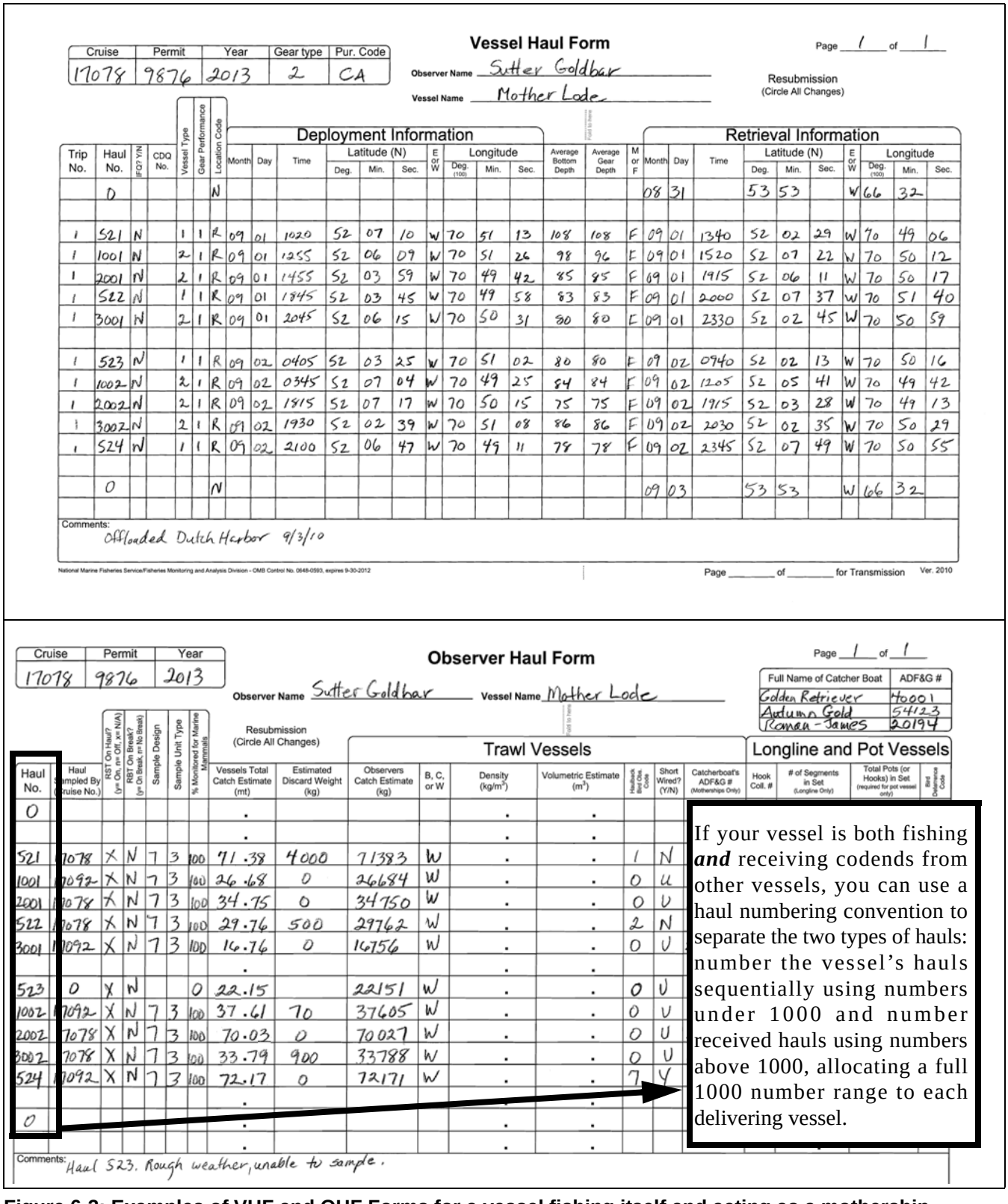
Figure 6-2: Examples of VHF and OHF Form data from a CP mothership



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
17078	9876	2013	2	CA

Observer Name: Sutter Goldbar
Vessel Name: Mother Lode
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
	D					N														08	31		53	53		W	166	32	
1	521	N		1	1	R	09	01	1020	52	07	10	W	170	51	13	108	108	F	09	01	1340	52	02	29	W	170	49	06
1	1001	N		2	1	R	09	01	1255	52	06	09	W	170	51	26	98	96	F	09	01	1520	52	07	22	W	170	50	12
1	2001	N		2	1	R	09	01	1455	52	03	59	W	170	49	42	85	85	F	09	01	1915	52	06	11	W	170	50	17
1	522	N		1	1	R	09	01	1845	52	03	45	W	170	49	58	83	83	F	09	01	2000	52	07	37	W	170	51	40
1	3001	N		2	1	R	09	01	2045	52	06	15	W	170	50	31	80	80	F	09	01	2330	52	02	45	W	170	50	59
1	523	N		1	1	R	09	02	0405	52	03	25	W	170	51	02	80	80	F	09	02	0940	52	02	13	W	170	50	16
1	1002	N		2	1	R	09	02	0345	52	07	04	W	170	49	25	84	84	F	09	02	1205	52	05	41	W	170	49	42
1	2002	N		2	1	R	09	02	1815	52	07	17	W	170	50	15	75	75	F	09	02	1915	52	03	28	W	170	49	13
1	3002	N		2	1	R	09	02	1930	52	02	39	W	170	51	08	86	86	F	09	02	2030	52	02	35	W	170	50	29
1	524	N		1	1	R	09	02	2100	52	06	47	W	170	49	11	78	78	F	09	02	2345	52	07	49	W	170	50	55
	0					N														09	03		53	53		W	166	32	

Comments: Offloaded Dutch Harbor 9/3/10

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Observer Haul Form

Cruise	Permit	Year
17078	9876	2013

Observer Name: Sutter Goldbar
Vessel Name: Mother Lode
Page 1 of 1
Resubmission (Circle All Changes)

Full Name of Catcher Boat	ADF&G #
Golden Retriever	40001
Autumn Gold	54123
Roman-James	20194

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Halibut Bed Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
0							.				.	.							
							.				.	.							
521	17078	X	N	1	3	100	71.38	4000	71383	W	.	.	1	N					
1001	17092	X	N	1	3	100	26.68	0	26684	W	.	.	0	U					
2001	17078	X	N	1	3	100	34.75	0	34750	W	.	.	0	U					
522	17078	X	N	1	3	100	29.76	500	29762	W	.	.	2	N					
3001	17092	X	N	1	3	100	16.76	0	16756	W	.	.	0	U					
							.				.	.							
523	0	X	N			0	22.15		22151	W	.	.	0	U					
1002	17092	X	N	1	3	100	37.61	70	37605	W	.	.	0	U					
2002	17078	X	N	1	3	100	70.03	0	70027	W	.	.	0	U					
3002	17078	X	N	1	3	100	33.79	900	33788	W	.	.	0	U					
524	17092	X	N	1	3	100	72.17	0	72171	W	.	.	1	Y					
							.				.	.							
0							.				.	.							
							.				.	.							

Comments: Haul 523. Rough weather, unable to sample.

If your vessel is both fishing ***and*** receiving codends from other vessels, you can use a haul numbering convention to separate the two types of hauls: number the vessel's hauls sequentially using numbers under 1000 and number received hauls using numbers above 1000, allocating a full 1000 number range to each delivering vessel.

Figure 6-3: Examples of VHF and OHF Forms for a vessel fishing itself and acting as a mothership

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LONGLINE CATCH DATA COLLECTION

Table of Contents

PRIORITIES

- Your safety!
- Record the vessel's total fishing effort for every set retrieved.
- Determine average hooks per segment and verify total segments per set.
- Send data to FMA as directed (see "Sending Data" on page 2-32).
- Document any compliance concerns.
- Record calculations and daily notes.

SAFETY CONCERNS ON LONGLINERS

It is always your highest priority to stay safe and be aware of your surroundings aboard every vessel. Remember that every vessel is different and fishing situations are constantly changing. There are several safety concerns specific to longliners.

When sampling on longliners, you stand outside for long periods of time and are exposed to the elements. In the winter months, you could experience freezing conditions, snow, spray, and high winds. Summer weather can be chilly. The Observer Program provides Mustang suits and you are strongly encouraged to bring additional winter clothing if you know you will be deployed on a longliner.

On some vessels the "tally station" (where you stand to tally species composition samples) is on the deck above the rollerman. On others, you sample next to the roller station (also called the haul station). Roller stations are usually open areas near the water line. It is

not uncommon to have a wave come through the roller station and you need to be alert to this possibility. Additionally, the roller station is full of moving hooks and line. When a moving line wraps around an arm or leg, it can drag a person into machinery. Moving hooks are also a threat. It is not uncommon for crewmembers to be seriously injured by incoming ***and*** outgoing hooks.

The Observer Program expects you to be proactive about your own safety by wearing a personal flotation device whenever you are working on deck, even if you think your sample station is not openly exposed to the elements. You should always notify the captain or crew if you plan to be, or think you will be, out on deck alone.

GENERAL DESCRIPTION OF OPERATIONS

The primary target species in the longline fisheries are Pacific cod, sablefish (black cod), Pacific halibut, and turbot. Often, longline vessels also retain incidentally caught species such as skates, rockfish, arrowtooth flounder, and pollock. The species retained depends upon fishing regulations, such as IR/IU, and upon market prices. Some incidentally caught species are only retained if market prices are high at the time.

Longliners in the North Pacific fish with baited hooks on a line that lies on or near the sea floor. The "backbone" of the gear is the line or "groundline." The length of the groundline depends on the size of the vessel and the species targeted. Hooks are attached to the groundline by another thinner line, called a gangion (pronounced "gan-yun"). The length of the gangion and the distance between gangions is different depending on the target fishery and vessel. There is an anchor on each end of the groundline (there may be more along the line) and buoys are attached to each of the anchors by buoy lines (see Figure 7-1).

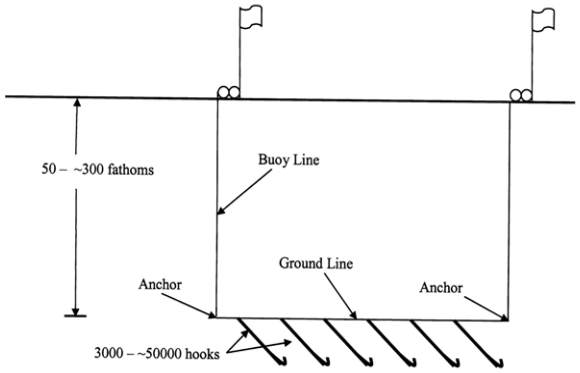


Figure 7-1: Typical Longline Configuration

Longline fishers further divide their gear into smaller segments, in order to handle it aboard the vessel. A longline haul (referred to as a "set" or "string") consists of several segments of gear tied together by the groundline. Segments of gear can be configured as magazines ("mags"), rails, skates, coils, or tubs. The crew may either use these terms interchangeably or to indicate a specific amount of gear.

Your vessel may call segments of gear "mags," skates, tubs, coils, racks or rails. We'll just call them segments!

On some vessels, hooks are baited by hand and the gear is set directly from tubs or canvas mats. Crew tie gear together by the groundline just prior to, or as, it is set. On other vessels, a mechanized "autobaiter" is used to bait gear and the gear is deployed from this machine. Longline gear is set by dropping the buoy and anchor from one end of the groundline out the aft of the vessel. The rest of the gear quickly trails out as the anchor sinks. On the last segment of the set, another anchor and buoy are tied to the end of the line and deployed. The gear is allowed to soak for some time before retrieval.

Longline gear is retrieved by pulling in the groundline so that the hooks come aboard one at a time. The line comes in over the roller, through the crucifier, over the block, and then is either coiled or hung onto racks by the hooks.

Usually longliners set multiple strings, let them soak, and then rotate between hauling and resetting the gear. This cycle may be continued for many sets per day.

Longline Catcher Processor (C/P) Vessels

Longline C/Ps usually conduct fishing operations 24 hours a day, 7 days a week, and have crewmembers working in shifts. You will need to schedule your work time not only to achieve sampling objectives but also to get adequate rest. Lack of adequate rest is a safety concern. Your safety is the highest priority!

Processing strategies aboard C/P longliners will vary vessel to vessel, but generally speaking the operation can be summarized as follows: 1) as the gear is retrieved, fish are removed from the hooks by the crucifier or rollerman and enter the factory area through a series of conveyor belts or troughs, 2) in the factory, fish are mechanically or manually sorted by species and size, 3) processed fish are panned and frozen, and 4) finished product is stored in freezer holds.

To sample effectively aboard longliners, you need to communicate with the crew, especially with the rollermen. This can be difficult aboard C/Ps because the rollermen may not always be able to see you, hear you or understand you. Upon boarding a vessel, seek out the factory manager(s) and the rollermen. Explain your needs before they begin setting gear and you begin sampling. Experienced crew may have suggestions based on how they have worked with previous observers. This may be good information, but you alone need to decide where and how you will sample to obtain the best data. Prior to the first gear retrieval, work out a communications system with the rollerman. For every sampled set, inform the rollerman of your sampling needs. Try different techniques and be creative to achieve your sampling goals.

Refer to "Catcher Processor (C/P) Monitoring Options" on page 8-22 for information regarding observer coverage, sample station options, and flow scales.

Longline Catcher-Only Vessels

Catcher-only longliner vessels are similar to C/P longliners in that the gear is deployed and retrieved in a similar manner. Most of the differences between the two vessel types are in the scale of operations. Catcher-only longliners tend to have smaller crews, set fewer hooks and catch less fish. Most catcher-only vessels hand bait their hooks, but a few use autobaiters. Some will set and retrieve gear such that the entire crew gets a 6-8 hour sleep break.

Additionally, catcher-only longliners periodically deliver their catch to processors. You may get some downtime on the way to and from town to complete paperwork and catch up on sleep.

When choosing a sampling area on a catcher-only longliner, work closely with crew members. Space is limited and there may not be a permanent observer sampling station. Be creative; you may need to use baskets or bin boards to construct a sample table, or use the hold hatch cover. Look around, talk to the crew, and use what space is available.

OFFLOAD DATA FOR LONGLINERS

Observers on catcher longliner vessels must report offload information on the Vessel/Plant offload form. Data for the Vessel/Plant offload form may be obtained from the Alaska Department of Fish and Game (ADF&G) fish ticket, electronic scale readout, scale weights recorded by a factory representative as well as from observations by the observer. ***If you are on a vessel equipped with ATLAS you must maintain a set of Offload paper forms in addition to sending these data electronically.***

The Vessel/Plant Offload Form is used by plant observers as well. For information on how to complete the Vessel/Plant Offload Form as a plant observer please refer to page 11-16.

Cruise Number, Permit, Year, Observer Name, and Vessel/Plant name: Enter the cruise number supplied in your training or briefing. Enter the vessel permit found in the manual on page A-27. For "Year" enter only the last two digits (*e.g.,* "13"). Enter your name and the name of the vessel to which you are assigned.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last***

transmission of the data; this will aid keypunchers in making the appropriate modifications to your data. You do not need to start a new form after faxing.

Processor Name and Processor Permit: In the box in the upper left hand corner, fill in the name and processor permit for each of the plants to which your vessel delivers. You only need to record each plant once for each data set. There is a list of processor permits for shoreside or floating plants and motherships on page A-25. If your vessel delivers to a plant that is not on the list, enter 99999 (for "unknown") and contact NMFS staff for advice.

Trip Number: Enter the number of the trip during which most of the fishing for the offload occurred. If the vessel made more than one trip to catch fish for the offload, record the trip that includes the majority of the hauls. In ATLAS, the "trip start date" will be auto-filled based on the trip that you selected.

Offload Number: All offloads must be recorded and assigned a number. Offload numbers must be unique for the cruise/vessel and should be sequential and ascending, beginning with "1."

Completion Date: Enter the month and day the offload was completed. Write the dates in two digit format.

Gear Type and NMFS area: These columns are used by plant observers only. Leave these columns blank.

Total Delivered LB or KG: Record the total round weight delivered to the plant for that trip. Delivery weights can be entered in either pounds or kilograms. Delivery weights recorded in pounds must be recorded to the nearest whole pound. Weights reported in kilograms must be reported to the nearest whole kilogram. Remember that when cut or bled fish are delivered, the round weight must be used. Round weights are listed at the bottom or end of the fish ticket.

If there are multiple fish tickets with the same Landing Report ID Number, sum the individual delivery weights to obtain a single total delivery weight.

Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, list each Landing Report ID Number separately in the Offload Form with the corresponding total delivery weight for that individual Report.

Total Pollock Weight, Were all Groundfish Weighed?, ADF&G Number of Delivering Vessel: These columns are used by plant observers only**.** Leave these columns blank.

Receiving Processor Permit Number: For each offload, record the processing plant's permit number. The permit numbers should be one of those you listed under Processor Name and Processor Permit Number described above. If a delivery is split and sold to more than one processor, you should make an entry on the Vessel/Plant Offload Form for each delivery. If this, or any other incident out of the ordinary occurs, please note the circumstances in your logbook.

Was Catch Sorted (Y/N): Record a "Y" for any delivery that was sorted at sea. Record an "N" if the crew did not sort the catch before delivery.

Tender offload (Y/N): Record a "Y" if your vessel acted as a tender by receiving catch from another vessel. Otherwise enter an "N."

Landing Report ID Number: Record the Landing Report ID Number associated with the delivery for this vessel. This number will be taken directly from the fish ticket, from a delivery worksheet provided by the plant observer, or may be obtained from the plant office along with other catch information. Record the Landing Report ID Number exactly as it appears on the fish ticket. If you did not receive a fish ticket, this field may be left blank. Multiple fish tickets associated with the same offload to a single processor will usually have the same Landing Report ID Number. In this case, there should be a single line of entry for this delivery.

Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, each one must be listed separately on the Offload Form as if they were separate offloads. The trip number will remain the same, but the offload numbers and total delivery weights will be unique to each Landing Report ID Number.

Determining Delivery Weight

When the vessel delivers its catch to a processing plant, the fish are weighed. The scales at each plant are tested by the State of Alaska annually and they do not need to be tested daily for you to use this weight as a delivery weight. The delivery weight information must be verified by either yourself or the plant observer. Ultimately, the data used is yours, so do not rely on

plant observers to verify your delivery weight unless they have agreed to do so. Plant observers need to give you documentation on how verification was done when ***they*** complete this task. For more information on this aspect of a plant observer's duties see "Delivery Weight Verification Process (example)" on page 11-10.

When reporting delivery weight on the Plant/Vessel Offload Form, you must verify the delivery weight. You are responsible for knowing and documenting how all your data were derived!

Work with the plant observer and plant personnel to obtain the fish ticket for your delivery. If a fish ticket is not available, you may obtain your total delivery weight using an alternate method. This includes, but is not limited to, direct observations of scale weights during the offload, verbal confirmation from plant personnel, skipper estimates, or independent measurements. The exact source of delivery weight information will be specific to each scenario. Regardless of how the weights are determined, always document your methods in the daily notes section of your observer logbook.

In the majority of situations, the fish ticket will be the best source of data for determining delivery weight. Plants are allowed to record the number only of prohibited species, however fisheries managers need weight data as well. For observers on non-pollock catcher vessels, if you are using the fish ticket for a delivery weight and the fish ticket does not have weights for all species, sum all the weights that were provided on the fish ticket and enter that value for the total delivery weight. Document the situation in your observer logbook. For information on interpreting fish tickets and tips on how to avoid potential errors see page 11-20.

VERIFYING GEAR

Resource managers calculate catch weights for longliners from the numbers you supply for sample weight, sampled segments, and total segments. Successful management of the longline fisheries is dependent on the accuracy of these values. ***It is crucial that the vessel's gear be independently verified by you!*** There are two gear related elements that you must verify: 1) number of hooks per segment, and 2) number of segments per set. In the following sections, methods for obtaining verified values for hooks per segment and segments per set are discussed.

Recording Hook and Segment Data

The total number of hooks per sample and per set are now calculated by the database using the data you submit. You must record the number of segments per sample on the Deck Form and the total number of segments in the set on the Observer Haul Form. Your hook count data are entered on the Hook Count and Spacing Form along with a distinct hook count Collection Number. You record the Collection Number on the Observer Haul Form for each haul that it corresponds with, until you perform a new hook count. Guidelines for obtaining hook counts are below. In rare cases when a vessel is fishing two different sized segments of gear in the same set, you will have to calculate hooks. (See "Accounting for Mixed Gear" on page 7-9).

The species composition data you supply to the Observer Program are extrapolated to the entire set by relating total segments sampled to hooks per segment data provided to NMFS by the bi-weekly hook count form. ***Accurate values for segments sampled, total segments in the set, and hook counts, are necessary to determine the total weight of fish harvested!***

Counting Hooks

One of the first tasks you need to complete when assigned to a longliner is determine how many hooks are on an average segment of gear. The process of obtaining this information is referred to as getting your "hook counts." ***Hook counts are the foundation of all your other data. Without these numbers, the total number of hooks in your sample and the number of hooks in the entire set cannot be calculated!***

Determining Average Hooks Per Segment

The captain will record a number of hooks per segment in his vessel logbook, ***but you must collect hook count data independently.*** The captain's estimate often reflects the number of hooks when the gear was first constructed, not the current number. As gear is used, hooks are lost and gear is spliced. Though the crew does try to keep segments relatively similar in length, and replace hooks regularly, used gear will almost always have a hook count that differs from when it was new. ***As gear is repaired over the course of a season,***

hooks per segment will tend to change. To account for this, hook counts must be performed on a regular basis.

You must count at least 1/5 the segments, of a typical sized set of gear, at least twice per week.

Methods of Obtaining Hook Counts

Accurate hook counts are essential for longline sampling. You must count the number of hooks attached to segments of gear for at least ***one-fifth of a set, twice per week***, the entire time you are aboard the vessel. Update your Hook Collection number on the OHF each time it changes, based on your bi-weekly count. Your approach to counting hooks will depend on how the vessel is storing gear. Methods for obtaining hook counts are discussed below. Record raw data for hook counts on your Deck Form and transfer them to the Hook Count and Spacing Form. See "Hook Count and Spacing Form Instructions:" on page 7-7

Do not use the autobaiter counters to verify hook counts. These machines may not be in good repair and the hook counts are not verified.

- **Counting hooks in tubs or on magazine racks** - Many longliners store their gear in tubs, or on "racks" (also called "mags") prior to setting it. When the gear is in tubs or on racks, individual hooks are readily accessible and can be easily counted. Count hooks in these configurations when the vessel is in transit or between sets. Always make sure only overhauled, ready-to-set gear is counted. Use a thumb counter to count hooks since the numbers can get very high.
- **Counting hooks on coiled gear** - A few smaller longline vessels still hand coil their gear onto canvas or plastic mats. Hooks are placed to the center of the coil, making it too difficult to get an accurate count. If the vessel is coiling their gear, you will have to count hooks during non-sample times as the gear is retrieved. ***Because this gear has not been through the repair process yet, you must count swivels without gangions (if they are using swivel gear), gangions without hooks as well as gangions that still have hooks!***
- **Counting hooks as they come aboard during a non-tally period** - Since hooks come aboard one at a time, you can count them as the gear is retrieved. It is ***highly recommended*** that you perform this duty during units that you are not doing anything else, to ensure you are getting accurate counts. ***Because this gear has not been through the repair process yet, you must count swivels without gangions, gangions without hooks as well as gangions that still have hooks!***
- **Counting hooks as they come aboard during the tally period** - ***This option should not be used by inexperienced observers and should not be used on most C/Ps because the gear is retrieved too quickly for you to obtain an accurate empty hook count!*** If the gear is being retrieved slowly (*e.g.*, during sablefish and halibut fishing), catch diversity is low, ***and*** you are experienced in longline sampling, you may find you can perform hook counts during your tally sample by counting empty hooks as well as fish. The sum of the number of organisms you counted plus the number of empty hooks you counted in a segment is the hook count for the segment.

If you are counting hooks as the gear is retrieved, you must count gangions with no hooks as well as those with hooks or swivels. The gear likely had all the hooks when it was deployed!

Hook Count and Spacing Form

All hook counts must be recorded on the Hook Count and Spacing Form. Each individual hook count is recorded in the Hooks Per Segment column, along with a Segment Number. Segment Numbers should be sequential starting with "1" for each collection. Record a unique Collection Number on the form for each hook count collection. If the hooks per segment are counted over the course of several days, record them on the paper Hook Count and Spacing Form. ***Do not enter hook counts into ATLAS or fax the paper form until you have completed a count on 1/5th of the average set and completed these entries on the form.*** The date recorded on the form will be the day you completed all

of the hook counts for a distinct collection (on 1/5th of a set). Enter the Collection Number that corresponds to the hook count that should be used for that particular haul on the Observer Haul Form. ***If your vessel is participating in an IFQ or CDQ sablefish fishery, you must complete the spacing and average spacing columns on the form before submitting.***

Hook Count and Spacing Form Instructions:

Without accurate information on your Hook Count and Spacing Form, accurate catch estimates cannot be completed. Complete the Hook Count and Spacing Form for all longline vessels. Enter these data to the Hook Count and Spacing Form in ATLAS, or fax the form with your data if your vessel is not equipped with ATLAS. Each form has room for two complete hook counts. If you need to use both, simply cross out the header information for the lower collection and write "continued" in the collection row (see Figure 7-6 and Figure 7-9).

Cruise/ Permit: Enter the cruise number supplied in your training or briefing. Vessel permits numbers are listed by vessel on page A-27.

Observer Name/Vessel Name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.***

Collection Number: Number used to reference the hook count on the Observer Haul Form. The number must be unique by permit number, starting with collection number 1.

Date: The date entered corresponds to the day you completed your last hook count for this Collection Number.

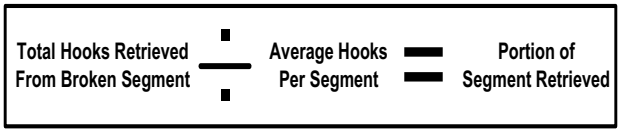
Segment Number: Enter a Segment Number for each segment on which you counted hooks.The segment number for each individual Collection Number should start with the number one.

Hooks Per Segment: Enter the number of hooks counted on a single segment of gear.

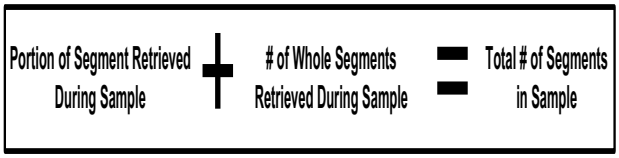
Spacing (cm) and X: ***Used only when the hook spacing project is completed aboard an IFQ or CDQ sablefish vessel.*** Enter the distance between six consecutive hooks from five individual segments into each column. Calculate the average distance between the hooks and enter that value in the X column. Only the X column value will be entered into ATLAS. See "Hook Spacing Standard Project" on page 7-10 for instructions on completing this project.

Partial Segments

The definition of a partial segment is when the longline vessel is retrieving gear, the line parts or is cut, and only a portion of a segment has been retrieved. In cases where only a partial segment is retrieved, you will need to determine the number of hooks retrieved from the parted longline segment. You may accomplish this by counting the hooks on the retrieved gear segment in the gear room. You will then be able to determine how much of the broken segment was sampled by taking the hooks retrieved and dividing this number by the average number of hooks.



Add the fractional segment to the total whole segments tallied and record this as your sample size.



The same process can be used to determine the number of segments hauled if the vessel parts gear and the gear is lost.

Document these calculations in your logbook.

If a partial segment is lost and you are not able to verify the number of hooks retrieved, ask the captain/crew for an estimate of the gear retrieved and include this on the OHF "# of Segments in Set." ***For your species***

composition sample, it is preferred that you obtain an actual count of the hooks retrieved and use this for your segments retrieved calculation. However, if you cannot count the actual hooks retrieved, use an estimate of the amount of the segment retrieved for your species composition sample. Document in your logbook and on the Deck Form the reasons why an actual number of hooks could not be obtained for the calculation of number of segments sampled.

If the gear parts and the vessel is able to retrieve the gear by either picking it up by the end buoys or dragging for it, and no gear is lost, then it is not necessary for you to calculate partial segments.

Verifying the Number of Segments in a Set

The number of hooks in an average segment *and* the number of segments in a set are necessary to calculate the value for the total number of hooks in an entire set. You should try to verify gear in a set for as many sets as possible, both sampled and non-sampled.

Keep in mind that on the haul form you need to report the amount of gear *retrieved*. Document the amount of segments set minus segments lost as the value for Total Segments in Set.

You may use any of the following methods to determine the number of segments in a given set:

Count segments before the set is deployed

On catcher vessels and some C/Ps, gear segments are stored in plastic tubs or coiled on canvas mats. If the vessel is using tubs, you can verify the amount of gear on board by: 1) counting the tubs prior to each set, then 2) after each set, determining how many tubs remain. Subtract this remaining number from the total number counted to get the amount of gear in the set. If the crew coils their gear onto mats, they will typically keep a haul's worth of mats together in a stack at the combi station. This way, they are readily available for the crew member who is coiling the gear as it is retrieved. To verify the number of segments in these situations, simply count the mats in the stack and confirm that they are all used at the end of the set.

On most C/Ps and some catcher vessels, gear is stored on metal racks, with several segments of gear attached to one another. These grouped segments are often referred to as rails or magazines (made up of skates of gear). Some vessels refer to the rail or magazine as a skate. Be sure to become familiar with the vessel's gear and what the crew is referring to when describing gear as all vessels vary. ***Ask the crew how many segments typically compose a full rack of gear and how these grouped segments are distinguished from one another.*** Every vessel differs in its techniques. Count the total number of magazines or rails before the gear is set, and then again after each set. Subtract the post-set number from the pre-set number to obtain the amount of gear set. It is a good idea to confirm that the number of segments in each magazine or rail is consistent, so make sure to randomly spot check the number of segments in some racks of gear. You may also be able to confirm segments per mag when you are tallying.

Count gear as it is being set

You may be able to count the segments of gear as they are being set, if you are present during this process and the gear is not being set too fast. Keep in mind that you do not include any lost segments in your count of total segments in the set: if gear is lost, you must subtract the amount lost from your original count.

Count gear as it is retrieved

For vessels that use smaller sets with fewer segments, it may be possible to count the gear as it is being retrieved. On many C/P vessels, this method is not feasible because the retrieval of gear may take an entire day or you may not be able to see the gear during the non-tally period. You may be able to use time as a guide to help verify gear. For example, if a vessel typically takes 20 minutes to haul a segment of gear and the set has 18 segments, it should take the vessel approximately 6 hours to complete the haul. This is not a substitute for actually counting segments, but may be a useful guide.

Count gear segments on the captain's plotter

The captain may be keeping track of set segments on a plotter. If this is the case, you can count the number of distinct segments the captain has marked in a set and use this value to verify number of segments in a set. Some captains keep a paper logbook with the beginning and end position of each segment on it for set and retrieval that you may be able to use as a reference for verifying gear.

Accounting for Mixed Gear

There are some vessels that carry different sized segments of gear with a large difference in the average number of hooks per segment. Typically these vessels have only two different sized segments (*e.g.*, half of the gear will have 150 hooks per segment and half of the gear will have 250 hooks per segment). The large difference in the number of hooks between these segments means that ***two distinct hook counts for each size must be collected and recorded each week*** (see "Hook Count and Spacing Form for a Catcher Vessel" on page 7-25). Document all instances when gear is mixed. In your logbook, document your calculations for the average hook count per gear type and the number of segments of each type that were within your samples and in the entire set. If the two different sized segments are set together, you must maintain a count of segments of each size and calculate the total hooks hauled yourself. Record the total hooks on the OHF. The methods for calculating and recording the use of mixed gear are below.

Different Sized Magazines or Rails

There are several longline vessels that have the same type of gear, but gear are composed of a different number of skates. On these vessels, the skate size does not vary, but the magazine or rail will be composed of a different number of skates. For example, half of the vessels gear may be made up of 4 skate magazines and the other half will be made up of 6 skate magazines. You may either be able to track these long and short magazines of gear or keep an accurate count of the whole skates. On these vessels, the captain may record the gear being hauled by the total number of skates. To avoid having to calculate total hooks in your sample or set, set up your design to sample by skates. ***If you are able to track individual skates of gear and sample based on skates, long and short magazines do not need to be tracked.*** Perform your twice weekly hook counts based on skates, and count 1/5th of an average set of skates.

If you are sampling by long and short magazines or rails you must mark the different sized segments and record the data as you would for mixed halibut and sablefish gear (see "Hooks on Halibut vs. Sablefish Gear" on page 7-9).

If you cannot track individual skates, ask the crew if they have gear with an extra skate attached. You must track this gear. You should have the vessel mark it with a splice of colored line. It is important that the "long" mag (as it may be referred to) is accounted for during your species composition samples, and those extra hooks are accounted for on the Observer Haul Form.

Hooks on Halibut vs. Sablefish Gear

Halibut gear has a slightly different configuration than sablefish gear. The gangions on halibut gear are typically farther apart, so there are fewer hooks than on an equal length segment of sablefish gear.

If the vessel has a Pacific halibut IFQ permit, the captain may fish two different kinds of longline gear (halibut and sablefish gear) with differing numbers of hooks per gear segment in a single set.

If you are on a vessel fishing for both sablefish and halibut, talk with the captain and examine the gear to determine if some of the gear is different, and/or different gear is mixed within a set. The average number of hooks per segment and number of gear segments of each gear type contained within the set must be determined. Document instances when gear is mixed. Also document your calculations for the average hook count per gear type, and the number of segments of each type that were within your samples and in the entire set. This information will be necessary if your data needs to be corrected later.

On your OHF, record the total segments for the set and the total hooks for the set. Make sure that your total hook count represents the correct combination of halibut and sablefish segments in the set. Refer to the following discussion on obtaining hook counts and determining average hook counts by gear type.

<u>Determining an average hook count is simple:</u>

1. Count hooks on a known number of segments.

2. Divide the total number of hooks counted by the total number of segments assessed. The resulting value represents the average hook count of a segment within the set.

3. Record the average hook count full field for your calculations. Round to two decimal places only when recording on the NMFS forms.

You must count at least 1/5 the segments, of a typical sized set of gear, at least twice per week.

$$\frac{\sum \text{number of hooks counted in each segment}}{\text{number of gear segments counted}} = \text{average hook count}$$

Calculating Total Hooks in the Set

Calculating total hooks in a set must only be done when your vessel is using mixed gear.

Once you have a value for average hooks per segment per gear type and total segments per set of each gear type, you can calculate the total number of hooks for the entire set. Do not round your hook counts until you have performed the final calculation to come up with your total number of hooks, then round your hooks to two decimal places for entry onto the OHF.

$$\text{average hook count} \times \text{total \# segments in set} = \text{Total hooks in set}$$

If the vessel is fishing mixed gear for halibut and sablefish, you will need to determine a separate average hook count for the two types of gear. You will also need to determine how many segments of each type are in the set. Apply the average hook count value for the halibut gear to the number of segments of halibut gear in the set and apply the average hook count for the sablefish gear to the number of segments of sablefish gear in the set. *Combine these two values for the total hook count in the set*. On the OHF form, record this total hook count along with the collection number and number of segments in the set. The presence of the total hook count will override the entry for the number of segments and the collection number. The collection number recorded on the OHF should be the number that represents the majority of the gear in the set.

Calculating Total Hooks in Your Sample

Average hook counts are also used to determine sampled hooks. ***Calculating total hooks in your sample must only be done when your vessel is using mixed gear.*** Simply multiply the number of gear segments sampled for composition by your average hook count to determine the number of hooks sampled.

$$\text{average hook count} \times \text{total \# segments sampled} = \text{Total hooks in sample}$$

Enter this information on the Deck Form in the "# of Sampled Hooks" field. If the vessel is fishing mixed gear for halibut and sablefish, you will need to determine how many segments of each gear type are in your sample and apply the average hook count you calculated for each gear type. Apply the hook count value for the halibut gear to the number of segments of halibut gear in the sample and apply the hook count for the sablefish gear to the number of segments of sablefish gear in the sample. Combine these two values to get your sample hook count.

The calculations for average hooks per segment, total number of hooks in the set, and total number of hooks in your sample must be documented in your logbook.

HOOK SPACING STANDARD PROJECT

This project is to be completed in all sablefish IFQ and sablefish CDQ fisheries.

Catch rate (the amount of catch per hook) is a value computed from catch data and effort data. Hook spacing is required in order to standardize effort data because catch per hook is higher for wider hook spacings; hook spacing experiments show that the catch per hook for 4 meter spacing is twice that for 1 meter spacing. Hook spacing is essential for computing catch rate information for hook and line gear used in the sablefish fishery.

Hook spacing data must be collected from the same segments used for hook counts. If you are having problems collecting these data due to the vessel's set up, contact NMFS staff for advice.

Collection Procedures:

1) Complete measurements once for each vessel, with the exception being if they make changes to the gear while fishing. In this scenario, please repeat the

measurements. Measure the hook spacing while the baiters are hand-baiting or while the longline gear are in tubs, skate bottoms, or on racks.

2) From a single longline set, randomly select 5 separate segments from which to take measurements. From each of the 5 segments, measure the distance (in cm) between six consecutive hooks (see Figure 7-2 on page 7-11). You should measure hooks from parts of the line which have not been patched. When you complete all 5 segments, you will have a total of 25 measurements.

3) Hook spacing data is directly associated to the segments used for hook counts. If 1/5th of an average set is less than five segments of gear and a hook spacing collection is needed, you still need to count and measure a total of five segments of gear. In this case, count an extra segment or two to meet the 5 segment requirement.

4) Record the measurement in centimeters per hook interval on the Hook Count and Spacing Form.

How to measure

Measure the distance between gangions. Due to limited space on fishing vessels, it is recommended that you pull the line up out of a longline tub while at the same time holding the measuring tape alongside the line. Measure the length between where the gangions are attached to the mainline. This method is faster than laying the groundline out flat and measuring it (see Figure 7-2).

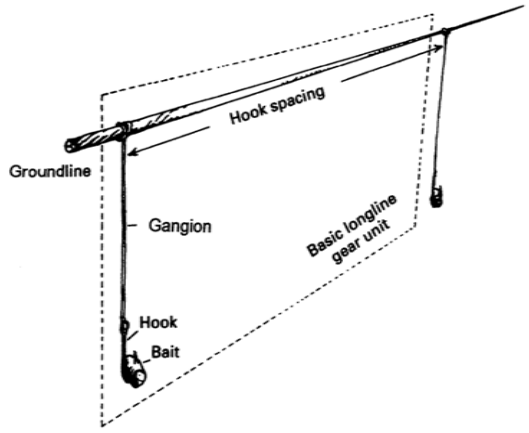


Figure 7-2: Hook Spacing

FISHING EFFORT INFORMATION

For every set retrieved while you are on board, you need to record set information. You record this information directly from the captain's Daily Catch Production Logbook (DCPL) or Daily Fishing Logbook (DFL), often referred to as the Vessel Logbook. Under regulation 50CFR679.5, observers have the right to inspect and copy from the DCPL or DFL and any other documentation pertaining to fishing effort. If the vessel acts as a tender only and does not fish for itself record non-fishing day positions only.

Vessels Fishing IFQ

All longline and pot vessels (both IFQ and non-IFQ) use the same type of logbook. Data are entered differently depending on whether the vessel is fishing for IFQ species or not. Fishing IFQ is shown in the logbook by the IFQ permit number listed on the upper left hand corner of the DCPL or DFL and an entry greater than 0.00 in the columns "IFQ Halibut" and/or "IFQ Sablefish." Look for both entries. See "Vessel Logbook Example" on page 7-13; haul 420 in Figure 7-3 is an IFQ haul, but haul 421 is not because there is no weight entry in either the "IFQ Halibut" or "IFQ Sablefish" columns. Fixed gear vessels using electronic logbooks will denote IFQ hauls in the management code column next to the set number (see Figure 7-4 on page 7-13). If you are unsure whether or not the vessel is fishing IFQ consult the captain. For a more detailed description of IFQ see "Individual Fishing Quota (IFQ)" on page 8-23.

Electronic Logbooks

Some vessels are using third-party software to maintain their logbooks electronically. This logbook software captures the same information as the paper versions, and is sent to the Alaska Regional office electronically on a regular basis. Bring a copy of the printout back with you in lieu of a goldenrod copy. You should expect to see electronic logbooks (ELB) on all catcher processors targeting P.cod or participating in CDQ fisheries. Request a copy of all revisions made to the ELB. An example of the ELB printout is shown in "Electronic Logbook Example" on page 7-13.

Information to Transfer from the Vessel Logbook

Transfer the following information from the vessel logbook to your Vessel Haul Form and Observer Haul Form (see Figure 7-10 for examples of proper documentation for these data).

- Individual Fishing Quota (IFQ), Yes or No
- Community Development Quota (CDQ) group number, if applicable
- Date and Time of Gear Deployment
- Date and Time of Gear Retrieval
- Position of Gear Deployment (latitude and longitude)
- Position of Gear Retrieval (latitude and longitude)
- Begin and End Depth
- Number of Skates Retrieved (subtract any lost segments)
- Vessel estimate

In addition, record information on any problems associated with the retrieval of the longline gear. This information is not recorded in the vessel logbook. Ask the person responsible for logbook entries to record problems with the gear for you somewhere on the logbook page or on a separate page.

Assuring Vessel Logbook Accuracy

Before copying anything from the vessel logbook to your data forms, make sure you understand exactly what information the captain is documenting. You must determine the accuracy of the information and whether it represents the information you need to report. For example, on the Vessel Haul Form (VHF), the deployment time must indicate the first hook in the water. Does the captain know that this is the information you need and is s/he recording deployment times of the first hook in the water, not the last? Don't assume that the vessel captain knows what data you need to collect!

There are both newer and older versions of the vessel logbook, with some variations in format that are valid for use. Please consult the captain if you have any questions regarding the vessel logbook entries.

For every set retrieved, you will need to verify the following entries:

- **Date and Time of Gear Deployment and Retrieval:** The documented time of gear deployment should represent the first hook in the water and the documented time of gear retrieval should represent when the last hook came out of the water. Whenever possible, independently note the time when the crew begins to deploy hooks in the set and the time when they retrieve the last hook for that set. You will not be able to verify deployment or retrieval times for all sets. For unverified sets, rely on the information provided by vessel personnel in the vessel's logbook. If your vessel's logbook contains erroneous times, let the officer in charge of the logbook know about the error. If the incorrect data continues to be logged, consult NMFS for advice on how to record your set data.
- **Position of Gear Deployment and Retrieval:** The latitudes and longitudes entered in the "Begin Position of Haul" and "End Position of Haul" columns in the vessel's logbook should be the position of the first hook set and of the last hook retrieved. The captain or mate read these positions from the GPS navigation systems located on the bridge. Occasionally check that the positions listed in the vessel's logbook match the GPS readings. The person responsible for the logbook may have incorrectly entered the position. Question any large changes in position between one set and the next or long distances between set and retrieval positions.

Gear Performance Codes

This code indicates if there were problems with the gear that may have affected the amount of fish caught. These are sometimes noted in the vessel logbook or may be based on your own observations. Note in the comments section of the Vessel Haul Form and your Daily Notes the reasons for using gear performance codes other than code "1 - No problems."

ESTIMATING DISCARDS

Observers must make an independent estimate of discards for all sampled hauls. Discard information for sampled hauls is collected in conjunction with percent retained data. By recording discard estimates in a separate field in the data, fisheries managers are able to

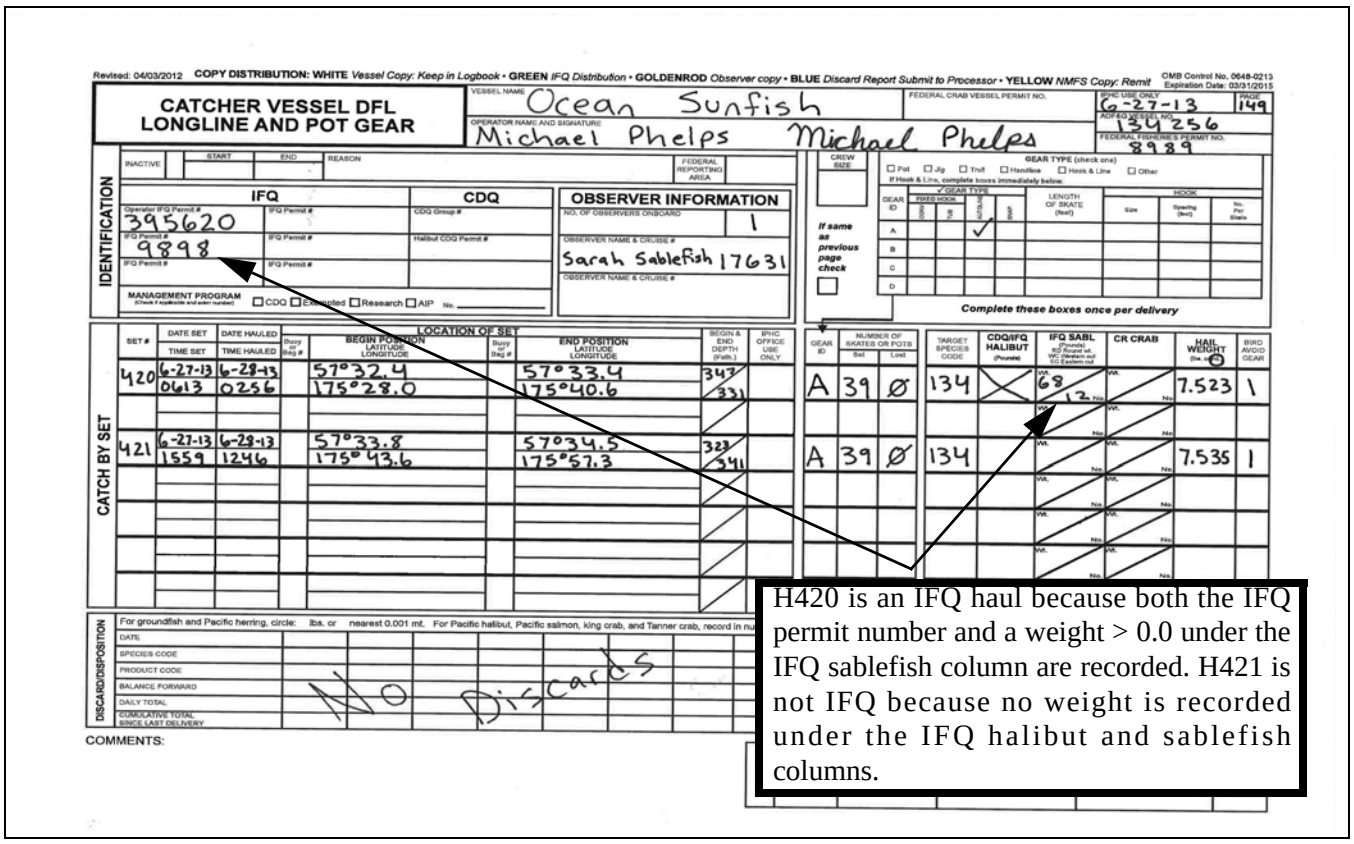


Figure 7-3: Vessel Logbook Example

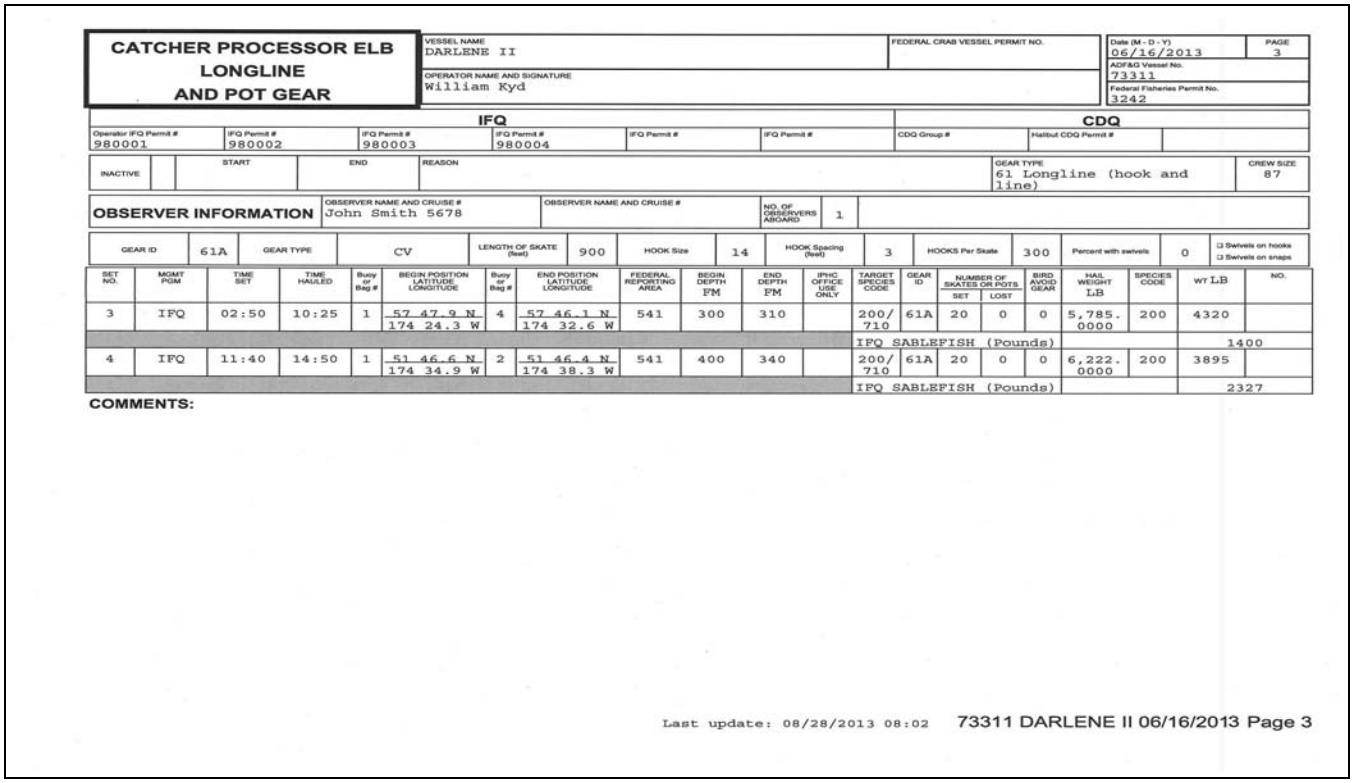


Figure 7-4: Electronic Logbook Example

quantify discards at both the vessel and fleet level. The time spent on this information should be nominal. Refer to "Estimating Percent Retained" on page 8-21 for further discussion of estimating percent retained on longliners.

The process of estimating total discards differs between catcher vessels and catcher processors. Regardless of the vessel type, ***obtaining a discard estimate should only take a few moments***. On catcher vessels, discards are generated on deck, where you can see all the fish at one time. On catcher processors, discard can occur on deck or anywhere in the factory. Familiarizing yourself with the flow of fish on the vessel will help you to recognize areas of potential discard. If vessel personnel sort out and discard undesirable fish, or if portions of the catch are dumped overboard, you must estimate the total weight of these discards. Account for catch discarded in one of the following ways

1. An actual measurement of the discard contributes the best information, but this method may not be feasible on your vessel type. If the discards are few, try to weigh everything using your observer scales. If you can not do so, consider the other options discussed here.

2. Volumetrics may be used to determine a discard estimate. If the vessel retains all the discard in a tote, or checker bin, the volume of this discard, multiplied by a density, will yield an estimate. When using volumetrics for determining a discard estimate it is acceptable to use known references rather than actual measurements. This method is uncommon for longliners.

3. A simple visual estimate is the easiest and most common method of obtaining an estimate of discards. Using visual cues such as a how many baskets of discards a sample generated can help you to quantify what you are seeing. For example, if all your samples resulted in one basket of discards (approximately 40 kg), and those samples were about 1/6th of the entire haul, you can assume there were about 6 baskets of total discards, or about 240 kg.

You can look at production data for the haul to get a sense of whether or not your estimate is reasonable. Production data is the weight, after processing, of retained catch. Divide this by the appropriate product recovery rate (PRR) to determine round catch weight of the species, before production. Product recovery rate codes can be found in Appendix F on page A-20. If your discard estimate doesn't make sense in relation to this value, modify it. For example, if you estimate that 5 percent (by weight) of total catch was discarded, and document this as 5 tons of discard, but the round weight of processed fish is only 10 tons, the discard estimate of 5 tons is actually 35 percent of total catch. You would reduce your estimated weight of discards to reflect 5 percent of total catch weight.

Also, refer to the discards information recorded by the vessels in the vessel logbook to verify your independent observations. ***Do not use these entries to provide discard data!***

RECORDING VHF AND OHF DATA

All calculations must be recorded in your logbook. Keep accurate, complete records throughout your deployment! This will enable you to provide staff with pertinent cruise details at your debriefing interview. ***You are responsible for your work and must be able to recall all methods and techniques used to collect your data.***

Completing Haul Forms on Longline Vessels

In addition to entering data and calculations in the observer logbook, all observers must complete a summary of fishing effort and total catch. This information is recorded on the Vessel Haul and Observer Haul Forms (VHF and OHF). ***If you are on a vessel equipped with ATLAS you must maintain a set of paper forms in addition to sending these data electronically.***

The fishing effort information required on the Vessel Haul form should come from the vessel's NMFS logbook or electronic logbook. Additionally, ***observers must retain the goldenrod copies of the vessel logbook pages or printed copies of the electronic logbook pertinent to their cruise.*** The logbook copies are submitted with all other data for the vessel.

When recording information on the VHF, check carefully to ensure that the data are accurate, reasonable and there are no transcription errors. The OHF contains entries for calculated values. Double check your work! Instructions on how to fill out each of these forms follows.

Keep the goldenrod copy and/or printed copies of the electronic logbook in a secure place. These forms are confidential, and must not be seen by crew from other vessels.

Completing the Vessel Haul Form

An entry must be made on the VHF for every day you are assigned to a vessel. Start your entries with the day you embark the vessel and end them on the day you disembark the vessel. A non-fishing day must be recorded for each day no fishing occurs, such as during a delivery or day in port. ***Skip a line between each day's entries***. Make sure that all of the sets retrieved during your deployment are recorded on your VHF whether you sampled them or not. Keep separate sets of forms for each vessel to which you are assigned. Refer to Figure 7-10 for an example of a longline Vessel Haul Form.

Longline sets are documented in the order they were retrieved not the order in which they were set. This means you may have out of sequence set numbers. It is OK if your set numbers are out of order because the vessel retrieved gear out of order.

Cruise, Permit, Year: Enter the cruise number supplied in your training or briefing. Enter the vessel permit number found in "Vessel/Plant Names and Permit Numbers" on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13").

Gear Type: Enter the appropriate gear code in this column. The Gear Type codes are:

8 - Longline vessels.
7 - Jig vessel.
6 - Pot vessels.

Purpose Code: The Purpose Code provides a label in your data signifying how it can be used. Enter a "CA" for *Catch Accounting* unless otherwise instructed by FMA Staff.

Observer name/Vessel name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing.

Trip Number: Enter the trip number for the set. Trips should be numbered consecutively starting with the number one. Refer to the chapter "TRIP INFORMATION" for more details on documenting trips.

Haul Number: There must be an entry for every set of gear retrieved. Each set should have its own distinct number. You may want to number your sets so that they correspond to the set numbers in the vessel's logbook. This should make it easier to track the sets and enter the corresponding data on your forms, especially if gear is retrieved out of order. Enter a "0" in this field for all non-fishing day entries.

IFQ? Y or N: Was the particular set fished under an Individual Fishing Quota? Enter an "N" if it was not. Enter a "Y" if it was. An IFQ permit number in the upper left hand corner of the DCPL or DFL and an entry greater than 0.00 in the columns "IFQ Halibut" and/or "IFQ Sablefish" indicate the vessel was fishing IFQ (see page 7-11). For a description of IFQ fishing see page 8-23.

CDQ group #: Record a "C" and the two digit CDQ group number for each set taken using the Community Development Quota (CDQ). This number can be found at the top of the vessel logbook in the box marked "CDQ group #."

Vessel Type: Enter the appropriate code.

1 - Catcher Processor (C/P) - vessel processed and froze it's own catch.
3 - Catcher Vessel- vessel has retained fish for delivery to a shore-based plant, a floater or mothership.
5 - Bait- vessel used the catch as bait, or sold the catch directly to other vessels to use as bait.
6 - The entire catch from this catcher-only vessel's haul was discarded and not delivered.

Gear Performance: Enter the appropriate code. This code indicates if there were problems with the gear that may have affected the amount of fish caught. There are eight different codes that are applicable to longline fishing.

1 - No problems.
2 - Crab pot(s) in set.
5 - Other problem: describe the problem in your logbook daily notes.
6 - Gear lost (partial or complete loss of gear).
7 - Considerable predation of the catch by sea lions.
8 - Considerable predation of the catch by killer whales.
9 - Not used for fixed gear.
10 - Considerable predation of the catch by sperm whales.

Note in the comments section of the Vessel Haul Form and your Daily Notes the reasons for using gear performance codes other than code "1." See "Feeding on Catch or Discards" on page 14-3 for a description of marine mammal catch predation.When codes "7," "8" or "10" are used, complete a Marine Mammal Interaction and Specimen Form (see page 14-2).

Location Code: Enter "R" if the location is a retrieval position. Enter a "D" if you are on a mothership receiving catch and are unable to obtain a retrieval position (not common for longline vessels). Enter "N" for each day that no gear is retrieved (vessel is in port, steaming, or waiting out a storm). There must be a position entry for every day you were on board the vessel. For all non-fishing days, enter a "0" in the Haul Number column, a location code of "N," In the "Retrieval Information" tab, enter the date and enter the latitude and longitude of the vessel at or around noon (Alaska Local Time). If a non-fishing day occurs in between trips, leave the trip number column blank.

Non-Fishing Days

A non-fishing day is one during which no hauls were retrieved. For all non-fishing days, enter the trip number for the trip associated with the date no fishing took place. If the vessel is in port, the trip number column should remain blank. Enter "0" in the haul number column, and a location code of "N." Record the Month/Day and latitude and longitude of the vessel for that day under the **"**Retrieval Information**"** tab. Do not include a time. Write the reason why there was no fishing in the Comments section. All days aboard must be accounted for with either a fishing or non-fishing position. This is the Observer Program's only way to account for the number of days you were assigned to a vessel. Non-fishing days are recorded on both the VHF and the OHF.

Port Coordinates

If you are in one of the ports in the following list on a non-fishing day, you can use the coordinates given as the non-fishing day position. One hundred degrees of longitude are assumed, so do not enter the leading "1."

Port	Latitude	Longitude (W)
Adak	51 53	176 39
Akutan	54 08	165 46
Cordova	60 33	145 45
Dutch Harbor	53 53	166 32
Homer	59 38	151 33
Juneau	58 10	134 18
King Cove	55 03	162 19
Kodiak	57 42	152 15
Sand Point	55 20	160 30
Seattle	47 42	122 13
Seward	60 07	149 27
St. Paul	57 09	170 13

"Deployment Information" Tab

Month/Day: Enter the date the ***first hook*** of a set was deployed. The month and day must be two digits (*e.g.*, 01/01 for January 1st).

Time: Enter the time the ***first hook*** of a set entered the water. Verify that the captain is entering this time, not the time the anchor or flag entered the water. All entries must be in Alaska Local Time (ALT). Enter four digits with no colon marks.

Latitude: Enter the latitude of the vessel when the ***first hook*** of the set was deployed. This position can be found in the "Begin Position" field in the vessel logbook.Vessels may record their positions to the nearest minute, seconds or hundredths of a minute. If the vessel listed their positions to the hundredths of a minute, you must convert this value to seconds. To convert from hundredth of a minute, (also called a

decimal minute) to seconds use the "Decimal Minutes to Seconds Conversion Chart" on page A-36. If you need to do the calculation, use the formula "Abbreviations, Conversions, and Formulas" on page A-17. Do not enter degree marks or include an "N" to indicate north for latitude. Degree, minute, and second entries must be two digits.

E or W: Fill out the "E or W" column to indicate if the longitude is east or west of the 180 degree line.

Longitude: Enter the longitude of the vessel when the ***first hook*** of the set was deployed. This position can be found in the "Begin Position" field in the vessel logbook. One hundred degrees of longitude are assumed, so do not enter the leading "1." Record the position to the same level of accuracy as it is recorded in the vessel log book. Vessels may record their positions to the nearest minute, seconds or hundredths of a minute. If the vessel listed their positions to the hundredths of a minute, you must convert this value to seconds. To convert from hundredth of a minute (also called a decimal minute) to seconds use the "Decimal Minutes to Seconds Conversion Chart" on page A-36. If you need to do the calculation, use the formula"Abbreviations, Conversions, and Formulas" on page A-17. Do not enter degree marks. Degree, minute and second entries must be two digits.

If the vessel is not recording seconds or hundredth of seconds, leave this field blank. Coordinates with minutes greater than 59 are not valid. Enter only ***numbers*** in the latitude and longitude columns. Do not enter any marks or slashes to indicate degrees, minutes, or seconds. Degree, minute and second entries must be two digits.

Average Bottom Depth: Average the begin and end depths found in the vessel logbook. Round the depth to the nearest whole number. Do not enter decimals in this field.

Average Gear Depth: Leave this column blank.

M or F: The vessel logbook instructions request that the bottom depth be recorded in fathoms (F). Check with the captain to ensure that this is the case.

"Retrieval Information" Tab

Month and Day: Enter the date the ***last hook*** of a set is retrieved. Month and day must both be two digits (*e.g.,* 01/01 for January 1st). Attribute the set to the ***day retrieval is completed (i.e., record sets in order of retrieval date).***

Time: Enter the time the last hook was retrieved. You can find this time in the "Time Hauled" field in the vessel logbook. All entries must be in Alaska Local Time (ALT). Enter four digits with no colons.

Latitude and Longitude: Enter the latitude and longitude of the vessel when the **last** hook of the set was retrieved. This position can be found in the "End Position" field of the vessel logbook. Follow the same rules as described for deployment.

Completing the Observer Haul Form

An entry must be made on the OHF for every set made by the vessel, whether it was sampled or not. Follow the same guidelines as for the VHF. Include the same spacing and "0's" for non-fishing days. ***Skip a line between each day's entries.*** When placed side-by-side, you should be able to read the VHF and OHF forms straight across all rows. The information for a haul on one form should line up with the same haul's information on the other form. Always start a new OHF when you start a new VHF. Keep a separate set of data forms for each vessel to which you are assigned. Refer to Figure 7-10 for an example of a longline Observer Haul Form.

Cruise, Permit, Year: Enter the cruise number supplied in your training or briefing. Vessel permits numbers are listed by vessel on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.,* "13").

Observer's Name/Vessel Name: Enter your name and the name of the vessel.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing.

Full Name of Catcher Boat box Catcher Boat's ADF&G #: Fill in these two items only if you are on a mothership (see page 6-1). Longline motherships are rare in the Alaskan fisheries.

Haul No.: The set number must correspond with the set number on the VHF and all other data forms. If a line is skipped on the VHF, skip the same line on the OHF. Non-fishing day entries must match the VHF with a haul number of 0.

Electronic logbooks will not allow duplicate haul numbers during a calendar year. If possible you should use the same numbering system as your vessel if they are using an electronic logbook. If you are unable to use the same numbering system let your inseason advisor or FMA staff know the reason why.

Haul Sampled By?: This field is used to indicate whether a set was sampled, and by whom. All sets must have one of the following codes in this field:

1. 0 - not sampled
2. The cruise number of observer who sampled that set.

If working with another observer, divide the sets that you both sampled evenly between you. Document your system of assigning shared sets in your logbook.

RST On Haul?: Enter one of the appropriate letter codes:

Y - I used the RST and it was an "ON" haul
N - I used the RST and it was an "OFF" haul
X - RST is not being used, all hauls were sampled.

RBT on Break?: Enter the code as to whether or not you were using the Random Break Table.

Y - I am on a break
N - I am not on a break. If you are not using the RBT, this is your default code.

Sample Design: Enter the code that best describes your method used for collecting your composition samples. Leave this field blank for unsampled hauls. See "Sample Design Codes for Species Composition" on page 2-20 in Essential Information for a description of each code:

5 - Opportunistic
6 - Simple Random
7 - Systematic Random
9 - Other Random
10 - Census
11 - Other
12 - Unknown

Sample Unit Type: Enter the code that best describes the sample unit used for completing your composition sample. Leave this field blank for unsampled hauls.See "Sample Unit Type for Species Composition" on page 2-21 in Essential Information for a description of each unit type:

1 - Gear
2 - Time
5 - Other
6 - Unknown

% Monitored for Marine Mammals: This is the percent of the gear you monitored for the presence of marine mammals. This is normally the percent of the gear that was tallied, but **may include more if you also watched the gear at other times.** Divide the number of segments of gear you watched being retrieved by the total segments of gear in the set, or divide the total time you watched gear being retrieved by the total retrieval time of the set. Multiply this number by 100, round it to the nearest whole percent, and enter it into the percent Monitored for Marine Mammals column. See "MARINE MAMMAL INTERACTIONS AND SIGHTINGS" on page 14-1 for duties related to marine mammals.

You may include unsampled gear as monitored for marine mammals as long as you were near enough to the line to ensure that you could have seen any mammal interactions or predated catch.

Vessel's Total Catch Estimate (mt): Record the "Haul Weight" from the vessel logbook. Convert the estimate to metric tons if it is recorded in pounds, and round to the nearest two decimal places. Show this calculation in the observer logbook. There must be an entry for every haul. This value should be recorded directly from the vessel logbook.

Estimated Discard Weight (kg): Record the estimated discard weight in kilograms, rounded to the nearest whole kilogram. If there were no discards, enter a zero value in the discards column for that haul. If you do not know whether or not there were discards, or it was an unsampled haul, leave the field blank.

Trawl Vessels Tab: The information in this tab is for trawlers only, leave these columns blank.

"Longline and Pot Vessels" Tab

Hook Collection #: Enter the number of the hook collection that corresponds to the haul.

# of Segments in Set: Enter the total number of segments of gear in the set. Record only the amount of gear that was retrieved. ***Do not include gear that has been lost in your value for total segments in a set.*** The amount of gear set and lost are recorded in the vessel's log in the "Number of Skates or Pots" columns. What captains consider to be a "skate" differs between vessels. The captain may be counting skates, mags, tubs, or coils of gear, any of which you may designate as a segment of gear. Remain consistent with what you designate as a segment of gear for the entire time you are on the vessel. ***Partial segments of gear should be recorded as the number of segments to two decimal places, not as the number of actual hooks. For example, "15.25" is an acceptable entry to the # of Segments in Set field.*** See "Partial Segments" on page 7-7.

Total Hooks in Set: ***Leave this field empty unless you are on a vessel that is setting two different sized segments of gear within the same string.*** Enter the total number of hooks in the set. Total Hooks must be rounded to a whole number and there must be an entry for every set when mixed gear is used. Record only the number of hooks that were retrieved. ***Do not include hooks from segments that have been lost.*** If you enter a value in the ***Total Hooks in Set*** field, the number of segments remains a required entry on the Observer Haul Form.

Bird Deterrence Code: Codes used for vessels over 55 feet length over all (LOA):

1 - Paired streamer line used
2 - Single streamer line used
0 - No streamers were used
N - Observer didn't check deterrent type

Document any other deterrent methods used in the comments section of the OHF and in your Daily Notes.

Deterrence code entries must be based on your actual observations not what is recorded in the vessel logbook.

See "Seabird Avoidance Initiatives" on page 16-5, "Monitoring Avoidance Measures" on page 16-5, the Streamer Line Schematic on page 8-21, and a summary of Avoidance Regulations on page 20-15. Refer to supplemental information provided by the FMA observer program for documenting Seabird Avoidance measures required for hook and line vessels under 55 feet LOA.

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your data for errors.

Check All Forms For:

- Your name and vessel name on the first page of each form type
- Pages numbered properly, no skipped or duplicate numbers
- Every page has your cruise number and vessel code
- Leading zeros are present only for dates and times
- All fields with pre-printed decimals have numbers listed to two decimal places

- All repeat fields have a value entered (do not use arrow downs or brackets)
- Your handwriting is clear and legible

Hook Count and Spacing Form:

- No duplicate Collection Numbers
- Segment numbers within each collection do not repeat
- The date the count was completed is recorded for each collection
- If on an IFQ/CDQ sablefish vessel, the hook spacing information is complete.

Check Observer and Vessel Haul Forms For:

- Set data are recorded in order of retrieval date
- Each day on the vessel has an entry including the day you boarded, disembarked and all days in between.
- Non-fishing days have a non-fishing position with a set number of zero
- No duplicate set numbers
- No decimals other than those pre-printed on the page

Check Vessel Haul Form for:

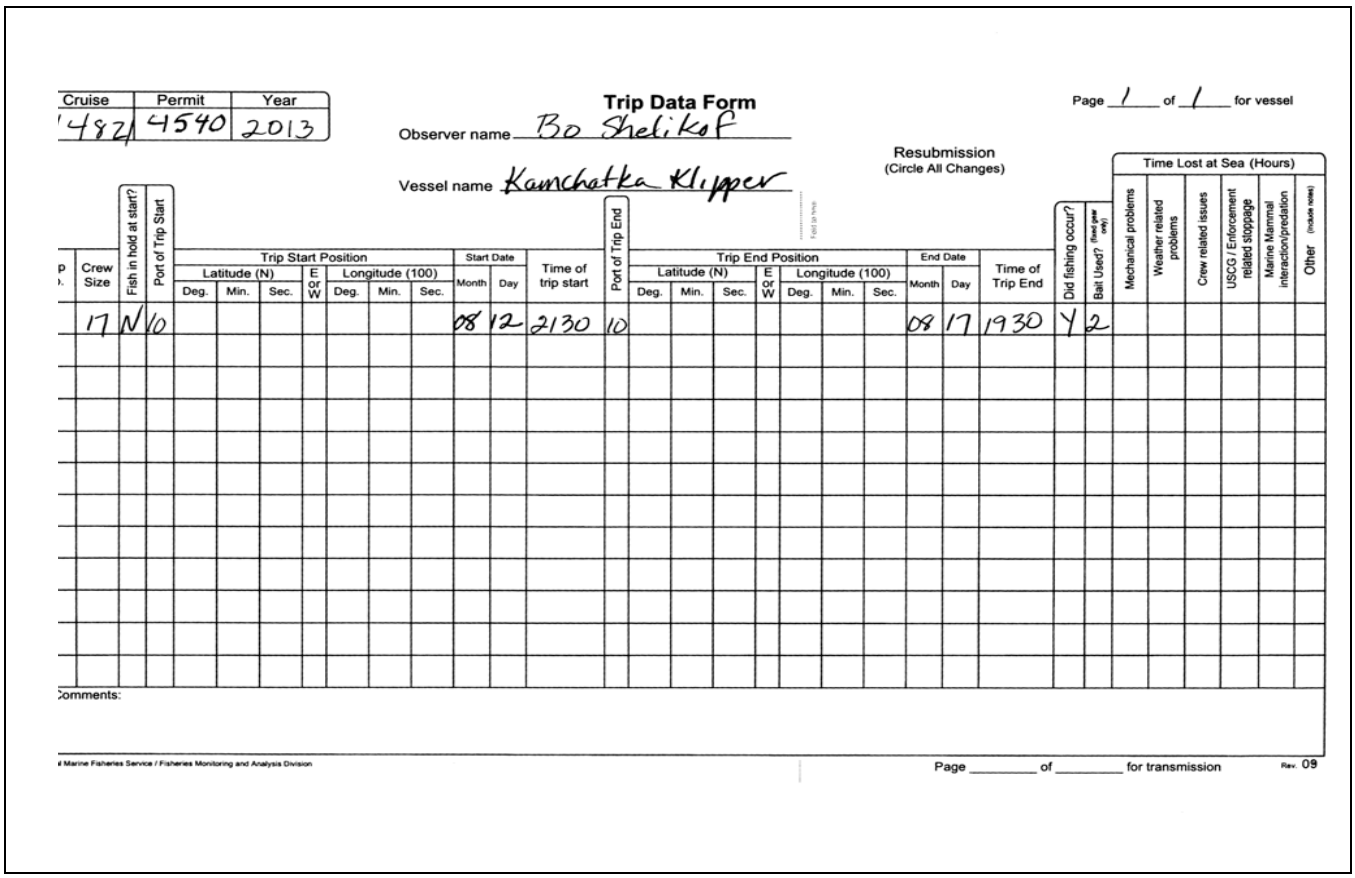
- The Purpose Code is completed correctly. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP).
- Set and retrieval positions are recorded for all sets. Degree, minute and second entries must be two digits.
- Positions have no minutes or seconds greater than 59
- Positions recorded to seconds are in seconds, not hundredths
- Retrieval times of 0000 are attributed to the next day
- Depths are rounded to whole numbers
- "F" or "M" is recorded for every depth recorded
- "Y" or "N" is recorded in the IFQ column
- CDQ numbers are recorded with the letter "C" followed by the two digits of the CDQ group number (found in the vessel logbook)

Check Observer Haul Form for:

- Sample Design and Sample Unit Type are complete and accurate for each sampled haul
- Sampled hauls discard weight, if any, is entered
- All hauls, vessel estimate is entered
- Number of segments and Hook Collection # entered for every haul.
- Total number of hooks in a set entries are rounded to 2 decimal places.

Plant/Vessel Offload Form (catcher vessels):

- Plant/processor name, and processor permit #'s are completed in the box at the top left hand side of the page
- Landing Report ID # recorded exactly as shown on the fish ticket
- Entries for plant observers are left blank
- Entries for Total Delivered are in kilograms or pounds. Must be to the whole kilogram or pound



Cruise: 1482 | Permit: 4540 | Year: 2013

Trip Data Form

Observer name: Bo Shelikof

Vessel name: Kamchatka Klipper

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (indicate week)
17	N	10								08	12	2130	10								08	17	1930	Y	2						

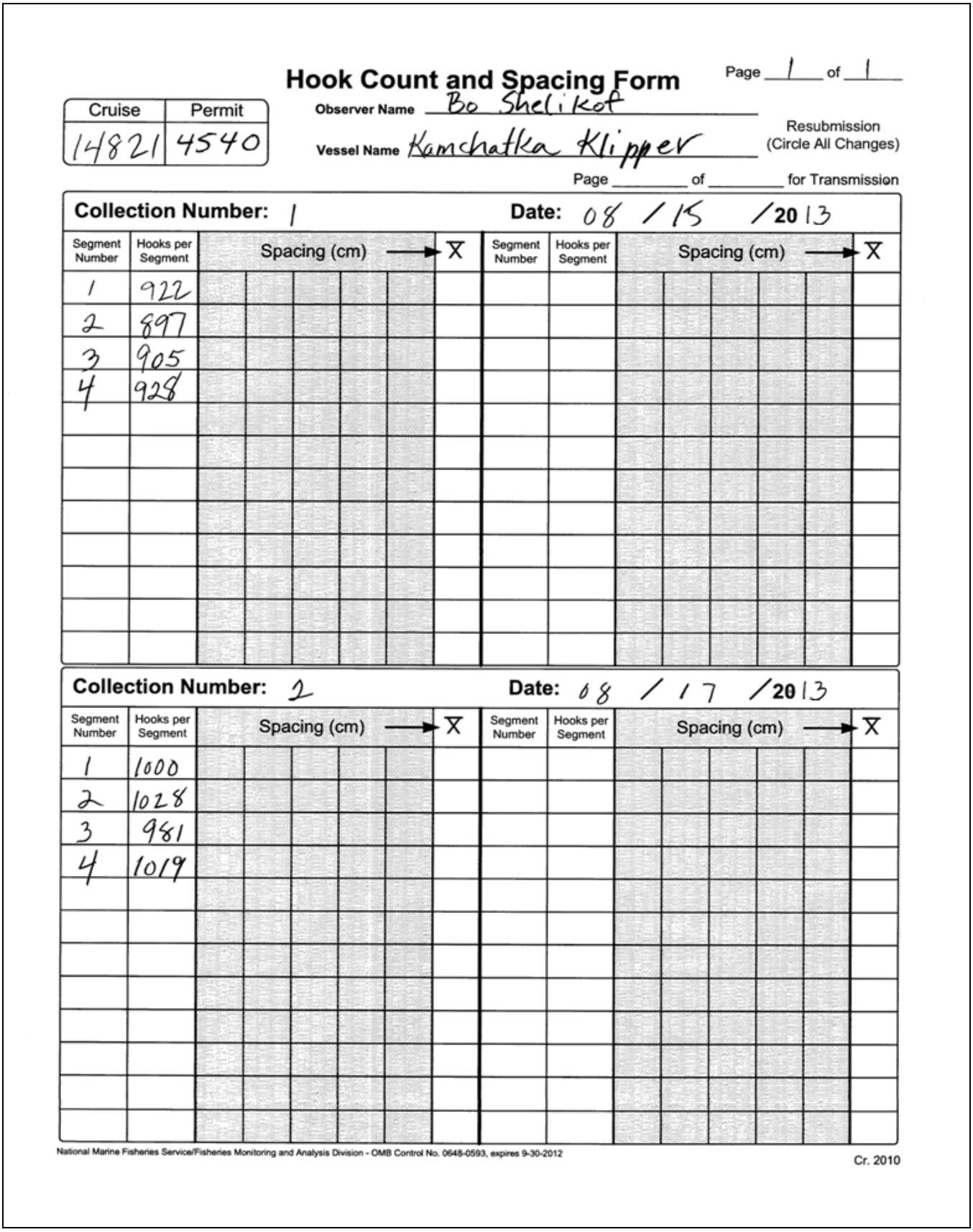
Comments:

Marine Fisheries Service / Fisheries Monitoring and Analysis Division

Page _____ of _____ for transmission

Rev. 09

Figure 7-5: Example of Trip Data Form for a C/P Longline Vessel



Hook Count and Spacing Form

Page 1 of 1

Cruise	Permit
14821	4540

Observer Name: Bo Shelikof

Vessel Name: Kamchatka Klipper

Resubmission (Circle All Changes)

Page _____ of _____ for Transmission

Collection Number: 1 **Date:** 08 / 15 / 2013

Segment Number	Hooks per Segment	Spacing (cm) →	X	Segment Number	Hooks per Segment	Spacing (cm) →	X
1	922						
2	897						
3	905						
4	928						

Collection Number: 2 **Date:** 08 / 17 / 2013

Segment Number	Hooks per Segment	Spacing (cm) →	X	Segment Number	Hooks per Segment	Spacing (cm) →	X
1	1000						
2	1028						
3	981						
4	1019						

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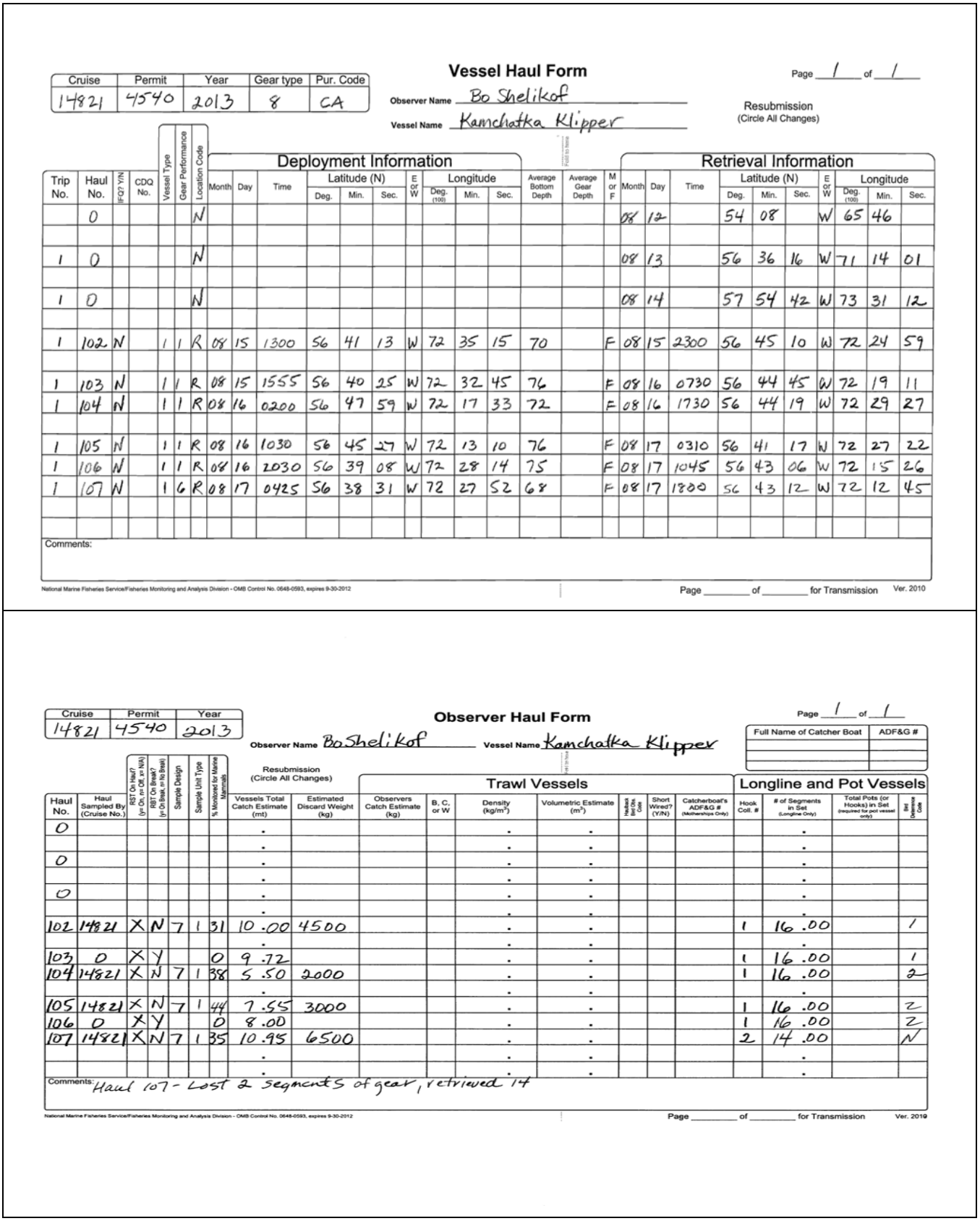
Cr. 2010

Figure 7-6: Hook Count and Spacing Form for a C/P Longliner



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
14821	4540	2013	8	CA

Observer Name: Bo Shelikof
Vessel Name: Kamchatka Klipper
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N): Deg.	Min.	Sec.	E or W	Longitude: Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N): Deg.	Min.	Sec.	E or W	Longitude: Deg. (100)	Min.	Sec.
	0					N														08	12		54	08		W	65	46	
1	0					N														08	13		56	36	16	W	71	14	01
1	0					N														08	14		57	54	42	W	73	31	12
1	102	N		1	1	R	08	15	1300	56	41	13	W	72	35	15	70		F	08	15	2300	56	45	10	W	72	24	59
1	103	N		1	1	R	08	15	1555	56	40	25	W	72	32	45	76		F	08	16	0730	56	44	45	W	72	19	11
1	104	N		1	1	R	08	16	0200	56	47	59	W	72	17	33	72		F	08	16	1730	56	44	19	W	72	29	27
1	105	N		1	1	R	08	16	1030	56	45	27	W	72	13	10	76		F	08	17	0310	56	41	17	W	72	27	22
1	106	N		1	1	R	08	16	2030	56	39	08	W	72	28	14	75		F	08	17	1045	56	43	06	W	72	15	26
1	107	N		1	6	R	08	17	0425	56	38	31	W	72	27	52	68		F	08	17	1800	56	43	12	W	72	12	45

Comments:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Page _____ of _____ for Transmission Ver. 2010

Observer Haul Form

Cruise	Permit	Year
14821	4540	2013

Observer Name: Bo Shelikof
Vessel Name: Kamchatka Klipper
Page 1 of 1

Full Name of Catcher Boat	ADF&G #

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, or N/A)	RBT On Break? (y= On Break, or= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Trawl Vessels: Observers Catch Estimate (kg)	B, C, or W	Density (kg/m²)	Volumetric Estimate (m³)	Haddock Identification Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
0							.				.	.					.		
0							.				.	.					.		
0							.				.	.					.		
102	14821	X	N	7	1	31	10.00	4500			.	.				1	16.00		1
103	0	X	Y			0	9.72				.	.				1	16.00		1
104	14821	X	N	7	1	38	5.50	2000			.	.				1	16.00		2
105	14821	X	N	7	1	44	7.55	3000			.	.				1	16.00		2
106	0	X	Y			0	8.00				.	.				1	16.00		2
107	14821	X	N	7	1	35	10.95	6500			.	.				2	14.00		N

Comments: Haul 107 - Lost 2 segments of gear, retrieved 14

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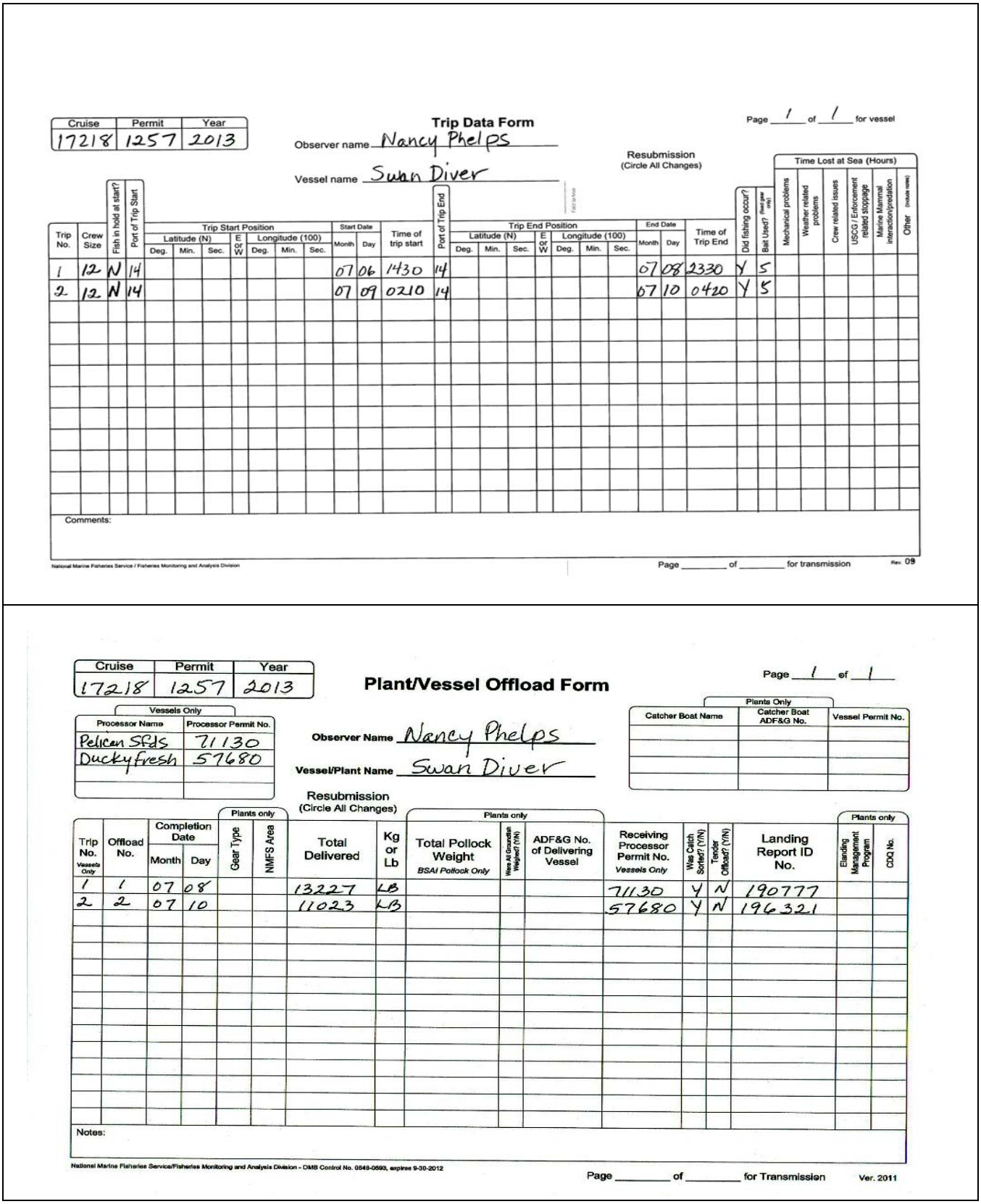
Figure 7-7: Examples of VHF and OHF Data From a C/P Longliner Fishing for Pacific Cod



Cruise: 17218 | Permit: 1257 | Year: 2013

Trip Data Form

Page 1 of 1 for vessel

Observer name: Nancy Phelps

Vessel name: Swan Diver

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include note)
1	12	N	14								07	06	1430	14								07	08	2330	Y	S						
2	12	N	14								07	09	0210	14								07	10	0420	Y	S						

Comments:

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Cruise: 17218 | Permit: 1257 | Year: 2013

Plant/Vessel Offload Form

Page 1 of 1

Vessels Only

Processor Name	Processor Permit No.
Pelican Sfds	71130
Duckyfresh	57680

Plants Only

Catcher Boat Name	Catcher Boat ADF&G No.	Vessel Permit No.

Observer Name: Nancy Phelps

Vessel/Plant Name: Swan Diver

Resubmission (Circle All Changes)

Trip No. (Vessels Only)	Offload No.	Completion Date: Month	Day	Plants only: Gear Type	NMFS Area	Total Delivered	Kg or Lb	Plants only: Total Pollock Weight (BSAI Pollock Only)	Were All Groundfish Weighed? (Y/N)	ADF&G No. of Delivering Vessel	Receiving Processor Permit No. (Vessels Only)	Was Catch Sorted? (Y/N)	Tender Offload? (Y/N)	Landing Report ID No.	Plants only: Elanding Management Program	CDQ No.
1	1	07	08			13227	LB				71130	Y	N	190777		
2	2	07	10			11023	LB				57680	Y	N	196321		

Notes:

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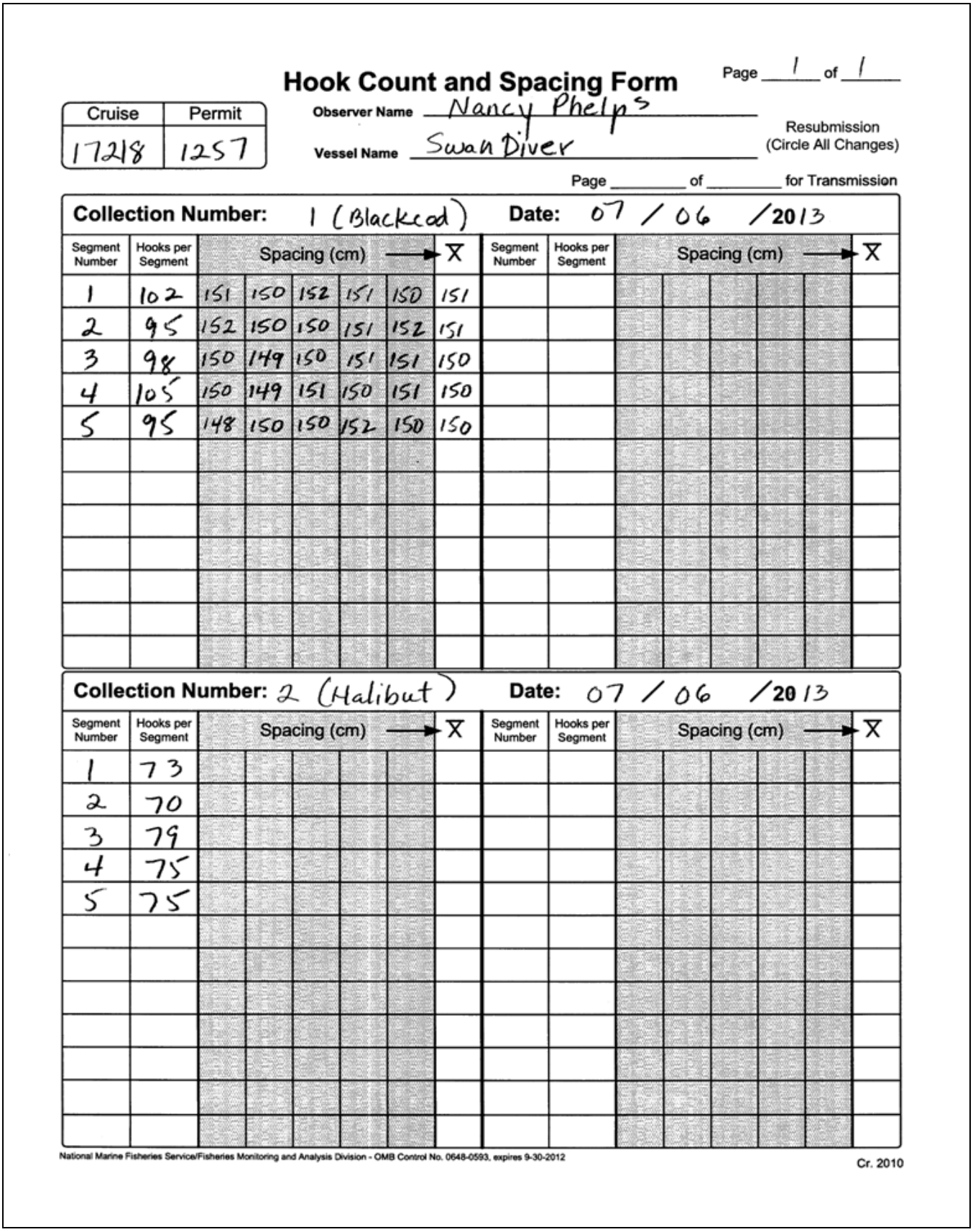
Figure 7-8: Examples of Trip Form and Offload Form Data from a Catcher Longline Vessel Fishing for Sablefish



Hook Count and Spacing Form

Page 1 of 1

Cruise	Permit
17218	1257

Observer Name: Nancy Phelps

Vessel Name: Swan Diver

Resubmission (Circle All Changes)

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Collection Number: 1 (Blackcod) **Date:** 07 / 06 / 2013

Segment Number	Hooks per Segment	Spacing (cm) →					X	Segment Number	Hooks per Segment	Spacing (cm) →					X
1	102	151	150	152	151	150	151								
2	95	152	150	150	151	152	151								
3	98	150	149	150	151	151	150								
4	105	150	149	151	150	151	150								
5	95	148	150	150	152	150	150								

Collection Number: 2 (Halibut) **Date:** 07 / 06 / 2013

Segment Number	Hooks per Segment	Spacing (cm) →					X	Segment Number	Hooks per Segment	Spacing (cm) →					X
1	73														
2	70														
3	79														
4	75														
5	75														

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Figure 7-9: Hook Count and Spacing Form for a Catcher Vessel

Vessel Haul Form

Page 1 of 1

Cruise	Permit	Year	Gear type	Pur. Code
17218	1257	2013	8	CA

Observer Name: Nancy Phelps

Vessel Name: Swan Diver

Resubmission (Circle All Changes)

Trip No.	Haul No.	IFQ? Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
	0					N														07	06		57	42		W	52	15	
1	46	Y		3	1	R	07	03	1210	58	46	10	W	45	51	13	360		F	07	07	1114	58	32	22	W	45	50	46
1	47	Y		3	1	R	07	03	1820	58	32	40	W	45	52	30	320		F	07	07	1910	58	44	31	W	45	51	53
1	48	Y		3	1	R	07	07	1236	58	28	13	W	45	46	41	280		F	07	08	0900	58	38	40	W	45	50	31
1	49	Y		3	1	R	07	07	2030	58	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	08	1745	58	40	20	W	45	49	41
2	50	Y		3	1	R	07	08	1013	58	33	30	W	45	45	33	393		F	07	09	0850	58	41	15	W	45	50	30
2	51	Y		3	1	R	07	08	1840	58	30	26	W	45	46	42	375		F	07	09	1405	58	38	30	W	45	48	15
2	52	Y		3	1	R	07	09	0930	58	28	10	W	45	44	24	331		F	07	09	2040	58	36	43	W	45	46	40
	0					N														07	10		57	42		W	52	15	

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Comments:

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Observer Haul Form

Page 1 of 1

Cruise	Permit	Year
17218	1257	2013

Observer Name: Nancy Phelps Vessel Name: Swan Diver

Full Name of Catcher Boat	ADF&G #

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Trawl Vessels: Observers Catch Estimate (kg)	B, C, or W	Density (kg/m^3)	Volumetric Estimate (m^3)	Haulback Bird Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
0																			
46	17218	X	N	7	1	100	1.89	640								1	18.00	1684	N
47	17218	X	N	7	1	80	.96	220								2	18.00		N
48	17218	X	N	7	1	100	.40	800								1	18.00		1
49	17218	X	N	7	1	70	1.77	300								2	18.00		N
50	17218	X	N	7	1	70	2.37	120								3	18.00		1
51	17218	X	N	7	1	100	1.41	610								4	18.00		1
52	17218	X	N	7	1	60	1.41	50								4	18.00		1
0																			

Comments: Haul 46 = mixed gear 14 @ 99 = 1386.0
4 @ 74.4 = 297.6
Σ = 1683.6 total hooks

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Figure 7-10: Examples of VHF and OHF Data From a Catcher Longline Vessel Fishing for Sablefish

LONGLINE COMPOSITION SAMPLING

Table of Contents

PRIORITIES

- Your safety!
- Collect data and specimens from marine mammal and endangered seabird mortalities.
- Rehabilitate short-tailed albatross and other species of interest.
- Sample for species composition.
- Send data to FMA as directed (see "Sending Data" on page 2-32.).
- Document any compliance concerns.
- Measure and assess injury of Pacific halibut.
- Measure and sex other prohibited species.
- Collect biological data from the appropriate species.
- Collect sexed length frequencies from the appropriate species.
- Complete research projects.
- Record sightings of seabird "species of interest."
- Record marine mammal sightings.

COMPOSITION SAMPLING GUIDELINES

One of the first things you should do when you arrive on a vessel is inspect your sampling station and determine a sampling design. Refer to "TRIP INFORMATION" on page 3-1 for what to look for in a sampling station. When creating your sampling design, consider:

- Where to tally your sample
- Where to collect and contain your weight sample
- What sampling biases could occur in your collection and how to minimize them
- How to collect your sample
- How many samples you will be able to collect
- What sample sizes you will be able to collect
- How you will process your sample
- Do you need to use the Random Sampling Table (RST) or Random Break Table (RBT)

Equipment - You will need at least three to six thumb counters, a clipboard, and Deck Forms. Prior observers have devised many innovative techniques that have made using multiple thumb counters easier. The most common is to duct tape multiple thumb counters to a clipboard. Be creative, experiment, and find what works best for you.

It is important to check the functionality of your thumb counters daily and to oil your thumb counters on a regular basis. This will ensure that your thumb counters work properly during your tally periods.

Tally Station - The tally station is where you stand to count organisms as the groundline is retrieved. You must have a ***clear line of sight to the groundline as it exits the water***. The Observer Program suggests that the tally station is never more than five meters from where fish are landed. From your tally station, you must be able to identify fish as they come aboard and identify drop-offs. Choose a location that is safe, away from direct wave action, and out of the way of the pole gaffer and rollerman. Often, the best place will be on the weather deck, above the roller station. ***Never tally from the wheelhouse.***

Sample Station - The sample station is the location where you will weigh and measure catch. Many C/P vessels have a sample station already set up for observer use and some have motion compensated platform scales (see page 2-25). On vessels that do not have established stations, select a location that is out of wave action, out of crew traffic, and that has enough room to store one or two baskets of fish. The location should be as close as possible to where the fish come on board. On some vessels, you won't have much choice where you set up a sampling station and you will have to work with the area available to you. Explain your needs to the crew and work with them as much as possible.

Draw a diagram of the sampling station in your logbook. In your Daily Notes, discuss the random sample design you intend to use. Your sample design will be put to the test once you start sampling, and you may find that you need to make some changes to it. When you have settled on a random sample design(s), fill out a Sample Design Detail form in your logbook. On this form, describe your sampling design in detail.

Day to day minor adjustments to the random sample design can be documented in the Daily Notes section of your logbook.

Inexperienced observers should be especially careful until they are familiar with the way catch is handled. You may need to reduce your sampling effort during the retrieval of the first few hauls (fewer and/or smaller samples). Document your methods and the reasons for the reduced sampling effort in your Daily Notes. After only a few hauls you will be familiar with the catch handling process and able to decide on a sampling design that is right for that vessel and fishery. If you are unable to sample a haul for any reason, you must document the circumstances in your logbook.

Be sure to discuss safe deck practices, haulback procedures and potential sampling needs with the vessel before fishing begins!

You may alter your design as you gain experience, become aware of biases, species composition changes, or target fishery changes. Document all changes in the Daily Notes section of your logbook and explain why they were made. Sample designs for longline sampling are discussed in detail starting on page 8-5. If you have problems designing or implementing a sampling design, contact your ATLAS inseason advisor or other FMA staff member as soon as possible.

Selecting Sets to Sample

On some vessels, you will be able to sample every set. This is typically the case for observers on catcher vessels targeting sablefish and Pacific halibut or if you are on a vessel with another observer. In general, observers familiar with the vessel type and fishery are expected to sample all sets when less than three per day are landed or if the boat only fishes for part of the day. Catcher/processor longline vessels are the exception to this generality, and observers may need to use the RST or RBT on a longline C/P retrieving more than two sets a day. When extenuating circumstances prevent you from following these guidelines, you must document the situation in your logbook.

If you cannot collect species composition data from all sets, you must randomly select which sets to sample using the appropriate Random Sample Table (RST) and/or Random Break table (RBT). Please refer to "How to Use the RST" on page 2-14 for instructions on using the RST and "How to Use the RBT" on page 2-14 for instructions on using the RBT. Consult NMFS staff if you frequently use the RST and RBT together as the sampling effort for that vessel will be low.

Preferred Sampling Method

There are several sampling methods available to you for collecting samples. These are covered in "Random Sampling on Longliners" on page 8-5. As discussed in the section "Introduction to Sampling Theory" on page 2-16, the preferred method is to take ***systematic random samples.*** Longline fishing is unique in that gear can span large distances. Spacing of samples throughout a set accounts for any fish stratification associated with topography changes over these distances.

To achieve systematic random sampling on longliners, the set or estimated hauling time is divided into sampling units of equal size. Units to sample are chosen using a systematic random method.

Longline Samples and Subsamples

Longline species composition sampling is unique from that on other vessel types. The collection of data regarding the types and numbers of individuals within a sample must occur independently of the actual weighing of the sampled species. It is impractical to combine the two sampling elements: the tally station is typically not close to the collection site and weighing fish while at the same time tallying is next to impossible. By physically separating tally sessions from weighing sessions, you are ensuring that the critical process of getting an accurate tally of fish in a sample is given the attention it needs.

The terms ***tally-period*** and ***non-tally period*** are used to discuss the two distinct composition data collection periods on longliners. During the tally period, ***everything*** that comes up on the line during randomly chosen gear segments is counted, or ***tallied.*** It is very important to remember that ***all catch is counted***, including those species that are not retained or brought on board the vessel (drop-offs for example). During the tally period, the only thing you do is tally! The tally period always occurs as gear is being retrieved.

Tallying fish on the line is only a part of the species composition sampling process. Fisheries managers base their assessments of fish mortality rate on weight taken from the biomass. To supply resource managers

with the essential information they need, you also collect weight information and biological data for the species tallied. Individuals of non-predominant tallied fish are collected by the rollerman, at your request, during the tally period. The task of weighing them is accomplished during non-tally periods, while the gear is still being retrieved.

Weights and other biological data are also needed for the predominant species, but because you need about 60 individuals total for these data, it is not practical to collect these fish during your tally period. For this reason, individuals of the predominant species are collected outside the tally period. Less frequently, you may need to collect ***non-predominant*** fish from outside the tally period as well. Two reasons you might resort to this are space constraints and high species diversity. Non-tally periods are also used for halibut injury assessments, taking halibut measurements, and performing other duties.

Information from a single tally period, and any fish you collect for weights during that tally period, are recorded together as a distinct sample. Fish collected outside the tally period are recorded separately as a subsample. Observers are asked to try and collect any subsample fish from gear segments as close to the tally period segments as possible. By doing so, statisticians and management can make the assumption that subsample fish are from the same population as the tally period fish.

A specific numbering system is used to link subsample data to tally sample data in the database. This numbering convention is discussed on page 8-25. To indicate this relationship the term “parent sample” is used. For any ***subsample***, the parent sample is the sample immediately adjacent to the subsample.

Number of Samples per Sampled Set

1. You should take as many individual samples within a set as feasibly possible. Multiple samples, taken systematically throughout the set, capture any changes to the caught population due to stratification effects. ***At least three discrete composition samples of approximately equal sized units are required for every sampled haul to allow data users to assess sample variance.***

There may be fisheries and vessel types where it is not possible to collect multiple species composition samples within a sampled set. In those instances, you must document the circumstances in your Daily Notes.

Sample Size Considerations

When deciding the size of your tally samples, consider your general health, the size of the set and the possible species diversity. Reduce the size of your tally samples if you are not feeling well, have not had enough sleep, or if species diversity has been high.

Tally samples taken within a set should be the same size. This is easy to achieve on longliners, because the crew is working with discrete segments of gear. The total number of segments you are able to sample depends on situation specific factors, but most observers find they can sample at least 1/3 of a set and still have time to attend to their other sampling duties. If you find you can not sample at least 1/3 of a set, document the circumstances in your observer logbook and contact your inseason advisor or other FMA staff member for advice.

SAMPLE BIAS

Many longline catcher processors have incline belts that take fish from a trough in the roller station to a holding bin or processing machine in the factory. Incline belts can be a source of bias: larger fish may not make it up the incline belt at the same rate as smaller fish or visa versa. When collecting fish for weights and biological data, be sure to monitor for size bias and minimize this bias as much as you can. Often you can minimize or eliminate bias by collecting fish before the incline belt.

If the vessel is retaining skate species, make sure that your weight sample of these organisms is not coming from only the retained skates. Crew tend to toss out skates that are too small to make into product, potentially biasing your sample and the data.

If the crew is collecting fish for you, make sure they are not size selecting fish. Discuss your needs with crew so that they know that you want a random sample with no size bias. Sometimes crew members will sort fish for processing, not realizing that this activity is negatively affecting your sample.

RANDOM SAMPLING ON LONGLINERS

Four types of sample designs can be used on longliners:

1) spatial based simple random,
2) temporal-spatial based simple random,
3) spatial based systematic random,
4) temporal-spatial based systematic random.

You can use any of these designs for a particular set and you can alternate designs between sampled sets to adjust for different situations. ***Make sure that you have explored systematic sampling from a spatial or temporal-spatial frame as an option before resorting to simple random sampling from a spatial or temporal-spatial frame. Systematic sampling from spatial and temporal-spatial frames is discussed beginning on page 8-7.***

In each of these frames, the unit used to sample by is the gear segment, not individual hooks. This is why it is so important to get accurate hook counts!

Do not use a random sample design that is not listed unless you contact NMFS first!

Sampling Design Rules

There are a few rules to keep in mind when determining your sampling design for a sampled set:

1. **Number of samples trumps quantity of set sampled.** If there is a possibility that you will only have two samples in your frame, reduce your unit size. By reducing the size of units in the sampling frame, you are ensuring that there will be at least three sampled units within the frame. This may mean that you actually take four samples for a set when you intended on only three. It may also mean that you sample less than you intended. Always reselect a start point if you have adjusted a frame to accommodate three samples taken systematically (see Figure 8-3 on page 8-9).

2. **Size discrepancy between hanging units and other sampling units should be minimized:** If the total number of gear segments is not evenly divisible by the number of segments comprising a sample unit, there will be a unit at the end of your frame that is smaller than all other units. This is called a hanging unit. ***It is critical that units be equal or as close to equal as possible, so a rule was developed to deal with this specific case.*** You must determine if including the hanging unit onto the previous unit of the frame would cause less of a disruption to unit size than leaving it as a discrete unit. For example, if the hanging unit is comprised of 1 segment and the previous unit comprised of 3, unit size will be more consistent if the last two units are combined. Figure 8-1 shows an example of how to reduce size discrepancy in hanging units.

Spatial Frames on Longliners

For all sample frames used on a longliner, units must be comprised of whole gear segments. A unit can be one or several segments in length, so long as ***they are equal***.

To sample from a spatial frame, determine the number of segments of gear in a set and decide how much of the set you need to tally. Take into account how long you can stand on deck tallying and on how much bycatch can be stored in the fish collection area when deciding on your unit size. In colder months, or where space is limited, you may want to have fewer segments in your sample unit. On vessels with a lot of space, you may be able to have larger tally sample units (*i.e*. more segments per unit).

To create spatial units:

1. Multiply the total number of segments in a set by the fraction you intend to tally. This will give you the total number of segments you need to tally to meet your sample size goal for the set. For example, if a set was 23 segments and you wanted to sample 1/3, you would need to sample 7.66 segments. You must sample full segments, so you would round this value to 8. The observer program expects observers to tally at least 1/3 of a set when it is feasible to do so.

2. Take the total number of segments you need to tally and divide this by the total number of discrete samples you want to collect for the set. If you had to sample 8 segments and wanted to do this over 3 samples, the size of the units would be 2.66. You must tally full segments, so you would round appropriately for a total of 3 segments. This value represents your sample unit size.

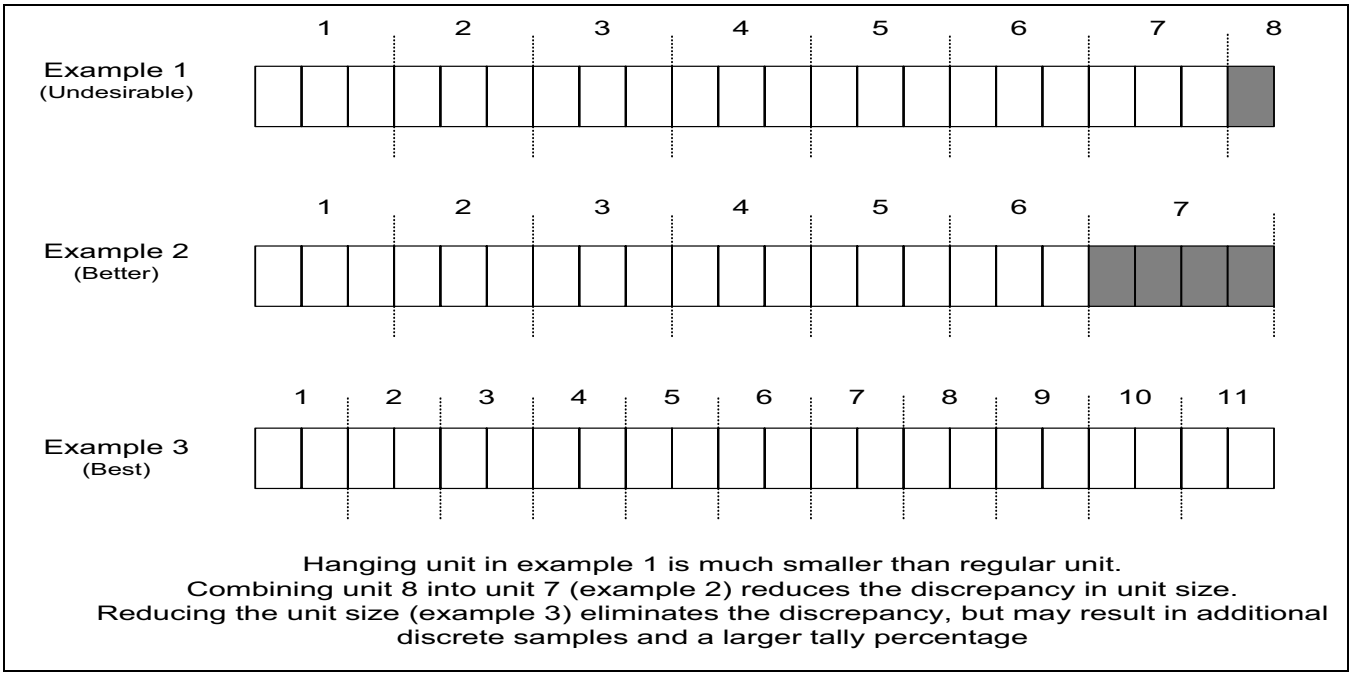

Figure 8-1: Minimizing Size Discrepancy with Hanging Units

3. Divide the total number of segments in the set by the number of segments in a unit. This gives you the total number of sampling units in the set.

To complete your sampling design, use the random number table (RNT), dice, slips of paper, or another random method to pick units or a start unit to tally sample. This will be dependent on whether you are using a simple spatial or a systematic spatial design. Document the random selection method in your logbook.

Spatial Based Simple Random Design:

A spatial based simple random design should be used when it is not possible to collect multiple samples. Collecting a single sample may be necessary if the set is short and/or time and space are limiting factors. An example of simple random sampling from a spatial frame is illustrated in Figure 8-2. The example set is composed of 6 segments of gear. The observer can only collect one sample because it is a short set and time is a limiting factor. The observer wants to sample 2 out of 6 segments. The set was divided into sampling units comprised of 2 segments each and each of these sampling units was numbered. The RNT was used to randomly pick one unit within the frame to sample. Unit 2 was chosen so segments 3 and 4 (shaded units) were tallied for species composition. Non-tally periods are those units ***not*** tallied for species composition.

Temporal-Spatial Sampling Frames on Longliners

Temporal-spatial frames are based on time, but you track sampled gear by ***segments***. The advantage of sampling from a temporal-spatial frame is that you do not have to enter into a tally period at a specific gear segment, but at an approximate time. On vessels with long sets comprised of a very large quantity of gear segments, a sampling design that allows you to disregard the passing of individual segments can be quite useful!

To Design a Temporal-Spatial Based Sampling Design:

1. Multiply the total number of segments in a set by the fraction you intend to tally. This will give you the total number of segments you need to tally to meet your total sample size goal for the set. Observers are typically able to sample at least 1/3 of a set. For example, if a set was 23 segments and you wanted to sample 1/3, you would need to sample 7.66 segments. You must sample full segments, so you would round this value to 8.

2. Take the total number of segments you need to tally and divide this by the total number of discrete samples you want to collect for the set. This value represents your sample unit size. On longliners, the smallest a spatial unit can be is one segment. If you had to sample 8 segments and wanted to do this over 3

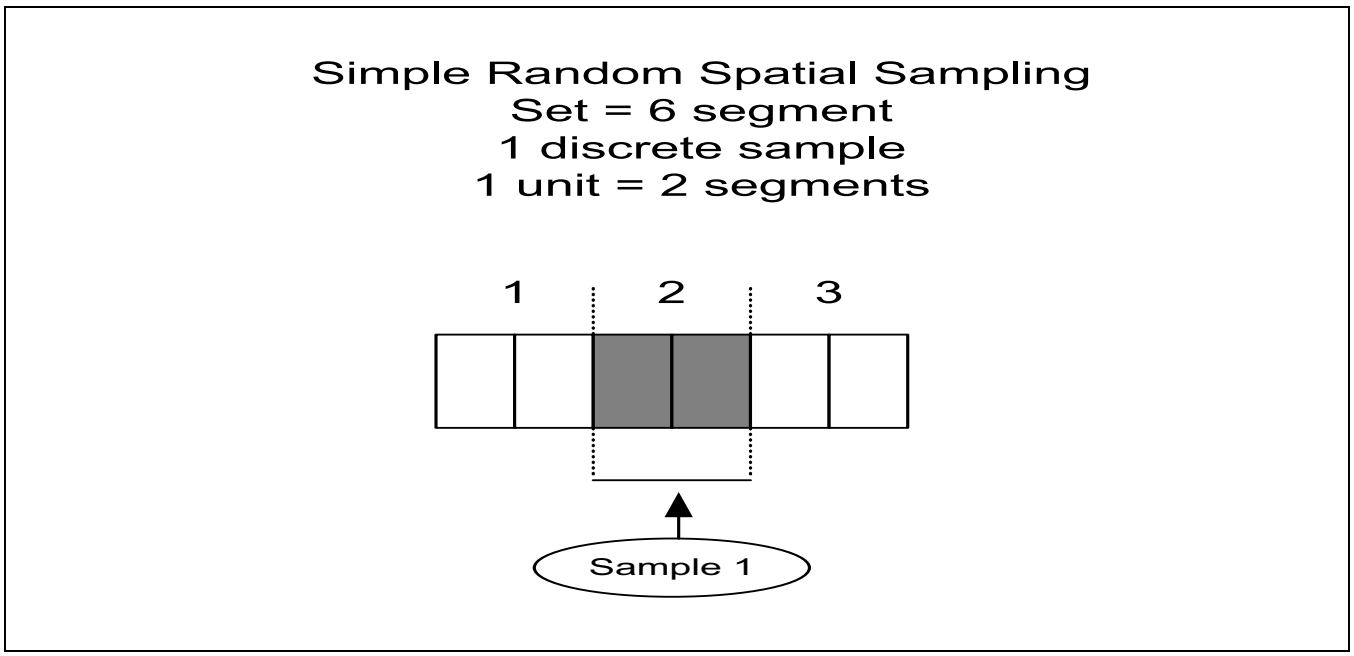

Figure 8-2: Simple Random Sample from a Spatial Frame

samples, the size of the sampling units would be 2.66. You must tally full segments, so this value would be rounded to 3.

3. Estimate how long it will take to retrieve one sampling unit. This time estimate represents one ***temporal*** unit. Number the ***temporal*** units in the set consecutively.

4. Use the random number table (RNT), dice, slips of paper, or another random method to pick temporal units or a start temporal unit to tally sample. This will be dependant on whether you are using a simple temporal-spatial or a systematic temporal-spatial design. Document the random selection method in your logbook.

5. Use your temporal unit to determine when to get to your tally station, but tally by spatial units once you get there. ***Do not begin tallying until the next full segment of gear.***

An important rule to recognize when sampling from a temporal spatial frame is that, although you are using time to select when to sample, you do ***not*** start tallying at the beginning of your designated time unit. Instead, after settling down at the tally station, you ***wait until the beginning of the next segment of gear to start*** tallying. You must tally full segments of gear, so you do not immediately stop tallying at the end of your designated time interval, but ***continue to tally until you have sampled your full spatial unit. All longline sample unit types are always gear based.***

Do not start or stop tallying in the middle of a segment, regardless of your temporal unit!

Systematic is always the preferred sampling method. If you have a sampling situation that requires a simple random design document the circumstances thoroughly in your Daily Notes.

Systematic Sample Designs on Longliners

On longliners, there are practical benefits to systematic sampling. With simple random sampling, it is possible to randomly choose back to back sampling sections. Back to back samples are difficult to manage on longliners, because there is no time to weigh fish from the first sample before you have to take tally data on the next. Unless there is enough room to separate one weight sample from another, you will not be able to report back to back samples as discrete samples. With systematic sampling, you are guaranteed some amount of time between samples.

A systematic sampling design can be used any time a simple random design can be used. Sampling from a systematic frame may give you more time between the tally and non-tally periods.

A systematic design is one in which you tally sample every "Nth" sample unit throughout the set. For your sampling design, keep in mind that at least three samples per sampled set is preferred. Sampling units can be defined either spatially or as temporal-spatial units.

The first step in creating a systematic design is to determine which unit type to use for the set. If you can accurately keep track of how many segments have been retrieved, systematic sampling from a spatial frame may be the easiest. If it is too difficult to keep track of each segment during the entire hauling process, systematic sampling from a temporal-spatial frame is best.

Creating a Spatial Based Systematic Sampling Design:

1. Multiply the total segments of gear by the fraction of the set you can tally. Observers are usually able to sample a total of 1/3 of a set. The resulting value is the number of segments you need to tally to meet your total sample size goal for the set.

Divide this value by the number of tally samples you intend to take. The resulting value represents the size of one ***spatial*** sampling unit. On longliners, the smallest a spatial unit can be is one segment.

2. Number the units in the set consecutively.

3. Systematic sampling requires that you sample throughout the entire set at equal intervals from a random start point. To determine the sampling start point for the set, refer to the sampling fraction you chose in step one. The denominator in your sampling fraction is the sampling interval ***i*** for the set. For every *i*, you must tally one full sampling unit. If *i* is 4, randomly choose a number between 1 and 4. The random number represents the first unit you will sample from your frame. For example, if the random value chosen from a denominator of 4 was 3, you would begin your systematic sampling at unit 3.

From the random start point determined in step 4, sample at interval *i*. For example, if the random start unit was 3, and the denominator of your sampling fraction 4, sampling would occur every 4 units from the random start unit: 3, 7, 11, 15, etc.

Once you have a sample design for the set, assess it to see if there is any chance you will get only two samples for the set. To do this, map out the sampling sequence when you choose the last number in interval *i* as your start point. If this sampling sequence gives you only two samples for the set, reduce your sampling unit size by one or more segments if possible. For an example see Figure 8-3.

Creating a Temporal-Spatial Based Systematic Sampling Design:

1. Multiply the total segments of gear by the fraction of the set you can sample. Observers are usually able to sample a total of 1/3 of a set.

2. Divide this value by the number of samples you intend to take. The resulting value is your *spatial* sampling unit. On longliners, the smallest a spatial unit can be is one segment.

3. Estimate the time it will take to retrieve one of your sample units and multiply this by the number of sampling units in the set. This is the total estimated time to retrieve the entire set.

4. Divide the total estimated retrieval time for the set by the estimated time it takes to retrieve one unit. The resulting value is the number of *temporal* units in the set. Number these units sequentially.

The fraction of a set you can sample also gives you the sampling interval *i*. At every interval *i*, a sample is taken. If you intend to sample 1/4 of the set, sample one in every four temporal units. If you intend to sample 1/3, sample one in every three temporal units.

5. Randomly choose a unit within a generic sampling interval from your frame. If sampling one in every four units, choose a number between one and four. If sampling one in three units, choose a number between one and three, etc.

6. The random number from step 6 indicates the first sampled unit from your sampling frame for that set.

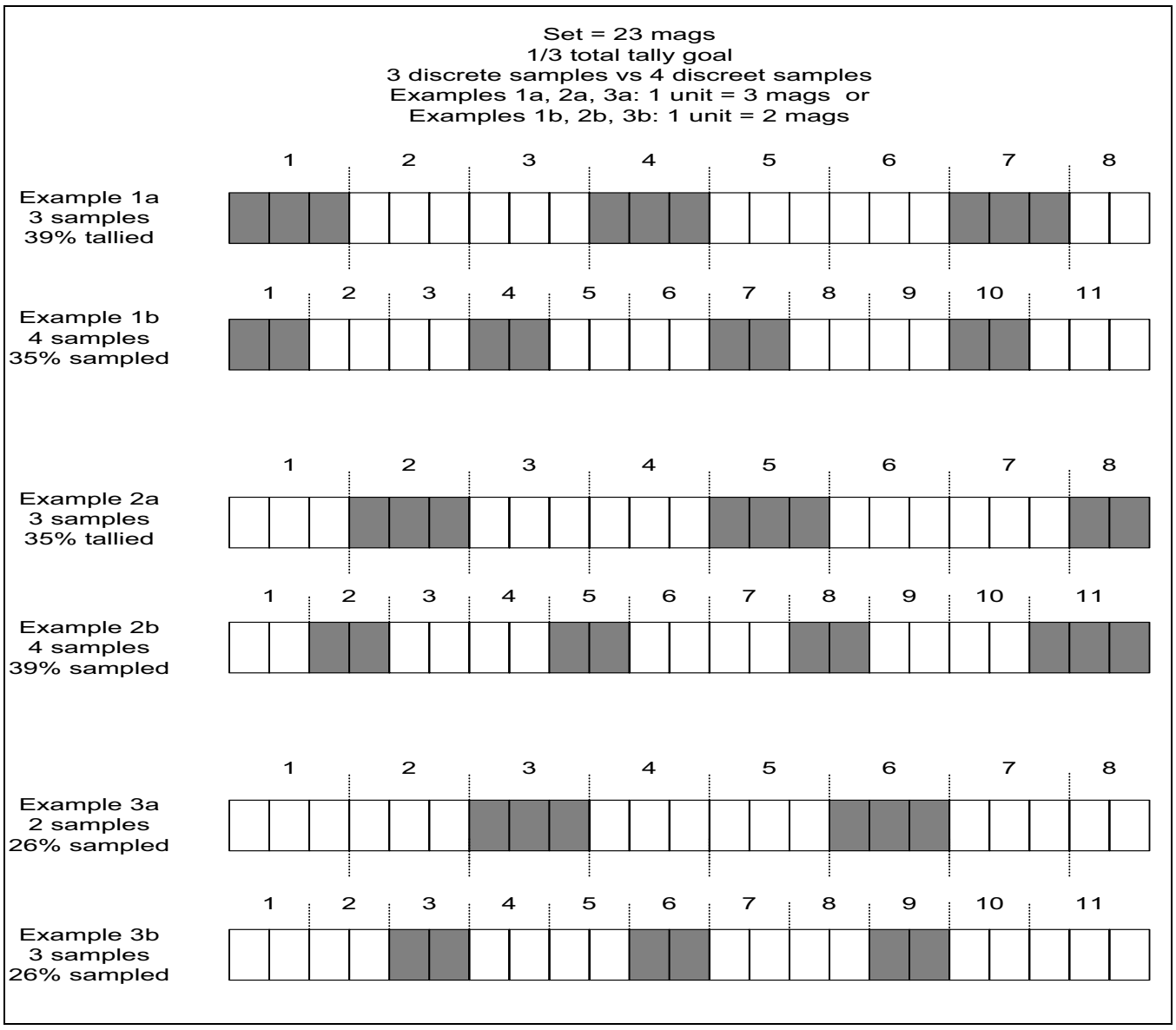

Figure 8-3: Systematic Random Sampling from a Spatial Frame

7. Now that you have your start sampling unit, sample size and sampling interval, you can map out the units that should be sampled to maintain your systematic sampling design for the set.

8. Use your temporal units to determine when to get to your tally station, but tally by spatial units once you are there.

An important rule to recognize when sampling from a temporal spatial frame is that, although you are using time to select when to sample, you do ***not*** start tallying at the beginning of your designated time unit. Instead, after settling down at the tally station, you ***wait until the beginning of the next segment of gear to start*** tallying. You must tally full segments of gear, so you do not immediately stop tallying at the end of your designated time interval, but ***continue to tally until you have sampled your full spatial unit.***

Figure 8-4 gives an example of a systematic random sample design from a temporal-spatial frame. In this example, it was determined that one third of the set, or 8 segments, could be sampled. This value was divided by 4 (the number of samples the observer intended to take) to determine the size of the *spatial* unit: 8/4 equals a spatial unit of two segments. It was estimated that each spatial unit would take 30 minutes to retrieve, for a total of 6 hours. The 30 minute units were

numbered 1 through 12. The random number table was used to choose a start "temporal unit" between 1 and 3. Temporal unit 1 was chosen to start tallying and every 3rd temporal unit from there was sampled until the end of the set. During these selected time units they retrieved the following full segments: 1 and 2, 7 and 8, 14 and 15, and 19 and 20. These selected segments were tallied. In this example, the time intervals remain constant (30 minutes each), but notice how the number of segments vary between the time intervals. Using a systematic temporal-spatial design is especially useful in this scenario because you don't have to track the number of segments that go by before you start sampling. A systematic temporal-spatial design works well when a vessel deploys large sets made up of small segments.

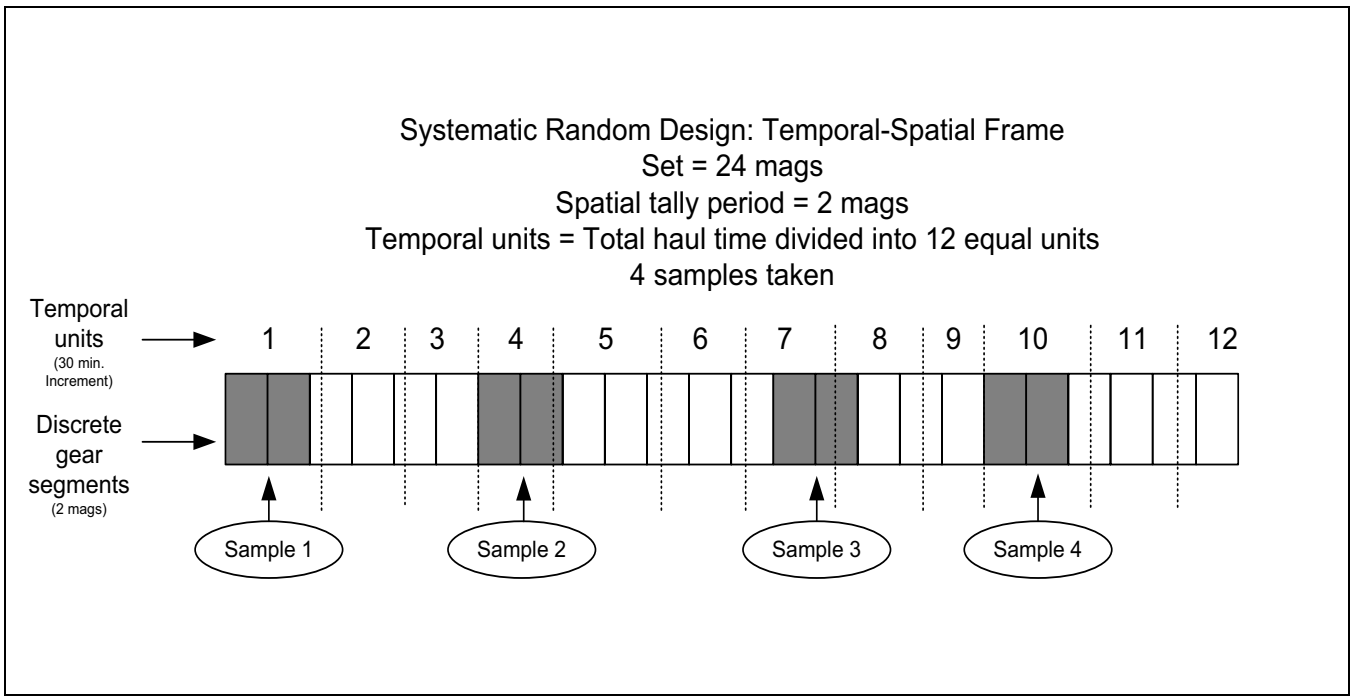

Figure 8-4: Systematic Random Sample Design from a Temporal-Spatial Frame

Addressing Challenging Sampling Situations

On rare occasions you may not be able to sample the entire originally chosen sample unit or be able to follow your intended sample design. If for any reason you abort or alter a sampling design during the sampling of a haul indicate this by marking the ***"Unable to Follow Design"*** field on your Deck Form for the sample or samples affected, and when you enter your data into ATLAS or transcribe to the Species Composition Form. Document the circumstances in your observer logbook (see "Documenting Design Constraints or Problems" on page 2-19). The sample design code and sample unit type you originally intended to sample must be recorded on the Observer Haul Form.

TALLY COMPOSITION SAMPLES

Tallying the species caught on the line is the most critical aspect of longline composition sampling. Tallying all organisms is required for all longliners regardless of the size of the vessel or the target fishery. During the longline tally period you count everything the vessel caught that you observe during the longline retrieval process. In this phase of sampling you obtain the ***number*** of organisms occurring in your sample. Resource managers determine the amount of fish caught by extrapolating tally data up to the entire set. If the organisms were not accurately tallied, the data are not accurate and the fisheries management process is negatively affected. ***It is imperative that you tally***

everything that comes up on the line during each of your tally sample periods! Your tally includes ***all items caught*** whether or not they were brought onboard.

Count everything that comes up on the line during each tally period including drop-offs, organisms that were "horned off" prior to coming on board, and miscellaneous items like invertebrates and trash!

It is important to note that it is unacceptable to adjust your tally data to match what was saved for you by the rollerman! There are instances where the rollerman collects more of a certain species than what you tallied. In this event, always use your tally number in the species composition.Record the number and weight of the given species that the rollerman collected for you in the subsample. For example, if you tallied 7 flathead, but 9 were encountered in your bycatch baskets, you would record 7 flathead with a weight of 0 in your species composition. The 9 flathead, and its associated weight, would be recorded in the subsample. Remember, ***your tally data is the raw data,*** and the data recorded in your species composition must always reflect that.

Method for Tallying Predominant Species

Most observers use thumb counters to tally the predominant species and use the blank space provided on the Deck Form to keep track of (tally) everything else. ***You must record the thumb counter tally number on the Deck Form when the sample is completed.*** If the gear is retrieved slowly, you may be able to tally empty hooks as well, but because you typically use an average hook value to calculate sampled hooks and total hooks, you don't really need to count empty hooks.

Species predominance will change depending on the area and depth fished. At the beginning of your trip, or when you travel to a new fishing area, ask the crew what species they believe will be predominant in the catch. You will gain experience guessing the predominant species as you spend more time on longliners. You can get an idea of the predominant species for the set during your first sample. It is important to identify the predominant species as this affects subsequent sampling decisions. However, because predominance can sometimes change be prepared to reassign thumb counters as appropriate to the tally the actual predominant species in the set.

Method for Tallying Non-Predominant Species

Non-predominant catch is also counted during the tally period, but it is not practical or even possible to have a thumb counter for every species that is caught. For each sample, use spaces provided on the Deck Form to keep track of these less abundant species (please see the figures containing composition data examples starting on page 8-31). Create columns or rows for every species or species group observed and make a tally mark in the appropriate space each time you observe that species. There are some rules pertaining to the level to which you can identify certain groups and species of fish on the line. These are discussed under "Species Identification Rules" on page 8-13.

Method for Tallying Drop-Offs of Retained Species

A vessel will retain various species depending on what markets they have developed. Often only the target species are retained, but vessels may also retain some or all of certain non-predominant or non-target species. Fisheries managers consider any fish that is caught on the longline to be removed from the resource. For this reason you must include any fish captured by the longline in your composition data, even if the fish drops off the line before reaching the vessel.

To track drop-offs of retained species, keep a separate tally of these fish on your Deck Form and be sure to include their number in your composition data. The Observer Program recommends that you record a single tally for each species (including drop-offs) with a separate tally for the number of this species that dropped off. Be sure that it is clearly indicated on your Deck Forms the total number of a species that were caught and the number of this species that dropped off.

Please see the Deck Form examples starting on page 8-32 for examples of how to record drop-offs on your Deck Forms.

Method for Tallying Halibut

Halibut are easy to differentiate on the line and can be tallied to species, but the method used for determining the weight of halibut in a sample is different from that for other species. The weight of a halibut in your sample is determined by applying a standard weight to that fish based on its estimated length. This means that you must estimate a length for every halibut in your tally period. Standard weights are obtained from the "Halibut Length to Weight Table" on page A-40.

In addition to being tallied, the length of halibut must be estimated. Unlike other species, weights of halibut in the tally period are derived from estimated lengths, not actual weights.

The species composition raw data examples at the end of this chapter show the commonly used technique for recording halibut data within your tally sample. In the example, a range of size categories are listed in 10 centimeter increments. As halibut are observed on the line, make a visual estimate of the length of each halibut and place a tick mark next to the appropriate size category.

The following suggestions will help you estimate the length of halibut:

- Measure the distance from the roller to weld marks on the side of the vessel or the waterline, if weather permits.
- Measure the distance between the gangions on the groundline and measure the length of the gangions themselves. On most longline vessels, the distance between the gangions and the lengths of the gangions are consistent. Under normal operations, you will be able to see the fish being pulled by the groundline and gangion. Estimate the length of the halibut, in reference to the length of the groundline between the gangions, or the length of the gangion itself.
- Use the length of the gaff or the pole gaff to compare to the lengths of the halibut.
- Pre-measure the length of the longline trough. Some halibut will be brought on board either to be retained or by accident. Having several marked measurements in the trough will allow you to quickly estimate length of the landed halibut.

All methods and reference marks used to estimate halibut lengths must be documented in the vessel diagram and Daily Notes sections of your logbook.

Test and refine your halibut length estimates. Practice visually estimating halibut landed for injury assessments before you obtain their actual length. Calibrate yourself by comparing your estimates to the actual measurements. With experience, you will become proficient at estimating halibut measurements and knowing which methods work for you in different situations.

After sampling a set, use the length to weight table on page A-40 to determine the proper weight of estimated length groupings. Multiply the number of halibut for each length by the weight on the table. Sum the weights for all sizes to obtain the total weight of halibut in your tally sample. The weight you obtain using this method is reported in the tally sample data. Refer to the figures at the end of this chapter to see examples.

Method for Tallying Predated Items

Whale predation is the most common form of marine mammal feeding interaction observed in the North Pacific. Orcas and sperm whales have been observed feeding on catch from longline gear in both the Bering Sea and Gulf of Alaska.

Sometimes, marine mammal predation is evidenced by hooks with fish lips or partial body parts remaining from the original whole fish. It is important that you tally these items, because they represent fish that were caught. True, they were not utilized by humans, but they were caught by the line none the less! Other signs of whale predation include 1) raked carcasses and/or 2) whales diving on the longline. For a more detailed explanation on marine mammals feeding on the catch see page 14-3.

To the best of your ability determine what species the lips or other remaining parts belonged to. Make tally marks for a pair of lips or other body part as you would a whole fish. Typically, whales are interested in turbot and sablefish so if your vessel is fishing for one of these species left over parts from predation likely belong to individuals from one of these species. Include the tally number for predated items with the rest of the tally data reported for the species. If you are unable to identify a fish to species or group using just the head or lips left on the line include these animals as “unidentified fish” in your tally sample.

When marine mammal predation occurs this should be documented in your logbook on a set by set basis.

Important issues to address are:

- How many marine mammals did you see around the line and what were the behaviors you witnessed?
- How much of your tally sample was made up of gear containing "preyed upon" fish?
- What is your estimate of how much of the total line had predation (*i.e.*, were whales feeding from the line only before, during or after your tally or were they consistently feeding throughout the line)?
- How egregious was the predation (*i.e.*, were whales taking only a few fish, were lots of heads left on the line for you to tally or was the line just empty, etc.)?
- How do you feel about the data you collected? Do you feel that it closely represented the true catch, or did the predation severely affect the composition?

All marine mammal interactions must be documented on the Marine Mammal Interaction and Specimen Form; see "Marine Mammal Interactions" on page 14-2. Mammal predation should be recorded using the appropriate gear performance code on the Vessel Haul Form; see "Gear Performance" on page 7-15.

Method for Tallying Fish Consumed by Sandfleas

Sandflea predation is common with fish caught by longline gear. ***Fish that have suffered from sandflea predation must be tallied to species or appropriate group code along with all fish of that species.*** Halibut lengths may still be estimated. Do not include fish with major sandflea predation in your weight samples as the weight of the fish may be altered by the predation.

Method for Tallying Pieces of Miscellaneous Items

The database does not accept decimal values for number of individuals. For this reason, observers must use the nearest whole number appropriate for fish and/or invertebrate pieces.

With the exception of predated or sandflead items, observers infrequently may encounter pieces of items on a longline. On the rare occasion that you do encounter a partial organism, tally it as one animal. For example, if one king crab claw comes up during the tally period, report this item as "1" in the number field.

Check the functionality of your thumb counters daily and oil your thumb counters on a regular basis.

SPECIES IDENTIFICATION RULES

Ideally, you could collect all bycatch organisms from within the tally session. With space on longliners often limited and numbers of fish potentially high, it is more often the case that a small portion of tallied bycatch is collected. This means there will be many organisms that you never get to see up close and in hand.

Many species are quite distinguishable from others. Once you become familiar with them, they can be tallied and identified on the line to species with minimal difficulty. Not having the fish in hand is only a problem for those groups of species that are too morphologically similar to be reliably identified on the line. These individuals must be accounted for in a very specific way.

For these fish, you will tally individuals at the appropriate group code while collecting a subset for identification to species. For individuals tallied at the group code level, you may identify to species only those you have in hand. This process will be necessary for such morphologically similar fish as arrowtooth and Kamchatka flounder (arrowtooth/Kamchatka group), northern and southern rocksole (rocksole unidentified group), shortraker and rougheye rockfish (shortraker/rougheye group), Bairdi and Opilio Tanner crabs (Unidentified Tanner crabs group), red, blue and brown king crab (unidentified king crab group), certain sculpin species, and the Bathyraja skates.

You should strive to identify organisms to the most accurate category possible ***or allowable***. There may be occasions when you need to identify some flatfish as just "flatfish unidentified," and some roundfish as just "roundfish unidentified." ***If you use fish unidentified (901), flatfish unidentified (100), rockfish unidentified (300), or roundfish unidentified (200), please contact NMFS!***

Tallying Miscellaneous Invertebrates and Items
Observers are expected to tally everything they see during their tally sample periods, even non-prohibited miscellaneous invertebrates, rocks, and trash! Tally miscellaneous invertebrates to group code or to species as appropriate. Reference your species identification guide(s) to determine the levels to which the observer program expects miscellaneous invertebrates to be identified.

Tallying the Raja and Bathyraja Skates
The two Raja skate species you may encounter are relatively easy to differentiate from each other and the Bathyraja group. Because of this, the Observer Program allows observers to tally the Raja skates to species on the line. The two Raja skates you can tally to species are:

- ***Longnose skate***
- ***Big skate***

If you are unable to differentiate longnose skates from big skates on the line, use the category ***stiff snout skate*** (*Raja spp.*, code 167) for these animals.

All the other skate species you will see fall into the Bathyraja (soft snout skate) group. The Observer Program does not allow observers to identify Bathyraja skates further to species without the skate in hand. ***This means that you cannot differentiate to species those Bathyraja skates during your tally period that were not collected.*** Use the Bathyraja spp. code (code 159) for any Bathyraja skates not identified to species in hand.

If you are unable to differentiate Bathyraja skates from Raja skates on the line, then you must use the skate unidentified code (code 90) for all tallied skates. Contact your inseason advisor as soon as possible about this problem. If you do not have an inseason advisor, contact FMA field staff as soon as possible.

During the tally period, collect as many Bathyraja skates as you can. If space is limited, try to get at least 15 total for the set (*e.g.*, if three samples taken, five per sample).

Tallying Sculpins
There is one sculpin species and two sculpin species group that can be identified on the line while tallying. They are:

- ***Bigmouth sculpin***
- ***Irish Lord unidentified***
- ***Myoxocephalus unidentified***

If the sculpin that you are seeing during the tally period do not fall into either of these categories, you must tally them as ***sculpin unidentified*** (*Cottidae spp.*). Specimens that you collected during your tally periods can be identified further to species when you have them in hand.

During the tally period, collect as many sculpin from the major groups (Irish Lord, bigmouth and sculpin unidentified) as you can. If space is limited, try to get at least 15 total for the set (*e.g.*, if three samples, five per sample).

Tallying the Kamchatka/Arrowtooth Flounder Complex
Kamchatka and Arrowtooth flounder are too similar in appearance to be tallied to species on the line. For this group, individuals in the tally sample period are tallied as code 149 or “Kamchatka/Arrowtooth.” Specimens that you collected during your tally periods can be identified further to species when you have them in hand.

During the tally period, collect as many individuals from the Kamchatka/Arrowtooth group as you can. If space is limited, try to get at least 15 total for the set (*e.g.*, if three samples, five per sample).

Tallying the Northern/Southern Rocksole Complex
Northern and southern rocksole are too similar in appearance to be tallied to species on the line. For this group, individuals in the tally sample period are tallied as code 104 or “rocksole unidentified.” Specimens that you collected during your tally periods can be identified further to species when you have them in hand.

During the tally period, collect as many individuals as you can from the rocksole unidentified group. If space is limited, try to get at least 15 total for the set (*e.g.*, if three samples, five per sample).

Tallying the Tanner Crab and King Crab Complex
Individuals within the Tanner crab group and king crab group are too similar in appearance to be tallied to species on the line. For these two groupings, individuals in the tally sample period are tallied by their respective group - either code 3 for "Tanner Crab unidentified" or code 2 for "King Crab unidentified." Specimens that you collected during your tally periods can be identified further to species when you have them in hand.

During the tally period, collect as many individuals from the Tanner and king crab unidentified group as you can. If the number of crabs is high and space is limited, try to get at least 15 total for the set (*e.g.* if three samples, five per sample). Note that you document weight for whole crab only (see "Dealing with Whole Crab Versus Crab Pieces" on page 8-17).

Tallying the Shortraker /Rougheye Rockfish Complex
Shortraker and rougheye rockfish are common bycatch species in the Pacific cod, Pacific halibut and sablefish fisheries. Currently, the Sustainable Fisheries Division of NMFS Alaska Region manages these rockfish as a single species group. There is growing concern that these species may not have similar life histories. If these fish do have significantly different life histories, the agency needs to manage them separately.

To determine whether these species in fact have differing life histories, observers are asked to take the following additional information on shortraker and rougheye species:

- Randomly collect 30-40 big red rockfish ***per haul from within your tally sample***.
- Identify these fish in hand to species.
- Weigh these fish by species and report them in your longline sample along with any other fish collected for the sample.
- Collect otoliths according to the priority lists starting on page 13-32.

You may choose to collect sex/length and otolith data from additional individuals outside your tally sample periods. If you do so, these data must be reported as subsample data.

Bycatch of shortraker and rougheye rockfish is often high on sablefish vessels, and you should be able to collect 30-40 fish from within your samples on many sampled sets.

Specimens that you collected during your tally periods can be taken further to species when you have them in hand.

Tallying Other Similar Species
The following species can be confused with other similar species, but fortunately their look-alikes are rare and do not occur with nearly the same frequency. You are allowed to take the fish in the list below to species during the tally period. You are asked to spot check your weight samples of these fish for the more rare, similar species.

- ***Flathead sole*** - spot check for petrale sole and Bering flounder
- ***Shortspine thornyhead*** - spot check for longspine thornyhead.
- ***Giant grenadier*** - spot check for grenadier unidentified.

During the tally period, collect as many individuals from each group tallied as you can. If space is limited, try to get at least 15 total per species for the set (*e.g.*, if three samples, five per sample).

IF these individuals *are the predominant species.* you must collect *60 total fish* for your weight samples for the set.

If you do not get any of the similar species in a weight sample, you can continue to tally these fish as the more common species. If you ***do*** get one of the more rare similar species in a weight sample, you must do the following:

- Flathead/Bering/petrale: Collect as many individuals as you can during the tally period to identify in hand later. ***Despite the fact that you are seeing the more rare species, continue to tally this group as flathead. Contact your inseason advisor or field staff if you are seeing Bering flounder and/or petrale sole. Let them know that you are tallying these as flathead.*** Report to species those individuals you had in hand.

- Shortspine/longspine thornyheads: Tally at the group level - Thornyhead Rockfish Unidentified, code 349. Report to species only those individuals identified in hand.
- Giant grenadier/other grenadier: Tally these as grenadier unidentified, code 80. Report to species only those giant grenadiers identified in hand.

Tallying Seabirds

All seabirds encountered on the line during your tally period must be tallied, regardless of whether they are dead or alive. This means that you tally seabirds caught on the surface, as the gear was retrieved, as well as those that were caught as the gear was deployed (*i.e.* that are dead). ***NMFS requires the crew to retain all seabirds retrieved during an observer's tally period for the purposes of species identification. Remind the rollerman to keep any seabirds during the tally period.*** Tally any seabirds not landed only to the level you feel confident. Keep in mind that you will have to verbally describe at your debriefing any seabirds taken to species on the line!

If the crew is not keeping seabirds for you, inform the captain and NMFS of this problem. For detailed duties regarding seabirds, see "BIRD SIGHTINGS AND INTERACTIONS" on page 16-1.

WEIGHT SAMPLES

Typically, observers collect weight samples for ***non-predominant species*** from within the tally period and weight samples for ***predominant*** species from outside the tally period. You can get an idea of the predominant species for the set during your first sample. You use non-tally times to weigh those organisms the rollerman collected for you during the tally sample or those organisms you collected outside the tally sample. For this reason, the non-tally subsample periods are often referred to as the "weigh periods."

Weigh the collected organisms by species. For organisms tallied at the group level, it is important that you identify the weight representatives from these groups to species. The weight and number information you report for these species allows resource managers to determine the proportion of one species to the other in the group level tally data.

Do not weigh partial or predated fish as part of your weight sample. *Weigh only whole fish*!

Generally you will use some container (*e.g.* a basket) to weigh your fish. ***Remember to tare the scale for this container!*** Check your tare frequently and tare every time you change containers! If your scale is not properly tared your weights will not be accurate. For more information see "Taring Your Scales" on page 2-24.

Weight Samples from Inside the Tally

On a longliner you will most likely not be able to weigh every individual that you tally. You will have to collect a subset sample for number and weight. During the tally period, ask the rollerman to retain representatives of the species or species groups you are tallying. On some vessels, the rollerman can collect a few representatives of the more prolific species and most of the uncommon species seen. You will weigh and count these individuals during the non-tally period. These subset samples allow resource managers to determine the average weight of a given species by extrapolating the weight data you collect. ***For this reason, it is very important to collect weight data!*** For large longnose skates and big skates, you can use the length/weight table ("Skate Length to Weight Table" on page A-39) to provide a weight in the species composition data if you recorded an actual length. Do not use the length to weight tables for estimated lengths.

Following are guidelines for how many individuals you must collect for weights. Weighed fish from within the tally period are recorded as ***sample*** data.

Even though you think the rollerman is doing an excellent job of collecting fish, *you must always tally everything,* because some fish may be displaced by the rollerman or lost before they can be weighed by you.

Non-Predominant Species Weight Samples

For non-predominant species it is preferred that you collect all individuals from within your tally period. In this way, you are providing NMFS with an actual weight for organisms tallied. To collect bycatch species while you are tallying, you must ask the rollerman to retain these species. ***Do not adjust your tally data to match what the rollerman saved for you.*** If you

encounter more of a species than what you tallied in your bycatch baskets see "Tally Composition Samples" on page 8-10 on how to report this in your species composition.

In many situations you will not be able to collect *all* tallied bycatch. When this is the case, collect ***as many as you can of each species from every sample***. You must collect at least 15 individuals of a given species per sampled haul. It is preferred that you parse this collection equally over your samples for the haul. If you cannot do so, randomly choose one sample from which to take your 15 (at least) individuals.

Always collect weight samples for any fish for which you are using group codes. Your weighed fish should be keyed to species if collected from inside your tally. All the rest of the tallied fish are recorded in the sample data under the group code.

Determining Halibut Weight in Samples

Halibut are often too large to fit on a scale to obtain an actual weight. Very large halibut may not be brought on board the vessels at all. Vessels are expected to follow careful release methods for halibut (see "Careful Release Methods for Halibut" on page 8-19). For these reasons, observers typically do not collect halibut during the tally period. The International Pacific Halibut Commission (IPHC) has generated a halibut length to weight table (see page A-40) which lists an approximate weight of halibut by its fork length measurement (in centimeters). You are expected to tally halibut by estimated length and later apply a weight from this table to the tallied halibut. The data examples at the end of this chapter show the commonly used technique of recording halibut data within your tally sample and documentation protocol for generating a weight for this species.

Dealing with Whole Crab Versus Crab Pieces

Document weight data for whole crab only. For our purposes, a crab is considered whole if it is essentially whole by weight. It is not necessary for a crab to be intact to be considered whole.

If a crab leg(s) is attached to a hook in your tally period it should be counted as an individual. However, a weight should not be recorded as there are not sufficient parts to determine an appropriate weight. Crab legs can potentially be identified to king crab unidentified or tanner crab unidentified. If you are uncertain of the identification, list the crab leg(s) as crab unidentified with a weight of 0.

If you find that a crab in your subset weight sample that was once whole is now broken and missing a majority of its weight, you may be able to determine the species but ***you must not report the weight of these parts.*** Weights that do not represent whole crab are inaccurate from the data user's perspective and negatively impact weight to number relationships otherwise provided by the data.

In summary:

- Tally all crab on the line to the appropriate code.
- Identify all whole crabs in hand to species and report their number and weight.
- Identify crab parts to the best of your ability. Carapaces should be identified to species and legs can usually be identified to the most appropriate genus group code. Do not report the weight of these parts.

Weight Subsamples from Outside the Tally

Weighed samples from outside the tally period are recorded as ***subsample*** data. Subsample data must have weight ***and*** number entries for each species in that subsample.

Predominant Species Weight Subsamples

By definition, the predominant species comprise more of the catch than the non-predominant species. The fisheries are managed by weight, so it is important to get accurate estimates for weight. The more individuals of a species that you weigh, the closer the average weight estimate is to the true weight. For this reason, you must collect weight data from more individuals of the predominant species than you do from non-predominant species. You are asked to collect weight data from about 60 total individuals of the predominant species per sampled haul. Try to collect the same number of fish for each of your samples (*e.g.*, if you intend to take four samples for the set, collect 15 predominant fish for weights from each sample).

Do not confuse predominant species with target species. For example, your vessel may be targeting sablefish, but if they are catching more grenadier than sablefish, you should be collecting average weight data for 60 grenadier.

Typically, observers collect predominant species weight samples from *outside* the tally sample. This is because there is usually not enough space to collect and store these fish during the tally sample.

Collect about 60 fish from the predominant species and weigh them. Spread this collection out over the samples taken and collect approximately equal numbers of fish from each sample. Typically, weighed samples of the predominant species are collected outside the tally period.

If you are collecting fish from outside your tally sample, try to do so right before or right after that sample period. This allows statisticians and management to regard these fish as being from the same population as the tally period fish. Fish collected and weighed from outside a tally sample are reported as subsample data. The sample most closely associated with these data is the parent sample to that subsample.

Lengths and specimens collected from your subsample should be recorded on your Length and Specimen Form with a sample design code 9 - "Other Random." See "Sample Design" on page 13-21 for more details.

In the database, a subsample must be linked to its parent sample. To accommodate this, there is a numbering convention designed specifically for subsamples. This subsampling numbering convention is discussed on page 8-25.

Be sure to account for the biases discussed earlier in this section. If the weight data is skewed because you are only getting big fish or small fish, crucial management decisions are being based on faulty, inaccurate information. This can be harmful to the fishery!

When Halibut is the Predominant Species

It is preferred that halibut weight be obtained by applying weight values from the length/weight table to the estimated lengths of all tallied halibut (see "Method for Tallying Halibut" on page 8-11). When halibut are the predominant species (*e.g.*, on vessels fishing IFQ halibut) it may be difficult to keep up with a tally by estimated lengths. If you are unable to estimate the length of each halibut in your tally, there is an alternate, less preferred method of obtaining weight data for these halibut. This method requires that you tally all halibut from within your sample and actually weigh a randomly selected group of individuals, just as you do for all other species.

You should only use this less preferred option if you are catching a great deal of halibut or if you are unable to accurately estimate the length of the halibut caught. Management still needs to calculate the total weight of halibut caught, so you absolutely must tally all the halibut in your samples! If you decide to use a weight collection, you will need to randomly collect at least 7-10 halibut per sample (or 20 - 30 halibut per set). Collect these individuals during a non-tally sample unit that is as close, spatially, to a sampled unit as possible. This unit can either be before or after the tally period. ***Report the number and actual weight of these halibut as subsample data because they were collected outside your sample. Report the number of halibut tallied as sample data with a zero entry for weight.***

For those halibut that are far too large to weigh, you may measure the halibut and use this length with the halibut length to weight table to get their weight.

MANAGING WEIGHT VS. TALLY DATA

Fisheries managers determine how many individuals were caught, and in what proportions, from the ***number*** you supply for fish seen during your ***tally sample.*** They determine the relative weight of these caught individuals, and the species of those organisms tallied at the group level, from your ***weight data***.

Management decisions are based on the value you supply for number of fish caught during a sample. The total number of fish you report in your sample data for a haul should be the same as the total number of fish you ***tallied*** for that haul. Because you report weight data together with tally data for any given sample, ***for sample data only, you must subtract any weighed fish of a species or species group from the tally number for that species or species group.*** If you do not do this, you are essentially reporting a number that represents tally data ***plus*** weight data!

You ***do not*** subtract subsample fish from the tallied number of that fish!

See the figures at the end of this chapter for examples of how to document composition tally data (with no weight) and weight data.

COMBINED SAMPLES

The ***only*** time you combine sample data on a longliner is when you are unable to distinguish the tally data of one sample from another. This would be the case if, for example, you tallied one sample, did not write down the tally numbers for that sample and forgot to reset your clickers for the next sample. The data in this case are still viable, because you have the number of fish caught over a known quantity of gear. To salvage these data, you combine data from the affected samples.

By combining samples into one in the reported data, you are alerting data users to regard these samples separately from intact samples. As with trawlers, you can have a mixture of combined and non-combined samples for a set. You combine only those samples you believe are no longer discrete samples.

On the raw data Deck Form, mark the samples that will be rolled together as combined by checking the circle next to "Combined" for those samples. The combined samples are reported as one sample in ATLAS or faxed paper form. When reporting combined samples, enter the data for all the samples affected under a single sample number.

You do not combine samples when fish collected for weights are mixed between samples. If this happens, report all your weight fish as a subsample to one or the other distinct samples within the haul.

WHEN THERE ARE NO FISH ENCOUNTERED DURING THE SAMPLE

On rare occasions you will monitor a haul and there will be no fish on the line. Fisheries managers assess catch per unit effort and data revealing that there were no fish in a sample are just as important as data that relay what and how much fish were present in the catch.

To report those instances when there were no fish encountered during a sample, record the following on the raw data Deck Form (and Species Composition Form if applicable): the date of the haul, your cruise number, vessel permit, sample number, total number of segments, and keypunch values of zero. Check the "No Fish in Sample" box on the Deck Form (and on the Species Composition Form if required). Finally, write "NO FISH" across the body of the sample block.

In ATLAS you simply enter an "N" in the "Species Comp in sample?" box. Please refer to the figures at the end of this chapter for documentation examples and page 18-10 of the ATLAS chapter for information on how to enter these data.

HALIBUT INJURY ASSESSMENTS

The IPHC manages the Pacific halibut fishery and sets the total allowable catch of halibut for both the United States and Canada. Accurate accounting of halibut mortality is necessary for the IPHC to assess the health of the halibut stock and determine future allocations. Halibut are a prohibited species in the groundfish fisheries and must be released with minimal harm to the animal (unless the vessel has IFQ). Unlike groundfish, where mortality is assumed to be equal to catch, many halibut survive even after being caught by commercial gear. Halibut mortality can potentially close groundfish fisheries if it is exceeded before the target species quotas. The IPHC applies rates of halibut mortality derived from observer data to estimate total halibut mortality. The halibut mortality data in the longline fishery come from halibut injury assessment data collected by observers. Injury assessments are evaluations of injuries received by individual halibut incidentally caught on the longline.

Halibut for injury assessments are collected during a randomly chosen non-tally segment. Assessments are made on halibut in hand and using the Key to Longline Injury Codes for Pacific Halibut (see page A-49). Refer to "Halibut Injury Assessments on Longliners" on page 12-7 for more information on injury assessment methods and recording these data.

Careful Release Methods for Halibut

Longline vessels are able to reduce their overall halibut mortality and extend their fishery by carefully releasing halibut. Careful release methods for halibut are simplified by the fact that circle hooks are the most

commonly used hook. These hooks almost always hook halibut with the bend of the hook encircling the corner of the jaw, usually on the blind side of the fish. While circle hooks can result in very serious injuries if the hook is ripped out of the fish's mouth, they facilitate a few careful release methods which cause little or no further damage to the fish.

The following describes NMFS' careful release regulations for Pacific halibut. The rollermen may use any of these methods, or a combination thereof.

- **Cut the gangion** - The rollerman cuts the line attaching the hook to the groundline.
- **Careful shaking/twist-and-shake/ hook twist method** - The rollerman slides the curved end of the gaff hook down the gangion (the line connecting the hook to the mainline) to the hook, engaging the bend of the hook on the curve of the gaff. He maintains tension on the gangion, lifts the end of the gaff and twists it, rolling the hook so that the fish is hanging down on the point of the hook and the hook is supported above the location where the fish is pierced. He gently shakes the gaff to make the fish fall off the hook.
- **Hook Straightening** - The rollerman slides the curved end of the gaff down the gangion to engage the bend of the hook on the curve of the gaff. As the gangion is drawn up and past the roller, he brings the gaff against the outside of the roller. Holding the gaff firmly, the hook will straighten against the curve of the gaff, pull out of the jaw of the fish and straighten. This technique is only possible with the smaller hooks more common in cod and sablefish fisheries.

Careful shaking/twist-and-shake/hook twisting and hook straightening are learned techniques that work very well when performed properly. Shaking can be done just about as easily inboard and over the rail, so landing a fish for you should not be a problem. Many vessels use the hook straightening technique although it is more difficult for the rollerman to land the halibut inboard. If your vessel uses hook straightening work with the captain and the crew to find a method for these halibut to be brought onboard for you. Some vessels will station a second crewman near the roller during your sample collection to net or gaff the halibut aboard after it falls from the hook.

One of your duties is to assess the way halibut are handled on your vessel. Document the following in your logbook:

- The methods that each rollerman uses to release halibut and the effectiveness of this method in minimizing injuries to halibut.
- Any time that a halibut hits the crucifier. Document the rollerman's name, the time and date, and any circumstances surrounding the incident. Inform the captain any time you witness halibut hitting the crucifier.
- Whether or not the captain and crew are cooperative with your sampling efforts.

If the rollermen are not utilizing careful release methods, document this thoroughly in your logbook and tell the captain what you are seeing. Document all conversations with the captain on the subject and note if the captain is aware that the halibut are being released improperly. Document whether there is a general disregard of careful release methods or if it is just a particularly careless or inexperienced rollerman. Bring all of these issues to the attention of the FMA staff as soon as possible.

SEABIRDS

Longline vessels attract significant numbers of seabirds which feed on the fish discards. Seabirds near the vessel may become hooked by the gear during gear retrieval. Seabirds may attempt to feed on the baited hooks as the gear is being set. They are often hooked or snagged and dragged down with the gear and drowned. Regardless of when a seabird is hooked, all are considered "caught" and must be included in the species composition sample. Longline vessels over 55 feet LOA are required to use streamer line seabird deterrent devices to reduce the possibility of catching seabirds. Refer to "Seabird Avoidance Initiatives" on page 16-5 for more information.

You are encouraged to notify the captain if you observe short-tailed albatross around the vessel. Based on this information, the captain may decide to take alternative or extra measures to reduce the likelihood of interacting with this endangered species. For information on observer duties in regards to seabirds, see "BIRD SIGHTINGS AND INTERACTIONS" on page 16-1.

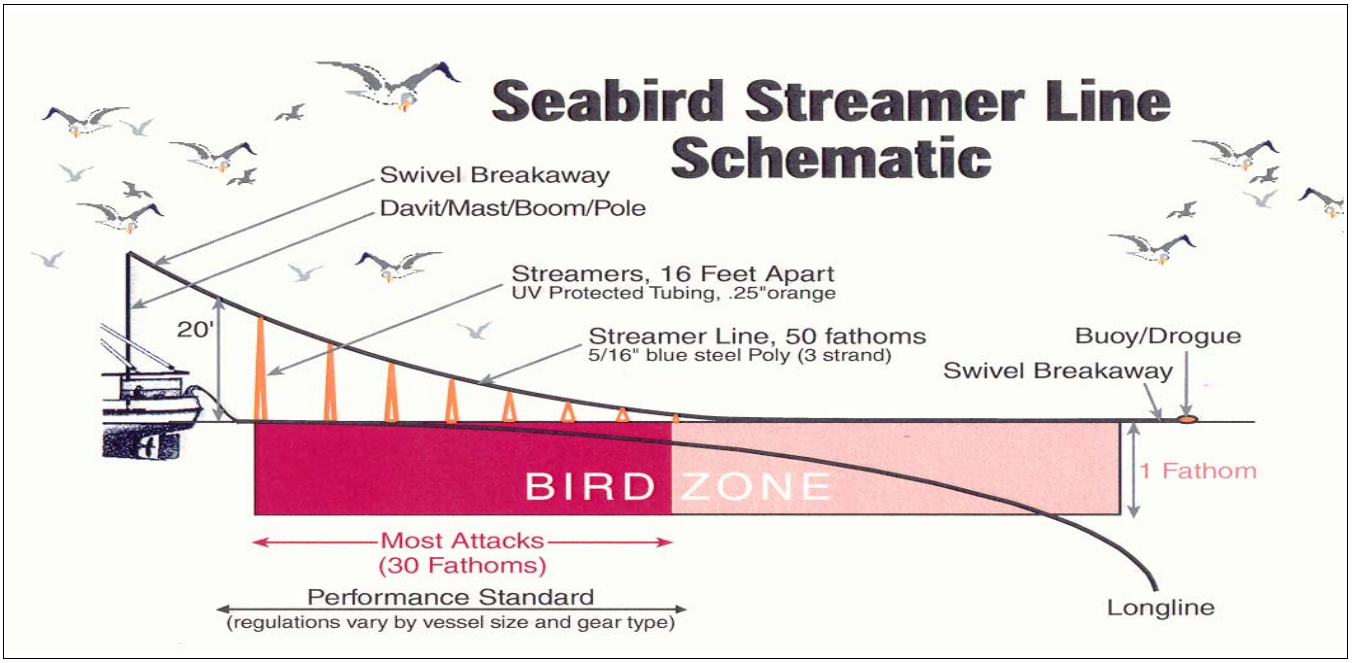

Figure 8-5: Seabird Steamer Line Schematic

ESTIMATING PERCENT RETAINED

Each species reported in the species composition samples for a set must have an associated estimation of percent retained. To obtain this information you must keep a separate tally of all drop-offs or retained species discarded at the rail (*e.g.*, sandflead fish). ***If you notice retained species being discarded in the factory, do not include them in the percent retained estimation.*** They are accounted for in the estimate of discards; see "Estimating Discards" on page 7-12.

The separate count for drop-offs and retained species discarded at the rail is used to determine the percent retained for the species. For species not retained for consumption or product, you do not need a separate tally for drop-offs and discards because the percent retained for these species is zero. An individual fish is considered fully retained (100% retained) when more than 15% of its round weight is turned into product. Round weight is the weight of the whole fish, prior to processing.

The percent retained you report for a species must be consistent for that species over all the samples collected during the set. For this reason, calculate percent retained after the set is completed.

It is best to calculate percent retained after the set is completed. You can calculate percent retained using the total tally number for the species and the total number of that species lost or discarded at the rail during the tally sample periods. Refer to all the samples collected from the set for this information.

$$\frac{\text{Total number of species caught from all samples} - \text{Total number of drop-offs and discards from all samples}}{\text{Total number of species caught from all samples}} \times 100 = \text{Total percent retained of that species}$$

Every species reported in a sample must have a percent retained record. For examples of recording percent retained, see the species composition data examples at the end of this chapter.

SPECIMEN COLLECTION ON LONGLINERS

Your duties for collecting measurements and other biological data on longline assignments are the same as for all other vessels. On longliners, these may be hindered by lack of space or lack of cooperation from crews. Lack of space can be a problem on smaller catcher vessels. ***It is preferred that you collect fish for your predominant species length and specimen data during your subsample.*** You may be able to collect the required amount of species measurement and specimen data by collecting a small random number of fish from each sample, rather than all from just one randomly chosen sample. The Deck Form examples at the end of this chapter show data collected in this way. If space and time are not an issue, you can randomly choose one sample from which to take measurement and specimen data. For more information on length and specimen data, refer to "FISH MEASUREMENT AND SPECIMEN COLLECTION" beginning on page 13-1. ***Remember, lengths and specimens collected during your longline subsample should be given sample design code 9 - "Other Random."***

If you are unable to collect measurements or specimens because of space constraints, contact NMFS as soon as possible. In your logbook, document any difficulties encountered and the methods you used.

Specimen Data and Uncooperative Crews

In the past, some longline crews have refused to allow observers to cut the fish as needed to obtain sexed length frequency data. In your logbook, document any interference to your collection of sexed length frequency measurements and contact an Observer Program staff person as soon as possible.

If you encounter difficulties, seek the cooperation of the captain in completing your duties. Vessel crew are required to allow you to determine the sex of fish and we are seeking their cooperation. Be mindful that the crew may only protest to your cutting of fish if the cut damages their final product. If this is the case, ask them which cuts would not damage the product. Many observers have successfully used a pectoral cut to sex roundfish, without destroying product. If the cut you need to use is time consuming or difficult, request crew assistance. Most fishermen are cooperative when they realize the extra time you are taking is to prevent damage to their product.

If the crew continues to be uncooperative, ask the captain if it would be acceptable to cut only a subsample of your measured fish. Request that you be allowed to cut 10 or 15 fish from your approximately 20 measured fish. If you do sex fewer fish than you measure, the sexed subset must be randomly selected. Unsexed data is more valuable than no length data, so if the captain is adamant that no fish are cut, you should collect unsexed length frequency samples. Fully document in your logbook all interactions with the crew and all methods you used to collect lengths. Please see "Regulatory Support for Cutting Fish to Obtain Sex Data" on page 13-16 for more information.

CATCHER PROCESSOR (C/P) MONITORING OPTIONS

Longline C/Ps that are members of the Freezer Longline Conservation Cooperative (FLCC), have 2 monitoring options when they are endorsed to catch and process Pacific cod in the BSAI.

- Option 1: Carry two observers at all times and have a certified sample station, or
- Option 2: Carry one observer at all times, have a certified sample station, and a flow scale with a video monitoring system. Under this option, the video monitoring system is used to ensure all P. cod brought on board are weighed on the flow scale.

Flow scales are used differently on trawlers and longliners. On trawlers, the entire catch must be weighed on the flow scale. On longliners, only P. cod is weighed on the flow scale.

The selected monitoring option is required to be used when the vessel is operating in the BSAI or GOA groundfish fisheries when directed fishing for Pacific cod is open in the BSAI, or while the vessel is fishing for groundfish under the Western Alaska Community Development Quota (CDQ) Program. The observer duties outlined below depend on which monitoring option your vessel chooses. Contact your inseason advisor if you have any questions.

Vessels with Two Observers:

1. All hauls must be sampled. If a haul is not sampled, document the circumstances in your logbook and contact your inseason advisor.

Vessels with One Observer:

1. Sample according to the RST or RBT.

2. Witness the daily flow scale test. ***This requires working closely with the vessel to ensure this is done when you are awake.*** Contact your inseason advisor if you are having problems scheduling the daily flow scale test. See "Flow Scale Testing" on page 2-26.

3. Document any problems with the flow scale or video monitoring system. The observer is ***not responsible*** for testing or making sure the flow scale or video monitoring system is working. This is strictly between the vessel and NMFS Regional Office. Your job is to simply document if the systems are not functioning (*e*.g., the video screen is blank or the flow scale is continuously faulting).

INDIVIDUAL FISHING QUOTA (IFQ)

In 1993, the North Pacific Fisheries Management Council and the Secretary of Commerce approved the Individual Fishing Quota (IFQ) program for the halibut and sablefish fisheries. This policy changed these fisheries from an open access fishery with a very short season to a limited entry fishery managed through an individual quota assigned to each fisherman. The individual quotas are allocated to fishermen that have historically been involved with either the sablefish or halibut fisheries. The individual shares of the quota can be sold or transferred to different individuals and companies. The IFQ system allows fishermen to fish for their individual quota throughout the fishing season when prices are high or as the weather permits.

Vessels and Gear

Typically, the vessels that fish sablefish and halibut IFQs are smaller vessels, although some larger C/Ps also participate in this fishery. When targeting sablefish, the vessels typically set gear much deeper and retrieve the gear at a slower pace compared to Pacific cod or Greenland turbot fisheries. When targeting halibut, the vessels set their gear in areas that are shallower, but halibut gear tends to have fewer hooks spread farther apart, so the rate of hook retrieval will be equivalent or even slower than sablefish retrievals.

Composition Sampling

Sets targeting halibut must be sampled for species composition. The methods of choosing which sets to sample and which sampling methods to use are the same as those discussed earlier in this chapter. Follow normal sampling procedures for tally and weighing periods to collect your composition samples. IFQ vessels tend to be less automated and gear retrieval is slower. On some IFQ vessels, observers have been able to weigh all non-predominant species from the tally period. Obtain average hook counts in the same manner as in the non-IFQ fisheries. Because the gear is maintained by hand and may not be repaired as diligently, you may need to verify hook counts more often. ***Remember, you must verify hook counts on at least 1/5 of a set of gear twice per week***.

When Halibut is the Predominant Species

Your sampling will change slightly when halibut is the predominant species. The following are the sampling protocols that change:

Weight Collection

Because of their size, halibut present a problem for observers when they are the predominant species on an IFQ vessel. When observing on halibut IFQ vessels, you will need to account for halibut on the line.

There are two accepted methods to record halibut during IFQ fishing. The methods described below may not be combined:

1. You may record halibut by estimating and recording the length of each halibut to the nearest 10 centimeters. Use the halibut length/weight table and apply and sum the weights (use "Halibut Length to Weight Table" on page A-40).

2. You may record halibut by tallying all halibut in your tally sample and collecting and recording a weight sample of at least 20 randomly collected halibut per set. To randomly collect 20 halibut weights per set, use a random starting point and either collect the next "X" number of halibut or every "Nth" halibut. For those halibut far too large to weigh, you may mea-

sure them and use their length and apply it to the length to weight table to get their weight. ***When collecting 20 fish for an average weight you must have the fish in hand (do not use estimated lengths).***

If you begin with method 1 and decide to abandon it for method 2, use the weight data collected for method 2 only.

Sex/Length Frequency and Specimen Collections
In the IFQ fishery, collect approximately 20 randomly selected halibut lengths per day. Retained halibut are entered with an injury assessment of "9-unknown." Halibut collected for sex/lengths and not retained by the vessel must be assessed for injury. Record halibut sex/lengths with the appropriate sample design codes (see "Sample Design" on page 13-21). When halibut is the predominant species you will need to collect additional sex /lengths and specimens from species listed on the priority list in the supplemental information provided to you by FMA.

Halibut Injury Assessments
When assigned to an IFQ vessel, collect injury assessments on halibut collected for sex/lengths and not retained by the vessel (see "Halibut Injury Assessments" on page 8-19).

CDQ Specific Information for Fixed Gear Catcher Vessels

Delivery weights are used to manage the CDQ quota for fixed gear catcher vessels,. It is the plant observer's responsibility to verify delivery information. Non-trawl catcher vessels that participate in the CDQ fishery may fish 24 hours/day and have unsampled sets. In most cases you will be able to sample all sets given this vessel type's fishing style. These vessels are not required to have an observer sampling station or a motion compensated platform scale.

CDQ Specific Information for Fixed Gear Catcher/Processors

Longline and pot C/Ps that participate in CDQ fisheries have up to two hours to designate a set as CDQ in their logbook after completion of weighing all catch in the haul. As long as the vessel treats a set as CDQ they may designate it as such or change their mind and designate it as open access or IFQ. The vessel must record a CDQ group number in their logbook for all CDQ sets to identify which group they are fishing for. Check the vessel's logbook information carefully when filling out your VHF, since a vessel may be fishing for several CDQ groups or participating in multiple fisheries.

Each CDQ set must be sampled for species composition if there are 2 observers on board. If the vessel carries one observer during a CDQ fishery, you should continue your sampling schedule used during open access fishing. If a set is not sampled due to weather or illness document in your logbook why you were unable to sample the set. If your vessel has 2 observers and a CDQ set was not sampled, document the reason why it was not sampled and notify your inseason advisor.

C/Ps participating in Limited Access Privilege Programs (LAPP) are required by regulation to have an observer sampling station. Refer to page 2-27 for more information on sample station requirements. It is your responsibility to test the platform scale daily (see "Platform Scale Testing" on page 2-25). Do not refuse to sample or tell the vessel they can't fish if the platform scale is not functioning or if one is not available to you. Inform your inseason advisor of the situation and use your NMFS issued scales. ***All non-trawl C/Ps have the ATLAS program so direct any questions regarding sampling or CDQ requirements to your inseason advisor.*** Send in your data daily while fishing CDQ.

Deck Form Instructions

The waterproof raw data forms provided by the Observer Program are meant to be taken out on deck. On ATLAS vessels these replace the paper Species Composition Form. ***Never recopy raw data and always return to your debriefing interview with your original data.*** The Deck Forms are an important component of your data documentation. It is important to fill out the forms completely and legibly!

All raw species composition data collected must be documented on your Deck Form, whether or not your vessel has ATLAS. PLEASE WRITE LEGIBLY!

On vessels with ATLAS, you enter data from the Deck Form directly into the ATLAS system. On non-ATLAS vessels, information on the Deck Form must be transcribed to a paper Species Composition Form and faxed (see "Paper Form Instructions" on page 8-27).

The Deck Form is double sided with two sample blocks available on each side. The header information at the top of the Deck Form must be filled out and pertains to both sample blocks below it. You may have one haul's worth of samples on one side of a Deck Form and another haul's worth of samples on the other side, ***but you cannot mix two haul's worth of data on a single side of the Deck Form.*** You must maintain a separate set of forms for each vessel to which you are deployed.

Multiple samples and subsamples taken within a set should be maintained completely independent of each other with their own unique sample number and sample block (or blocks). If you have to combine samples later, check the circle next to "Combined?" for the affected samples (for information on combined samples see "Combined Samples" on page 8-19).

Remember that sample data represent tally individuals and weight individuals from within the tally period, and subsample data represents weight individuals from outside the tally period. Subsamples have a specific numbering system associated with them, explained in "Subsample number" below.

Maintain a separate set of forms for each vessel.

Examples showing completed Deck Forms start on page 8-32. Raw data recorded on the Deck Form should be organized in a manner similar to these examples. ***The following Deck Form rules must be followed for all longline vessels. All fields must be filled out completely:***

Observer Name/Vessel Name - For each vessel assignment, write your name and the vessel's name across the top of the first page.

Date - Enter the date that the last hook of the set was retrieved. For the month and the day, use leading zeros when needed (*e.g.*, 01/01/13 for January 01, 2013). This date must match the date on all other forms.

Cruise, Permit: Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on page A-27.

Haul No., Offload No: For each sample taken within a set, enter the set number the sample came from. Sets can be numbered sequentially beginning with the number one, or you can follow the captain's numbering convention ***if the captain is not repeating set numbers with each new trip***. On longliners, it is generally better if you can follow the captain's numbering system; when sets are retrieved out of order it can be difficult to track sets if your numbering system is different.

Set numbers must be unique for the vessel. If you disembark the vessel and then embark again at a later date, you can 1) continue numbering the sets from the number you left off with, 2) continue with the captain's numbering convention (if s/he is not repeating set numbers), or 3) skip a few numbers (*e.g.*, if you numbered sets of the first trip 1, 2, 3 and 4, you could number sets of the next trip as 11, 12, 13, 14). Longline observers do not collect composition data during an offload; leave the offload field blank**.**

Set numbers do not have to be sequential (although it is easier if they are), but they do have to be unique for the vessel.

Sample number: Every sample taken from within a set must have a unique identifying sample number. Number samples taken within a set sequentially, starting with the number 1. You do not need to make sample numbers ***between sets*** unique; you can start with the number 1 for the first sample of every sampled set.

Subsample number: For longliner sample data, the only time you will have a ***subsample*** block of data is when you are reporting weight data from fish taken outside the tally sample period. Subsamples must be linked to the parent samples from which they came. You do this by using a numbering convention designed specifically for subsamples: every subsample number must be three digits in length, with the first digit designating the parent sample from which the subsample came, and the next two digits indicating the number of that subsample for the parent sample. Subsample numbering convention is explained further below:

- The first subsample of sample number 1 for a set should be numbered 101, the second subsample for sample number 1 of a set should be numbered 102, the third 103, and so on...
- The first subsample of sample number 2 for a set should be numbered 201, the second subsample for sample number 2 of a set should be numbered 202, the third 203, and so on...
- The first subsample of sample number 3 for a set should be numbered 301, the second subsample for sample number 3 of a set should be numbered 302, the third 303, and so on.

Sample size: Every ***sample must have a sample size indicating the number of segments tallied on longliners***. Record the total segments in your sample rounded to two decimal places, and circle the "segments" text. ***Subsamples do not have a sample size on longliners***. Leave the sample size blank for subsample data.

# of Sampled Hooks: If your vessel is fishing two different size segments of gear within a sample, calculate the total number of hooks and enter it here as a whole number. Otherwise, leave this field blank. See Figure 8-10 on page 8-35.

Pre-sorted: Do not check this field. You cannot have pre-sorted samples on longliners.

Combined samples: If the samples for a set are going to be combined in the reported data, check the circle next to the word "Combined" for ***only those samples that will be combined.*** When these data are entered into ATLAS or on a paper form, samples designated as combined are rolled up into a single sample entry. See "Combined Samples" on page 8-19 for a description of when samples must be reported as a "Combined Sample."

Unable to Follow Design: If the original sample unit or design for the sample cannot be followed, indicate this by marking the "Unable to Follow Design" field on the Deck Form for the sample or samples affected. See "Addressing Challenging Sampling Situations" on page 8-10 of this section for a description of when samples may be reported as "Unable to Follow Sample Design." When entering data into ATLAS, this field is labeled "Sampled As Designed." If you checked this field on your Deck Form you must enter No ("N") in ATLAS, otherwise the field will default to Yes ("Y").

No Fish in Sample: For longline vessels, if there are no fish in your tally period, mark this field on the top of your Deck Form. In ATLAS, enter an "N" for No Fish in Sample.

Species: For species (other than halibut) or species groups that you tallied and weighed, there will be one entry for total tally number of that species or species group ***minus*** any fish of that species or group that you weighed. There will be another entry for the number and weight of the individuals of that species or group that came from within the tally sample and were weighed. Fish tallied to species are listed by their common name. Fish tallied by group are listed by their group name. Fish in hand are listed by their species name or group name as appropriate. Fish from subsamples are listed by their common or group name as appropriate. ***Consolidate the data for the number and weight of a single species (or species group) into a single line of entry. Also consolidate the data for the number only of a single species (or species group) into a single line of entry.*** These calculations must be documented on your Deck Form.

If you were not able to weigh representatives of species or species group tallied, there will only be one entry for the species or group: the total number tallied.

For halibut, you will typically have a length estimate for all tallied individuals. You need only one line entry in these instances; the total number tallied and total weight for these individuals. The weight is derived from the halibut length/weight table. If you used the less preferred option of obtaining halibut weight information, you will need two entries: one for tallied individuals minus any weighed or actually measured, and one for the weighed or measured fish.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and sex. Record an "M" or "F" for these species when sex is determined. Leave the sex field blank for any unsexed organisms.

Number: For each weighed species, enter the number of individuals weighed. For tally period data, record the number of individuals tallied minus any weighed from that species or species group. ***Every species entry must have a number record!***

Use as many lines and columns as necessary for each species.

- For decomposed fish (code 899) and miscellaneous items (code 900) enter the actual number of items.
- For subsample data, enter the number of individuals weighed. Unlike samples, subsamples must always have a number ***and*** a weight.

Weight: For weighed fish, enter the weight by species with a well defined decimal. Weights must be recorded to the nearest 0.1 or 0.01 kg. If you feel that your scale cannot be read accurately to the tenth, you must fill in at least a trailing zero. ***Do not enter weights to more than two decimal places.*** If a species in your sample was too small to weigh (*e.g.*, one brittle star) ***enter the weight as 0.01 kg***. This holds true for both sample and subsample data. For halibut tallied by estimated length, use the "Halibut Length to Weight Table" on page A-40 to derive weight.You may use the length/weight tables provided in briefing/training to determine the weight of longnose and big skates that exceed the capacity of your scales. To use these tables you must have an actual length. Estimates of lengths are not acceptable.

For fish from the tally period that were not weighed, enter a zero in the weight field by species. Remember to subtract the number of any weighed individuals from that species or species group.

Percent Retained: This is an estimate of the percent of each species retained by the vessel. Keep a separate tally for drop-offs and retained species discarded at the rail. Calculate the total percent retained for a given species by dividing the sum of drop-offs and discards at the rail of that species (from all your samples in the set) by the sum of tally numbers for the species (from all your samples in the set). Multiply this number by 100 and then subtract that value from 100 to get percent retained and round to the nearest whole percent to enter in the Percent Retained column on the Deck Form.

If the vessel made any product from more than 15% of the fish, the whole fish is considered retained.

Length, viability, injury, specimen, tally data, notes: Use the blank area of the Deck Form sample block to record tally data. Use this space to record other sample specific information: sex/length information, specimen information, halibut assessments, notes pertaining to any biases to the sample, *etc*. Make comments about anything unusual with the catch or your sampling technique for the set. More complete descriptions of these notes should be documented in your logbook. Making note of unusual occurrences on your species composition form will assist in the debriefing process, and help you distinguish one set from the others. ***Raw data of this sort must be documented!***

Tally K/P: This box on the lower right of the right side of the Deck Form indicates where to record your tally keypunch. A tally keypunch is the sum of all tally marks. When compared to the species number keypunch, the "Tally K/P" will indicate any missing organisms in the species composition data. When summed for all species, this number should match the keypunch check entry after your species and weights have been recorded on the left hand side of the Deck Form. ***This is a required field on the Deck Form.***

Keypunch Check: In the spaces to the right of the words "Keypunch check," write the calculated sum for species number, and species weight that you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunches are a valuable tool for staff who edit your data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries. If you are sloppy with your keypunch calculations, staff have to investigate each discrepancy. This is a waste of valuable time for both you and for staff. Please double check your keypunch summaries!

PAPER FORM INSTRUCTIONS

If you are on a vessel without ATLAS, you must transfer your raw data from the Deck Form to a paper Species Composition Form. Paper forms are then faxed to the Seattle NMFS office after every trip.

Three samples will usually fit on one species composition page. Each sample must be documented as a distinct sample for that set (except in cases of combined samples - see "Combined Samples" on page 8-19). Unlike the Deck Forms, samples from two or more sets can go on a single page; on paper forms you

do not need to start a new page for each sampled set. Maintain a separate set of forms for each vessel to which you are assigned.

Ensure that your entries to the paper composition form match exactly your entries on your Deck Form.

Cruise number, Vessel permit, Observer name and Vessel name: Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on page A-27. Write your full name and the name of the vessel on the lines provided at the top of the form.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data; this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing.You can continue to use the form until all sample blocks are filled with data. Be sure to enter the correct header information for each new sample.

Haul No., Offload No.: Copy the sample's set number from your Deck Form. Leave the offload number blank.

Sample number: Every sample taken from within a set must have a unique identifying sample number. Number samples taken within a set sequentially, starting with the number 1. You do not need to make sample numbers ***between sets*** unique; you can start with the number 1 for the first sample of every sampled set.

Subsample number: For longliner sample data, the only time you will have a ***subsample*** block of data is when you are reporting weight data for fish taken from outside the tally sample period. Subsamples must be linked to the parent samples from which they came. You do this by using a numbering convention designed specifically for subsamples: every subsample number must be three digits in length, with the first digit designating the parent sample from which the subsample came, and the next two digits indicating the number of that subsample for the parent sample.

- The first subsample of sample number 1 for a set should be numbered 101, the second subsample for sample number 1 of a set should be numbered 102, the third 103, and so on...
- The first subsample of sample number 2 for a set should be numbered 201, the second subsample for sample number 2 of a set should be numbered 202, the third 203, and so on...
- The first subsample of sample number 3 for a set should be numbered 301, the second subsample for sample number 3 of a set should be numbered 302, the third 303, and so on...

Pre-sorted: Do not check this field. You cannot have pre-sorted samples on longliners.

Combined samples: If the samples for a set are going to be combined in the reported data, check the circle next to the word "Combined" for ***only those samples that will be combined.*** When these data are entered into ATLAS or on a paper form, samples designated as combined are rolled up into a single sample entry. See "Combined Samples" on page 8-19 for a description of when samples must be reported as a "Combined Sample."

Unable to Follow Design: If the original sample unit or design for a collected sample cannot be followed, you should indicate this on the Deck Form by marking the "Unable to Follow Design" field. This field is sample specific. See "Addressing Challenging Sampling Situations" on page 8-10 of this chapter for a description of when samples may be reported as "Unable to Follow Sample Design."

No Fish in Sample: For longline vessels, if there are no fish in your tally period, mark this field on the top of your paper form.

# of Sampled Hooks: If your vessel is fishing two different size segments of gear within a sample, calculate the total number of hooks and enter it here as a whole number. Otherwise, leave this field blank. See Figure 8-10 on page 8-35

Sample size: Every ***sample must have a sample size indicating the number of segments tallied on longliners.*** Record the total segments in your sample rounded to two decimal places, and circle the "segments" text. ***Subsamples do not have a sample size on longliners***. Leave the sample size blank for subsample data.

Species name and species code: For species (other than halibut) or species groups that you tallied and weighed, there will be one entry for total tally number of that species or species group ***minus*** any fish of that species or group that you weighed. There will be another entry for the number and weight of the individuals of that species or group that came from within the tally sample and were weighed. Fish tallied to species are listed by their common name. Fish tallied by group are listed by their group name. Fish in hand are listed by their species name or group name as appropriate. Fish from subsamples are listed by their common or group name as appropriate. Enter the appropriate species code. Species codes can be found starting on page A-1.***Consolidate the data for the number and weight of a single species (or species group) into a single line of entry. Also consolidate the data for the number only of a single species (or species group) into a single line of entry.*** These calculations must be documented on your Deck Form.

If you were not able to weigh representatives of species or species group tallied, there will only be one entry for the species or group: the total number tallied.

For halibut, you will typically have a length estimate for all tallied individuals. You need only one line entry in these instances; the total number tallied and total weight for these individuals. The weight is derived from the halibut length/weight table. If you used the less preferred option of obtaining halibut weight information, you will need two entries: one for tallied individuals minus any weighed or actually measured, and one for the weighed or measured fish.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and sex. Record an "M" or "F" for these species when sex is determined. Leave the sex field blank for any unsexed organisms.

Number: For each weighed species, enter the number of individuals weighed. For tally period data, record the number of individuals tallied minus any weighed from that species or species group. ***Every species entry must have a number record!***

Use as many lines and columns as necessary for each species.

- For decomposed fish (code 899) and miscellaneous items (code 900) enter the actual number of items.
- For subsample data, enter the number of individuals weighed. Unlike samples, subsamples must always have a number ***and*** a weight.

Weight: Copy the weight entry from the raw data on the Deck Form for the haul/species. Enter weights with two digits following the decimal point printed on the form for the clarity of the faxed data. Even if you feel that your scale cannot be read accurately to the tenth, you must fill in trailing zeros. ***Always enter weights to only two decimal places.*** If a species in your sample was too small to weigh (*e.g.,* one brittle star) ***enter the weight as 0.01 kg***. This holds true for both sample and subsample data. For halibut tallied by estimated length, use the "Halibut Length to Weight Table" on page A-40 to derive weight.

For fish from the tally period that were not weighed, enter 0.00 in the weight field by species. Remember to subtract the number of any weighed individuals from that species or species group.

Percent Retained: This is an estimate of the percent of each species retained by the vessel. Keep a separate tally for drop-offs and retained species discarded at the rail. Calculate the total percent retained for a given species by dividing the sum of dropoffs and discards at the rail of that species (from all your samples in the set) by the sum of tally numbers for the species (from all your samples in the set). Multiply this number by 100 and then subtract that value from 100 to get percent retained and round to the nearest whole percent to enter in the Percent Retained column on the form.

Keypunch check: In the spaces to the right of the words "Keypunch check," write the calculated sum for species codes, species number, species weight, and percent retained values you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunch checks are a valuable tool for staff who enter your faxed data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries they made. If you are sloppy with your keypunch calculations, staff have to investigate each

discrepancy. This is a waste of valuable time for both you and for staff. Please double check your keypunch summaries!

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your data for errors.

Check All Forms For:

- Your name and vessel name on the first page of each form type
- Pages numbered properly, no skipped or duplicate numbers
- Every page has your cruise number and vessel permit number
- Leading zeros are present only for dates and times
- All fields with pre-printed decimals have numbers listed to two decimal places
- All repeat fields have a value entered (do not use arrow downs or brackets)
- Your handwriting is clear and legible

Check Species Composition Form For:

- Set numbers correspond with dates and sets listed on the VHF
- Species names match species codes (paper forms)
- No species codes are listed without corresponding data (paper forms)
- Sex codes are included only for salmon, Tanner and king crab species. Record all prohibs of the same sex/species as a single entry on Paper Forms
- If sex is unknown, the sex field is left blank
- The number of fish tallied equals the sum number for that species in the reported data
- Decimal points are distinct and recorded to no more than two decimal places
- All weights are in kilograms
- Accurate keypunches of numbers, weights and species codes (paper forms) are on the top line
- Percent retained numbers are entered for all species and are whole numbers.

BS

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
8/15/13	14821	4540	102	

Page 1 of _____ for Vessel/Plant

Page 1 of 2 for Haul/Offload

Sample #: 1	Sub-Sample #:	Sample Size: 2 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	☒			☒

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

P. cod - (163) D/O ⊔=3 mags 1, 2
Pollock - (34) D/O L=2
Bathyraja - ☒☒☒☒☒☒ ⊔ (33)
Kam/Arrow - (61)
Flathead - ☒☒☒☐ (19)
Rocksole - ☒☒ L (12)

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	☒			☒

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Sculpin - ☒☐ (9)
I. Lord - L (2)
Big mouth - ⊔ (3)

Halibut

(cm)
50 - ⊔ x 1.34 = 4.02
60 - 1 x 2.41 = 2.41
70 -
80 - ☒ x 6.13 = 30.65
90

Σ (9) @ 37.08kg

Haul Level Injuries

(cm)
51 - 1
63 - 2
82 - 1
49 - 1
76 - 3

Tally K/P 345

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Figure 8-6: Example of Raw Tally Data From a Longline Vessel (Part 1)

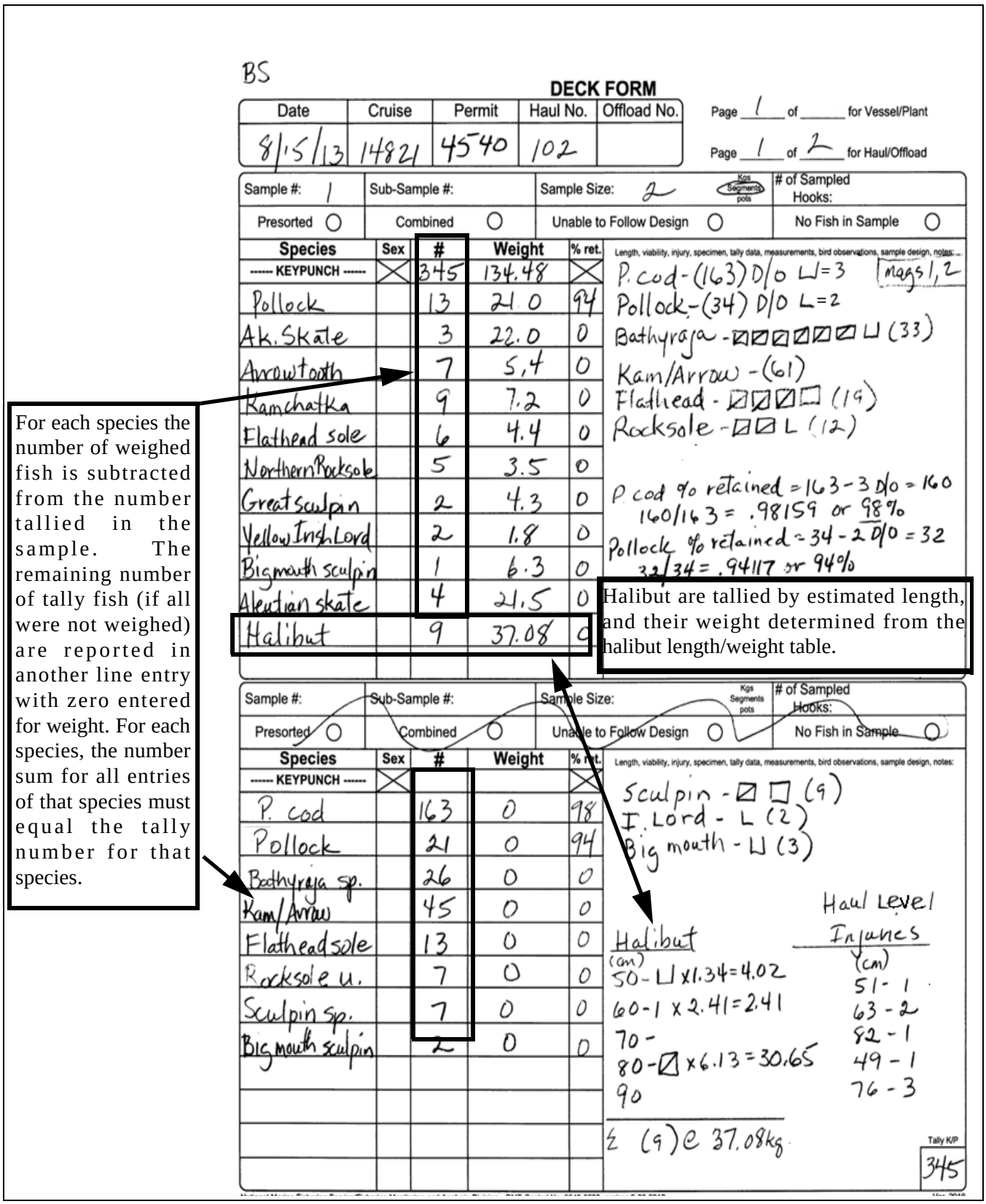


Figure 8-7: Example of Completed Raw Data From a Longline Vessel (Part 2)

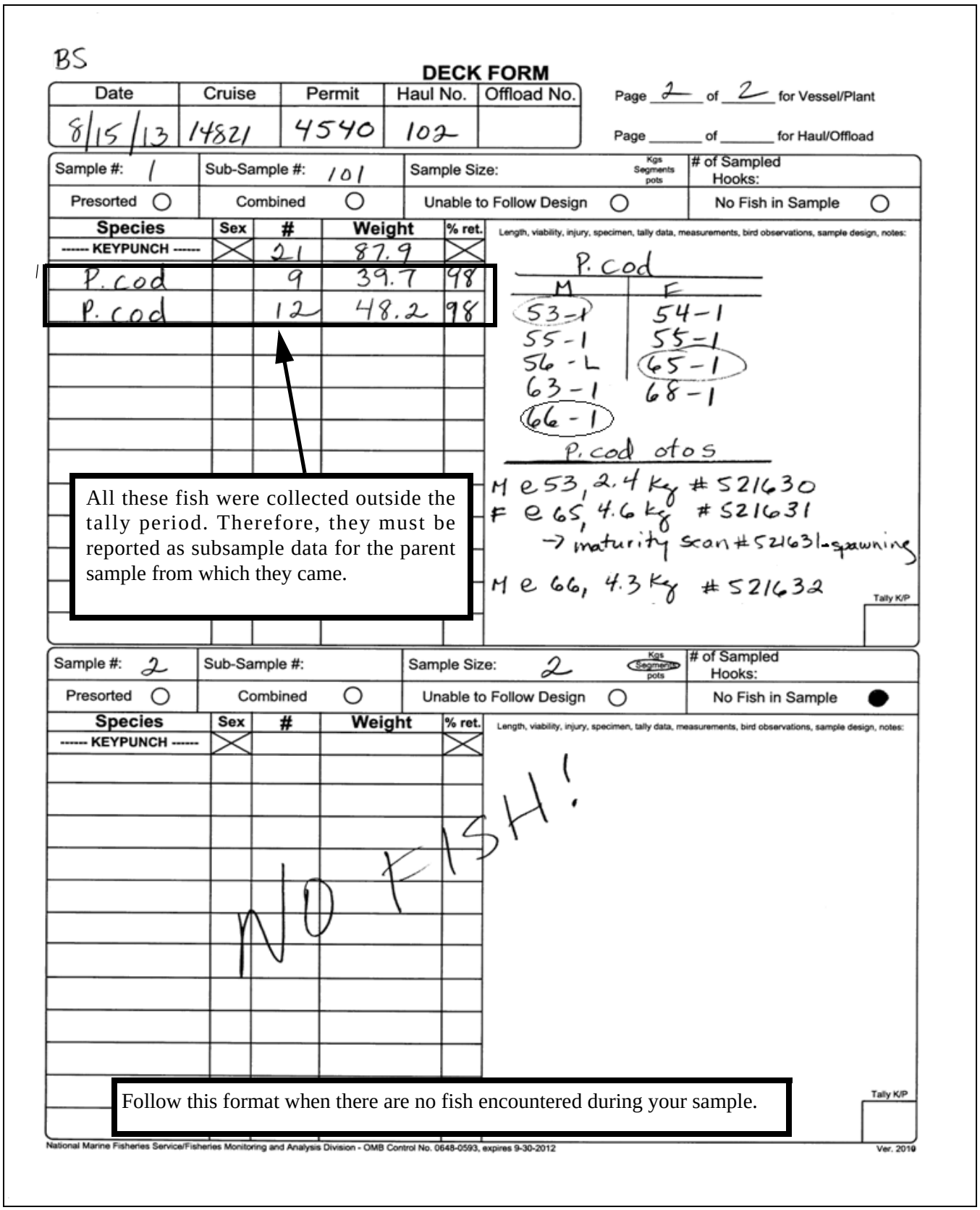
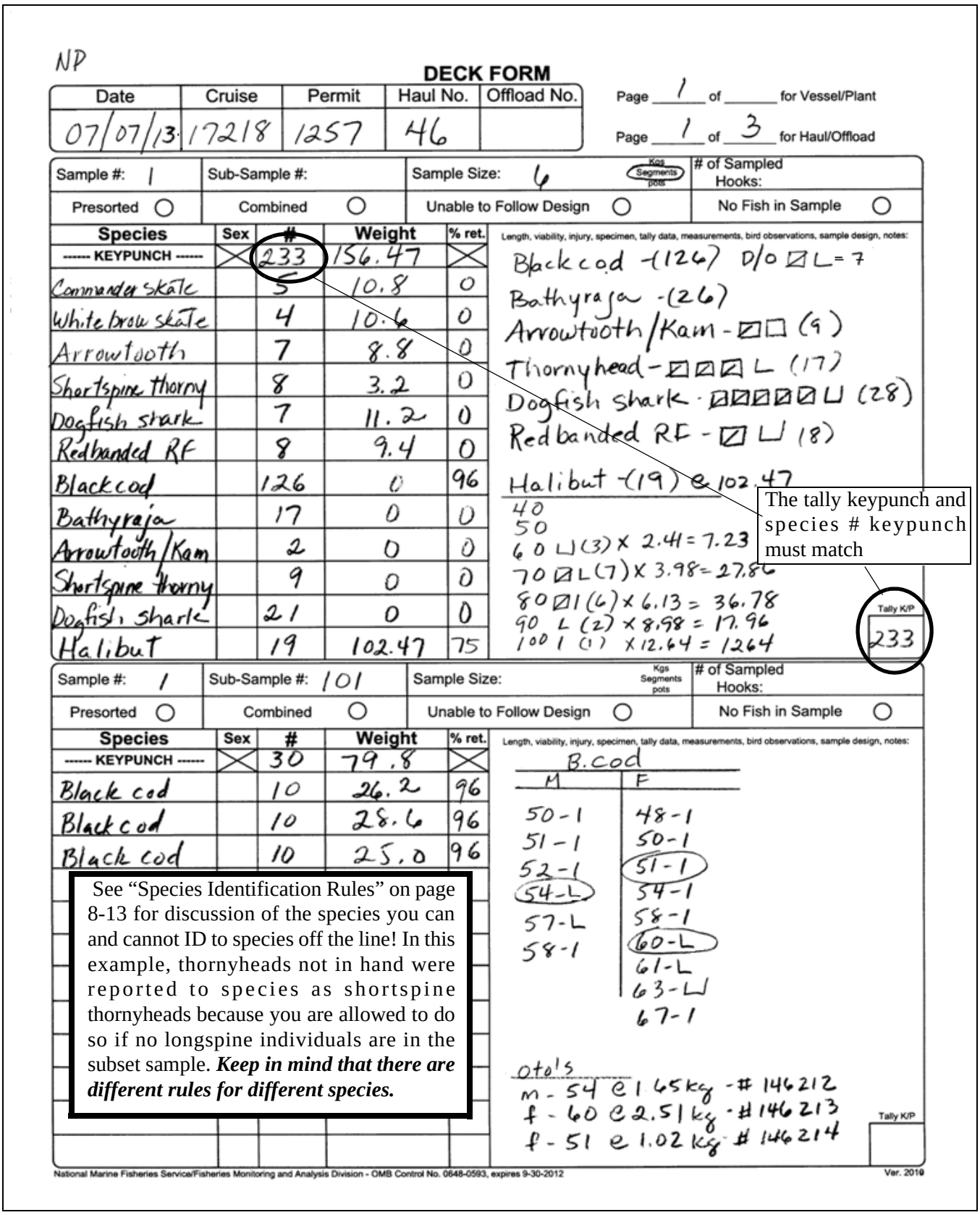


Figure 8-8: Example of Sub-Sample Raw Data From a Longliner



NP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
07/07/13	17218	1257	46	

Page 1 of _____ for Vessel/Plant

Page 1 of 3 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 6 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	233	156.47	X
Commander skate		5	10.8	0
White brow skate		4	10.6	0
Arrowtooth		7	8.8	0
Shortspine thorny		8	3.2	0
Dogfish shark		7	11.2	0
Redbanded RF		8	9.4	0
Black cod		126	0	96
Bathyraja		17	0	0
Arrowtooth/Kam		2	0	0
Shortspine thorny		9	0	0
Dogfish shark		21	0	0
Halibut		19	102.47	75

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Black cod -(126) D/O ☑ L=7

Bathyraja -(26)

Arrowtooth/Kam - ☑☐ (9)

Thornyhead - ☑☑☑ L (17)

Dogfish shark - ☑☑☑☑☑☐ (28)

Redbanded RF - ☑ ☐ (8)

Halibut -(19) @ 102.47

40

50

60 ☐ (3) x 2.41 = 7.23

70 ☑ L (7) x 3.98 = 27.86

80 ☑ I (6) x 6.13 = 36.78

90 L (2) x 8.98 = 17.96

100 I (1) x 12.64 = 1264

The tally keypunch and species # keypunch must match

Tally K/P: 233

Sample #: 1 | Sub-Sample #: 101 | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	30	79.8	X
Black cod		10	26.2	96
Black cod		10	28.6	96
Black cod		10	25.0	96

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

B.cod

M	F
50-1	48-1
51-1	50-1
52-1	51-1
54-L	54-1
57-L	58-1
58-1	60-L
	61-L
	63-L
	67-1

otol's

m - 54 @ 1.65 kg - # 146212

f - 60 @ 2.51 kg - # 146213

f - 51 @ 1.02 kg - # 146214

Tally K/P

See "Species Identification Rules" on page 8-13 for discussion of the species you can and cannot ID to species off the line! In this example, thornyheads not in hand were reported to species as shortspine thornyheads because you are allowed to do so if no longspine individuals are in the subset sample. ***Keep in mind that there are different rules for different species.***

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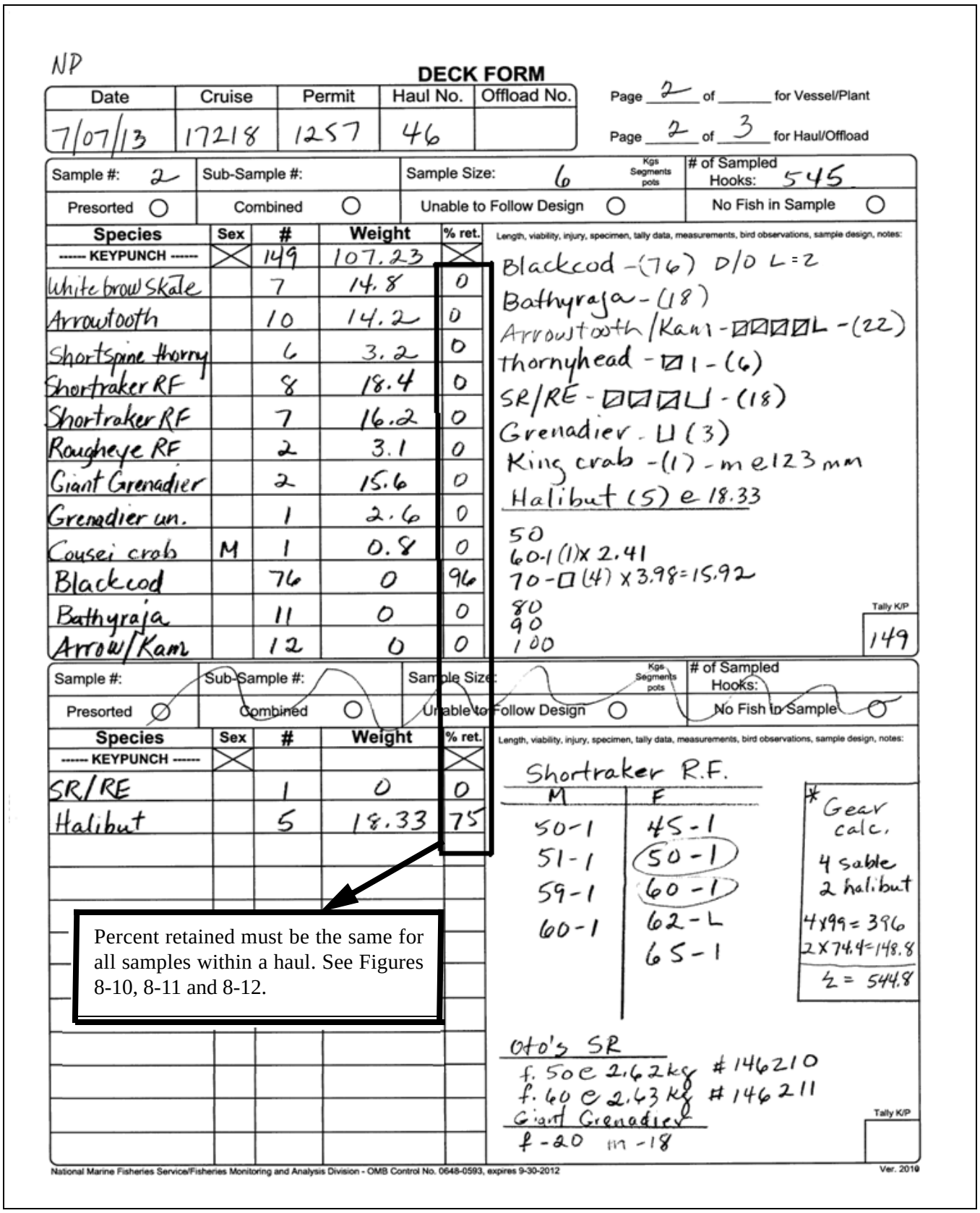
Figure 8-9: Example of Sample and Sub-Sample Raw Data from a Catcher Longliner Fishing for Sablefish



NP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/07/13	17218	1257	46	

Page 2 of _____ for Vessel/Plant

Page 2 of 3 for Haul/Offload

Sample #: 2 | Sub-Sample #: | Sample Size: 6 (Kgs / Segments / pots) | # of Sampled Hooks: 545

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	149	107.23	X
White brow Skate		7	14.8	0
Arrowtooth		10	14.2	0
Shortspine thorny		6	3.2	0
Shortraker RF		8	18.4	0
Shortraker RF		7	16.2	0
Rougheye RF		2	3.1	0
Giant Grenadier		2	15.6	0
Grenadier un.		1	2.6	0
Cousei crab	M	1	0.8	0
Blackcod		76	0	96
Bathyraja		11	0	0
Arrow/Kam		12	0	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Blackcod -(76) D/O L=2
Bathyraja -(18)
Arrowtooth/Kam1 -☐☐☐☐L -(22)
thornyhead -☐1 -(6)
SR/RE -☐☐☐LJ -(18)
Grenadier -LJ (3)
King crab -(1) -me123mm
Halibut (5) e 18.33

50
60-1 (1) x 2.41
70-☐ (4) x 3.98 = 15.92
80
90
100

Tally K/P: 149

Sample #: | Sub-Sample #: | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X
SR/RE		1	0	0
Halibut		5	18.33	75

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Shortraker R.F.

M	F
50-1	45-1
51-1	50-1
59-1	60-1
60-1	62-L
	65-1

* Gear calc.
4 sable
2 halibut
4x99 = 396
2x74.4 = 148.8
4 = 544.8

Oto's SR
f. 50 e 2.62 kg #146210
f. 60 e 2.63 kg #146211
Giant Grenadier
f-20 m-18

Tally K/P:

Percent retained must be the same for all samples within a haul. See Figures 8-10, 8-11 and 8-12.

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Figure 8-10: Example of Sample Raw Data From a Catcher Longliner Fishing for Sablefish (continued)

NP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/07/13	17218	1257	46	

Page 3 of _____ for Vessel/Plant

Page 3 of 3 for Haul/Offload

Sample #: 2 | Sub-Sample #: 201 | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	30	131.2	X
Black cod		7	30.6	96
Black cod		7	33.8	96
Blackcod		7	31.4	96
Blackcod		9	35.4	96

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Collected from complete Segment after Subsample - Record at haul level

Halibut length/Injury

67 - minor

122 - U Retained by vessel

Never sex halibut!

Tally K/P

Sample #: | Sub-Sample #: | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

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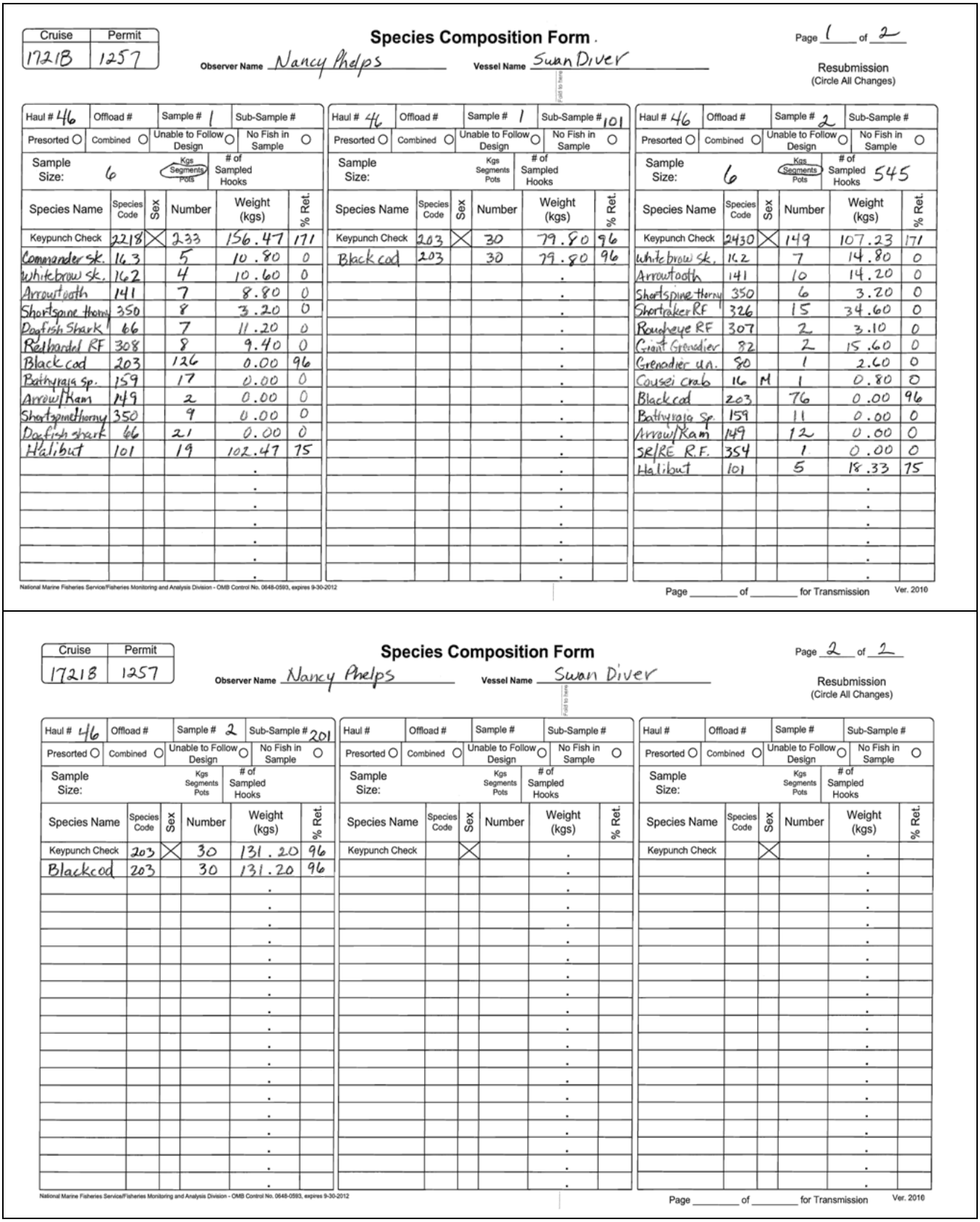
Figure 8-11: Example of Sub-Sample Raw Data From a Catcher Longline Vessel Fishing for Sablefish



Species Composition Form

Cruise	Permit
17218	1257

Observer Name: Nancy Phelps — Vessel Name: Swan Diver — Page 1 of 2 — Resubmission (Circle All Changes)

Haul # 46 | Offload # | Sample # 1 | Sub-Sample #
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: 6 | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	2218	X	233	156.47	171
Commander sk.	163		5	10.80	0
Whitebrow sk.	162		4	10.60	0
Arrowtooth	141		7	8.80	0
Shortspine thorny	350		8	3.20	0
Dogfish Shark	66		7	11.20	0
Redbanded RF	308		8	9.40	0
Black cod	203		126	0.00	96
Bathyraja sp.	159		17	0.00	0
Arrow/Ram	149		2	0.00	0
Shortspinethorny	350		9	0.00	0
Dogfish shark	66		21	0.00	0
Halibut	101		19	102.47	75

Haul # 46 | Offload # | Sample # 1 | Sub-Sample # 101
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	203	X	30	79.80	96
Black cod	203		30	79.80	96

Haul # 46 | Offload # | Sample # 2 | Sub-Sample #
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: 6 | Kgs / Segments / Pots | # of Sampled Hooks 545

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	2430	X	149	107.23	171
whitebrow sk.	162		7	14.80	0
Arrowtooth	141		10	14.20	0
Shortspine thorny	350		6	3.20	0
Shortraker RF	326		15	34.60	0
Rougheye RF	307		2	3.10	0
Giant Grenadier	82		2	15.60	0
Grenadier un.	80		1	2.60	0
Sousei crab	16	M	1	0.80	0
Black cod	203		76	0.00	96
Bathyraja Sp.	159		11	0.00	0
Arrow/Ram	149		12	0.00	0
SR/RE R.F.	354		1	0.00	0
Halibut	101		5	18.33	75

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Species Composition Form

Cruise	Permit
17218	1257

Observer Name: Nancy Phelps — Vessel Name: Swan Diver — Page 2 of 2 — Resubmission (Circle All Changes)

Haul # 46 | Offload # | Sample # 2 | Sub-Sample # 201
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	203	X	30	131.20	96
Blackcod	203		30	131.20	96

Haul # | Offload # | Sample # | Sub-Sample #
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check		X			

Haul # | Offload # | Sample # | Sub-Sample #
Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○
Sample Size: | Kgs / Segments / Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check		X			

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Figure 8-12: Examples of Paper Form Rendition of Raw Data Shown in the Previous Figures

Cruise	Permit
17218	1257

Length and Specimen Form

Page 1 of 2

Resubmission (Circle All Changes)

Observer Name Nancy Phelps

Vessel/Plant Name Swan Diver

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab: Eggs? Y/N	Halibut: Viability (Trawl/Pot) / Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Black cod	203	46		101	9	M			50	1			.	
	203	46		101	9	M			51	1			.	
	203	46		101	9	M			52	1			.	
	203	46		101	9	M			34	2	1	146212	1.65	
	203	46		101	9	M			57	2			.	
Black cod	203	46		101	9	M			58	1			.	
													.	
Black cod	203	46		101	9	F			48	1			.	
	203	46		101	9	F			50	1			.	
	203	46		101	9	F			51	1	1	146214	1.02	
	203	46		101	9	F			54	1			.	
	203	46		101	9	F			58	1			.	
	203	46		101	9	F			60	2	1	146213	2.51	
	203	46		101	9	F			61	2			.	
	203	46		101	9	F			63	3			.	
Black cod	203	46		101	9	F			67	1			.	
													.	
Cousei crab	16	46		2	10	M			123	1			.	

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Cruise	Permit
17218	1257

Length and Specimen Form

Page 2 of 2

Resubmission (Circle All Changes)

Observer Name Nancy Phelps

Vessel/Plant Name Swan Diver

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab: Eggs? Y/N	Halibut: Viability (Trawl/Pot) / Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Shortraker RF	326	46		2	5	M			50	1			.	
	326	46		2	5	M			51	1			.	
	326	46		2	5	M			59	1			.	
Shortraker RF	326	46		2	5	M			60	1			.	
													.	
Shortraker RF	326	46		2	5	F			45	1			.	
	326	46		2	5	F			50	1	1	146210	2.62	
	326	46		2	5	F			60	1	1	146211	2.63	
	326	46		2	5	F			62	2			.	
Shortraker RF	326	46		2	5	F			65	1			.	
													.	
Giant Grenadier	82	46		2	10	M			18	1			.	
													.	
Giant Grenadier	82	46		2	10	F			20	1			.	
													.	
Halibut	101	46			6	U		1	67	1			.	
													.	
Halibut	101	46			6	U		9	122	1			.	

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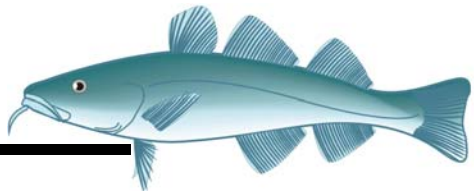
Figure 8-13: Examples of Length and Specimen Paper Forms



POT VESSEL CATCH DATA

Table of Contents

PRIORITIES

- Your safety!
- Record the vessel's total fishing effort for every set retrieval.
- Verify the number of pots retrieved per day or per set.
- Verify the number of pots in your sample and the number of pots in the set.
- Send data to FMA as directed (see "Sending Data" on page 2-32).
- Record calculations and daily logbook notes.

SAFETY CONCERNS ON POT VESSELS

On a pot vessel, all work is conducted on deck. Be conscious of your surroundings at all times. Pot vessels have low rails over which the pots are lifted. Waves can easily wash crew and gear overboard. When you first arrive on a vessel, discuss with the deckboss or captain which area would best allow you to access the catch. The area needs to have a clear view of the pots as they leave the water and are emptied, but should be located out of danger from swinging pots. You should never set up your sampling area directly across from the pot launcher.

Regardless of how exposed your sample station is to the elements, the Observer Program expects you to be proactive about your own safety by wearing a personal flotation device whenever you are working on deck. You should always notify the captain or crew if you plan to be, or think you will be, out on deck alone.

Discuss with the crew how best to collect samples. The best option may be to have the crew push full totes or swing the sorting table to you. Be sure to coordinate your activities around the movement of the pots. Be aware of coils of line attaching the buoys to the pot. These are deployed as the pot is launched and have been known to wrap around ankles and drag crew overboard. Pots may slip or jump from the launcher or the pots may break free from ties on the stack. Pots are very heavy, between 350 and 450 kg, and have crushed crew members. While sorting and weighing samples, check deck activity frequently and be attuned to the crew for danger warnings. Be aware of possible hazards and plan a safe response.

POT FISHING OPERATIONS

The National Marine Fisheries Service defines pot fishing as using a stationary, buoyed line attached to a single trap, or traps attached to a longline, for the purpose of capturing fish. Groundfish observers are only deployed to monitor Pacific cod fisheries and some sablefish fisheries although various species of crab are also fished with pot gear.

Pot Gear

A pot used to fish groundfish consists of mesh panels attached to a rectangular metal frame. Pots vary in size, but cod pots are most often two meters by two meters by one meter. Fish are attracted by bait attached inside the pots. Mesh tunnels on either side of a pot allow fish to enter and plastic "triggers" prevent them from escaping. Halibut excluders are required for all pot groundfish fisheries. The excluders are fitted into tunnels to restrict the width of the opening. This prevents large halibut from entering the pots while permitting entry of smaller fish.

Setting

The deck of a pot boat is equipped with a launcher, crane, and a boom. The launcher is a hydraulic lift usually located on the starboard side of the vessel. The boom is a hydraulic crane usually on the port side of a vessel. To deploy a pot, the crew will use the boom to move a pot onto the launcher. Metal hooks or "dogs" from the sides of the launcher grab the pot and hold it secure. The pot is then adjusted so that it is horizontal to the deck. A single length of line is attached to the pot and the coil is set next to the launcher. The pot is baited, the doors shut, and the pot is "launched" over the side (see "Set, Retrieval, and Dumping of a Pot" on page 9-3). The coil of line plays out as fast as the pot is sinking. A set of buoys are attached at the end of the line with the vessel's permit number and often a pot number.

Retrieval

To retrieve a pot, a crew member tosses a grappling hook to snag the buoys. The buoys are dragged on deck and the line is placed into the rotating "block." The block retrieves the line and pulls the pot from the water. When the pot reaches the side of the boat, the picking crane is hooked to the bridle, then the pot is lifted and placed onto the launcher (see Figure 9-1 on page 9-3). The angle of the launcher can be adjusted to remove the catch or to redeploy the pot. The "dogs" on the sides of the launcher grab the pot and secure it as the pot door is opened and the contents are dumped into a tote or sorting table. Once all of the catch has been dumped into the tote or sorting table, the crew pulls the tote or table out of the way, sorts out the bycatch, bleeds the Pacific cod or removes the head of the sablefish (blackcod), and throws the fish into the hold. Some sablefish vessels do not bleed their fish, but store their fish live and deliver live fish to the processor.

If pots are to be redeployed, the bait bag is replaced, the doors are tied shut, and the launcher is lifted to slide the pot back into the water. If the pots are being stacked, the boom drags or lifts the pot to the back of the deck where it is placed on the stack and secured by pot ties and chains.

Sets of Gear: "Strings"

Pots are deployed in units called "strings." When the captain decides to set gear, the crew prepares the pots and drops them overboard one at a time. The result is a row or string of pots. Pots may also be deployed in a cluster, grouped around favorable fishing bottom. Captains use various means of recording the numbers and locations of pots set. Most use a computerized plotter, marking the latitude and longitude of each pot. Many captains also record the position of each pot in a personal notebook. Strings can be viewed on the screen as points connected with lines; each point representing a pot. Some captains record detailed data on location, depth, and soak time into the NMFS logbook for each string, while others simply record the total numbers of pots retrieved in a day as one string. ***Regardless of which system the captain uses, it is important that you talk to the captain before fishing starts to determine how he delineates a string. Having this information will help you decide which sampling design to employ and how to determine the vessel estimate.***

OFFLOAD DATA FOR POT VESSELS

The Offload Form for a pot cod delivery is filled out in the same manner as it is for a longline offload. Refer to "Offload Data for Longliners" on page 7-3 of the Longline Catch chapter for Offload Form instructions.

DETERMINING DELIVERY WEIGHT

Refer to the Longline Catch chapter "Determining Delivery Weight" on page 7-4 for information on determining your vessel's delivery weight.

Figure 9-1: Set, Retrieval, and Dumping of a Pot

ESTIMATING DISCARDS

Observers must make an ***independent estimate*** of discards for all sampled hauls. Discard information for sampled hauls is collected in conjunction with percent retained data. By recording discard estimates in a separate field in the data, fisheries managers are able to quantify discards at both the vessel and fleet level. The time spent on this information should be nominal. Refer to "Estimating Percent Retained" on page 8-21 for further discussion of estimating percent retained and discards on pot vessels.

The process of estimating total discards differs between catcher vessels and catcher processors. Regardless of the vessel type, ***obtaining a discard estimate should only take a few moments***. On catcher vessels, discards are generated on deck, where you can see all the fish at one time. On catcher processors, discard can occur on deck or anywhere in the factory. Familiarizing yourself with the flow of fish on the vessel will help you to recognize areas of potential discard. If vessel personnel sort out and discard undesirable fish, or if portions of the catch are dumped overboard, you must estimate the total weight of these discards. Account for catch discarded in one of the following ways:

1. An actual measurement of the discard contributes the best information, but this method may not be feasible on your vessel type. If the discards are few, try to weigh everything using your observer scales. If you can not do so, consider the other options discussed here.

2. Volumetrics may be used to determine a discard estimate. If the vessel retains all the discard in a tote, or checker bin, the volume of this discard, multiplied by a density, will yield an estimate. When using volumetrics for determining a discard estimate it is acceptable to use known references rather than actual measurements.

3. ***A simple visual estimate is the easiest method of obtaining an estimate of discards.*** Using visual cues such as how many baskets of discards a sample generated can help you to quantify what you are seeing. For example, if all your samples resulted in one basket of discards (approximately 40 kg), and those samples were about 1/6th of the entire haul, you can assume there were about 6 baskets of total discards, or about 240 kg.

On a catcher processor, you can look at production data for the haul to get a sense of whether or not your estimate is reasonable. Production data are the weight, after processing, of retained catch. Divide this by the appropriate product recovery rate (PRR) to determine round catch weight of the species, before production. Product recovery codes can be found in the Appendix (see page A-20). If your discard estimate doesn't make sense in relation to this value, modify it. For example, if you estimate that 5 percent (by weight) of total catch was discarded, and document this as 5 tons of discard, but the round weight of processed fish is only 10 tons, the discard estimate of 5 tons is actually 35 percent of total catch. You would reduce your estimated weight of discards to reflect 5 percent of total catch weight.

RECORDING FISHING EFFORT DATA

Under regulation 50CFR679.50 (see "Records" on page 20-11), observers have the right to inspect and copy the vessel's NMFS logbook and all other documentation of fishing effort. You are required to transfer the following information from the vessel logbook (if verified) or from other vessel catch documentation (the plotter captain's notebook, etc.) to the Vessel and Observer Haul Forms:

- Date and Time of Gear Deployment
- Date and Time of Gear Retrieval
- Position of Gear Deployment (Latitude and Longitude)
- Position of Gear Retrieval (Latitude and Longitude)
- Begin and End Depth (average of the two for the VHF)
- CDQ number, if applicable
- Vessel Estimate
- Number of Pots Retrieved. This number must be verified by you.
- If the vessel acts as a tender only and does not fish for itself record non-fishing day positions only.

In addition, you need to record in your logbook information on any problems associated with the retrieval of the pots. This information is not recorded in the vessel logbook. Ask the person responsible for entering information in the vessel's logbook to record missing pots or problems with pot retrieval somewhere on the logbook page or on a separate page for you. See Figure 9-3 for paper form examples of these types of data.

Delineating Strings

One of the greatest difficulties faced by observers on pot vessels is determining what constitutes a string of gear. Pots are set individually, each with its own buoy. Though pots of a string may be set at varying depths, areas, and may have different soak times, captains may list the pots individually, in groups of pots, or as a single, long string. Try to obtain the most discrete data you can by working with the captain, consulting the plotter, and tracking the gear retrieval yourself. It may be necessary to designate all the pots retrieved within a 24 hour period as a single string, however, this method does not yield the most discrete data. How you delineate a string of gear will be important in determining the vessel estimate and the sampling design to employ. Keeping these factors in mind, it is important to talk to the captain about this before fishing starts. Be sure to document in your logbook any difficulties you encounter when determining strings on your vessel.

Before copying anything from the vessel logbook to your data forms, you must verify that the data reported are accurate. Misunderstandings about how the log is filled out are possible. Observers on pot boats may use a different haul designation system than that in the vessel logbook. You may break a "string" into several separately recorded strings, or combine several units into one string if it will provide better data. Please note that this requires that you work closely with vessel personnel in order to record the correct time and position data. You should undertake this endeavor only if you are sure it will increase the accuracy of your data, and that you will be able to obtain the correct haul information.

Verifying Gear

The running of strings can be very erratic on some pot vessels. Vessels will often start a string of gear, not be happy with the catch, and stop part way through and then run to a different string. The tide might also turn and the buoys will sink so the vessel will have to move to another string or may stop fishing for a few hours. You must communicate with the wheelhouse

throughout the day in order to track the gear, sample successfully, verify the logbook data, and collect VHF/OHF data.

Whether you use the captain's haul designation system or your own, talk to the captain frequently and check the logbook data at least twice per day, preferably after every haul. You must verify the following information, either from the vessel logbook entries or your personal observations:

Date and Time of Gear Deployment, and Date and Time of Gear Retrieval

Whenever possible, note the time when the crew begins to deploy gear and note the time the last pot is retrieved for a set. ***Deployment time is when the first pot was set and the retrieval time is when the last pot is brought aboard.*** You will not be able to verify deployment or retrieval times for all sets. For unverified sets, rely on the information provided by vessel personnel in the vessel's logbook. If your vessel's logbook contains erroneous times, let the officer in charge of the logbook know about the error. If the incorrect data continues to be logged, consult NMFS for advice on how to record your set data.

Position of Gear Deployment and Position of Gear Retrieval - Latitude and Longitude

The Begin Position of Set is the position of the vessel when the ***first pot*** of a string was deployed. The End Position of Set is the position of the vessel when the ***last pot*** of a string was retrieved. The captain or a mate reads these positions from the GPS navigation system located on the bridge. Occasionally, check that the positions listed in the vessel's logbook match that on the GPS display during the retrieval or deployment of a string. Review positions listed in the vessel's logbook. Question any large changes in position between one set and the next if you have not had a long run between sets. The person responsible for the logbook may have incorrectly entered the position.

Number of Pots Run: Independent Verification

Resource managers calculate catch weights for pot vessels from the numbers you supply for sample weight, sampled pots, and total pots. Successful management of the pot vessel fisheries is dependent on the accuracy of these values. ***It is crucial that the vessel's gear be independently verified by you!*** On a pot vessel, the only gear related element that you must verify is the number of pots retrieved per set.

Never rely solely on the number of pots the captain lists as being run for your total number of pots in a set. Gear deployment strategies and methods captains use to log the number of pots in a string can be quite different. For each pot vessel to which you are deployed, you will need to develop a method for verifying the number of pots retrieved. Actual counts of the pots are the most reliable. While on deck you may be able to tally all the pots in a string. If it is not possible to count all the pots in a string, count the number of pots in an identifiable section of a string (*i.e.*, pots you sampled), and cross check these numbers with the plotter and captain's logbook. Make sure to check and verify the "Pots Lost" column and to subtract any lost gear!

For verification, you may use time as a tool to obtain a fairly accurate estimate of gear hauled. If the vessel can haul 15 pots an hour, and you know the boat hauled gear for the last 10 hours straight, then a reasonable number of pots hauled would be around 150. This may be what is recorded in the logbook. You should further verify this estimate by looking at the plotter. You should try to verify the same number of strings as the number you sampled for the day. Hauls of less than 50 pots should be verified by counting every pot.

Vessels Fishing IFQ or CDQ

All longline and pot vessels (both IFQ and non-IFQ) use the same type of logbook. Data are entered differently depending on whether the vessel is fishing for IFQ species or not. Fishing IFQ is shown in the logbook by the IFQ permit number listed on the upper left hand corner of the DCPL or DFL and an entry greater than 0.00 in the columns "CDQ/IFQ Halibut" and/or "IFQ Sablefish" (see Figure 7-3 on page 7-13). Look for both entries. Fixed gear vessels using electronic logbooks denote IFQ hauls in the management code column next to the set number (see Figure 7-4 on page 7-13). If you are unsure whether or not the vessel is fishing IFQ, consult with the captain. For a more detailed description of IFQ, see page 8-23.

For information about your duties during CDQ catcher processors see "CDQ Specific Information for Fixed Gear Catcher/Processors" on page 8-24.

VESSEL HAUL FORM FOR POT VESSELS

The Vessel haul form is used for recording fishing effort data from all gear types. There are very few differences between the VHF information required on a longliner and that required on a pot vessel. Below are those form items for pot vessels that have data elements differing from longline vessels.

- **Gear Type** code for a pot or trap vessel is 6
- There are three **Gear Performance** codes applicable to pot vessels:

  1- No Problem.

  5- Miscellaneous problem in retrieving gear; document the problem in your logbook daily notes.

  6 - Problem; pots were lost.

  9 - NOT USED FOR FIXED GEAR.

Note in the comments section of the Vessel Haul Form and your Daily Notes the reasons for using gear performance codes other than code "1."

For information on filling out the rest of the fields on the Vessel Haul Form, please refer to the longline section starting on"Completing the Vessel Haul Form" on page 7-15. For a pot vessel VHF example, see Figure 9-3.

OBSERVER HAUL FORM FOR POT VESSELS

Follow the same guidelines as for the VHF. For most of the columns on the OHF, refer to the longline section "Completing the Observer Haul Form" on page 7-17. Include the same spacing and zeros for non-fishing days as you have entered on the VHF. Always start a new OHF when you start a new VHF. Keep the data from each vessel you are assigned on separate sets of forms. Below are those form items that have data elements differing from longline vessels. For a pot vessel OHF example, see Figure 9-3.

- **% Monitored for Marine Mammals:** This is the percent of the gear you monitored for the presence of marine mammals. Divide the number of pots you watched being retrieved by the total number of pots in the set to obtain this number. See "Marine Mammal Monitoring" on page 14-2 for duties relating to marine mammals.
- **Hook Coll. #, # of Segments in Set, and Bird Deterrence Code:** These fields are for longliners only. Leave these columns blank.
- **Total Pots in Set:** Enter the total number of pots retrieved for the set. ***Do not include lost pots!*** Total Pots must be a whole number. There must be an entry in this field for each set.

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. ***It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once!*** Follow the guidelines below when reviewing your data for errors.

Check All Forms For:

- Your name and vessel name on the first page of each form type
- Pages numbered properly, no skipped or duplicate numbers
- All header information are complete
- Leading zeros are present only for dates, times, and haul weights of zero weight (0.00 on Vessel Haul Form and Observer Haul Form)
- All fields with pre-printed decimals have numbers listed to two decimal places
- Your handwriting is clear and legible

Check Observer and Vessel Haul Forms For:

- Every day on the vessel has an entry. Include the day you boarded and disembarked and all days in between
- Non-fishing days have a non-fishing position with a haul number of zero. Document the reason the vessel was not fishing in your logbook daily notes
- No duplicate haul/set numbers

- No decimals other than those already printed on the page

Check Vessel Haul Form for:

- The Purpose Code is completed correctly. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP)
- Set and retrieval positions are recorded for all hauls/sets. Degree, minute and second entries must be two digits
- Positions have no minutes greater than 59
- Retrieval times of 0000 are attributed to the next day
- Bottom depth entries are rounded to whole numbers and gear depth column is empty
- “F” or “M” is recorded for every depth recorded
- “Y” or “N” is recorded in the IFQ column
- CDQ numbers are recorded with the letter “C” followed by the two digits of the CDQ group number (found in the vessel logbook)
- Purpose Code is correctly filled in. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP)
- Gear type is 6

Check Observer Haul Form for:

- For all hauls the total pots in a set is entered. Lost pots should not be included
- A discard weight entry is made for every sampled haul
- The vessel estimate is entered for all hauls.
- Sample Design and Sample Unit Type are complete and accurate for each sampled haul
- The estimate of discards are in kilograms and have no decimal points. It must be recorded to the whole kilogram

Plant/Vessel Offload Form (catcher vessels):

- Plant/processor name, and processor permit #’s are completed in the box at the top left hand side of the page
- Landing Report ID # recorded exactly as shown on the fish ticket
- Entries for plant observers are left blank
- Entries for Total Delivered are in kilograms or pounds. Must be to the whole kilogram or pound

Cruise	Permit	Year
22200	5137	2013

Trip Data Form

Page 1 of 1 for vessel

Observer name Pete Potter

Vessel name Dungeness Dreams

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E/W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	13	N	17	61	00	12	W	71	05	20	10	19	1000	8								10	24	1200	Y	1						1
2	11	N	8								10	24	1400	8								10	26	0500	Y	1	2					

Comments: Trip #1 – Looking for lost pots.
Trip #2 – Repairing engine

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Cruise	Permit	Year
22200	5137	2013

Plant/Vessel Offload Form

Page 1 of 1

Vessels Only

Processor Name	Processor Permit No.
St. Johns Sfds.	00555

Plants Only

Catcher Boat Name	Catcher Boat ADF&G No.	Vessel Permit No.

Observer Name Pete Potter

Vessel/Plant Name Dungeness Dreams

Resubmission (Circle All Changes)

Trip No. (Vessels Only)	Offload No.	Completion Date: Month	Day	Plants only: Gear Type	NMFS Area	Total Delivered	Kg or Lb	Plants only: Total Pollock Weight (BSAI Pollock Only)	Were All Groundfish Weighed? (Y/N)	ADF&G No. of Delivering Vessel	Receiving Processor Permit No. (Vessels Only)	Was Catch Sorted? (Y/N)	Tender Offload? (Y/N)	Landing Report ID No.	Plants only: Elanding Management Program	CDQ No.
1	1	10	24			76000	kg				00555	Y	N	200645		
2	2	10	26			9000	kg				00555	Y	N	200646		

Notes:

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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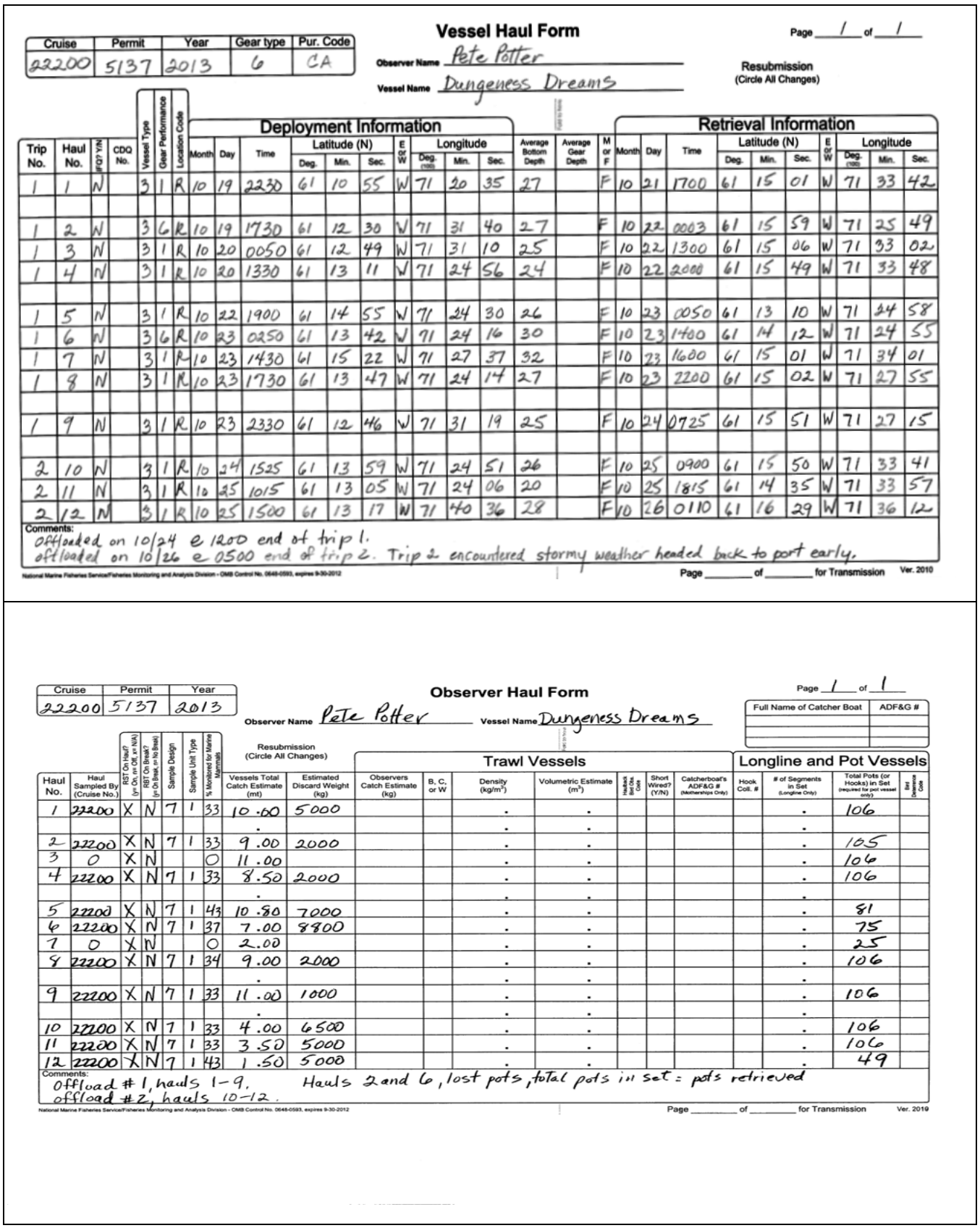
Figure 9-2: Examples of Trip Form and Offload Form Data From a Pot Vessel



Vessel Haul Form

Cruise	Permit	Year	Gear type	Pur. Code
22200	5137	2013	6	CA

Observer Name: Pete Potter
Vessel Name: Dungeness Dreams
Page 1 of 1
Resubmission (Circle All Changes)

Trip No.	Haul No.	FG Y/N	CDQ No.	Vessel Type	Gear Performance	Location Code	Deployment Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.	Average Bottom Depth	Average Gear Depth	M or F	Retrieval Information: Month	Day	Time	Latitude (N) Deg.	Min.	Sec.	E or W	Longitude Deg. (100)	Min.	Sec.
1	1	N		3	1	R	10	19	2230	61	10	55	W	71	20	35	27		F	10	21	1700	61	15	01	W	71	33	42
1	2	N		3	6	R	10	19	1730	61	12	30	W	71	31	40	27		F	10	22	0003	61	15	59	W	71	25	49
1	3	N		3	1	R	10	20	0050	61	12	49	W	71	31	10	25		F	10	22	1300	61	15	06	W	71	33	02
1	4	N		3	1	R	10	20	1330	61	13	11	W	71	24	56	24		F	10	22	2000	61	15	49	W	71	33	48
1	5	N		3	1	R	10	22	1900	61	14	55	W	71	24	30	26		F	10	23	0050	61	13	10	W	71	24	58
1	6	N		3	6	R	10	23	0250	61	13	42	W	71	24	16	30		F	10	23	1400	61	14	12	W	71	24	55
1	7	N		3	1	R	10	23	1430	61	15	22	W	71	27	37	32		F	10	23	1600	61	15	01	W	71	34	01
1	8	N		3	1	R	10	23	1730	61	13	47	W	71	24	14	27		F	10	23	2200	61	15	02	W	71	27	55
1	9	N		3	1	R	10	23	2330	61	12	46	W	71	31	19	25		F	10	24	0725	61	15	51	W	71	27	15
2	10	N		3	1	R	10	24	1525	61	13	59	W	71	24	51	26		F	10	25	0900	61	15	50	W	71	33	41
2	11	N		3	1	R	10	25	1015	61	13	05	W	71	24	06	20		F	10	25	1815	61	14	35	W	71	33	57
2	12	N		3	1	R	10	25	1500	61	13	17	W	71	40	36	28		F	10	26	0110	61	16	29	W	71	36	12

Comments:
offloaded on 10/24 @ 1200 end of trip 1.
offloaded on 10/26 @ 0500 end of trip 2. Trip 2 encountered stormy weather headed back to port early.

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Observer Haul Form

Cruise	Permit	Year
22200	5137	2013

Observer Name: Pete Potter
Vessel Name: Dungeness Dreams
Page 1 of 1

Full Name of Catcher Boat	ADF&G #

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (Y= On, n= Off, x= N/A)	RST On Break? (Y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Trawl Vessels: Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Observers Catch Estimate (kg)	B, C, or W	Density (kg/m^3)	Volumetric Estimate (m^3)	Halibut Bait Obs. Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)	Longline and Pot Vessels: Hook Coll. #	# of Segments in Set (Longline Only)	Total Pots (or Hooks) in Set (required for pot vessel only)	Bird Deterrence Code
1	22200	X	N	7	1	33	10.60	5000			.	.					.	106	
							.				.	.					.		
2	22200	X	N	7	1	33	9.00	2000			.	.					.	105	
3	0	X	N			0	11.00				.	.					.	106	
4	22200	X	N	7	1	33	8.50	2000			.	.					.	106	
							.				.	.					.		
5	22200	X	N	7	1	43	10.80	7000			.	.					.	81	
6	22200	X	N	7	1	37	7.00	8800			.	.					.	75	
7	0	X	N			0	2.00				.	.					.	25	
8	22200	X	N	7	1	34	9.00	2000			.	.					.	106	
							.				.	.					.		
9	22200	X	N	7	1	33	11.00	1000			.	.					.	106	
							.				.	.					.		
10	22200	X	N	7	1	33	4.00	6500			.	.					.	106	
11	22200	X	N	7	1	33	3.50	5000			.	.					.	106	
12	22200	X	N	7	1	43	1.50	5000			.	.					.	49	

Comments:
offload #1, hauls 1–9. Hauls 2 and 6, lost pots, total pots in set = pots retrieved
offload #2, hauls 10–12.

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012
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Figure 9-3: Examples of VHF and OHF Data From a Pot Vessel

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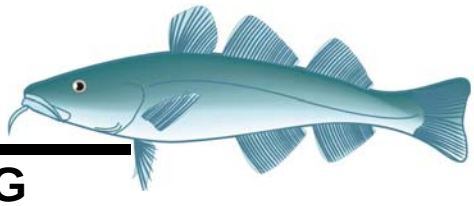


POT VESSEL COMPOSITION SAMPLING

Table of Contents

PRIORITIES

- Your safety!
- Collect data and specimens from marine mammal and endangered sea bird mortalities.
- Rehabilitate short-tailed albatross and other species of interest.
- Sample for species composition.
- Send data to FMA as directed (see “Sending Data” on page 2-32).
- Document any compliance concerns.
- Measure and assess viability of Pacific halibut.
- Measure and sex other prohibited species.
- Collect biological data from the appropriate species.
- Collect sexed lengths from the appropriate predominant species.
- Record calculations and daily logbook notes.
- Complete research projects.
- Record sightings of bird “species of interest.”
- Record marine mammal sightings.

INTRODUCTION

Species composition sampling is high on the Observer Program's priority list, and more time is spent on this task than any other. Species composition sampling is the collection of catch samples from a selected haul.

Fisheries managers base their assessment of catch rate on the results of your species composition samples. The data you collect are used to monitor allowable harvest and is used by scientists for population analysis and stock assessment.

COMPOSITION SAMPLING GUIDELINES

One of the first things you should do when you arrive on a vessel is to inspect your sampling station and create a sampling design. Refer to page 3-3 for items to look for in a sampling station on a pot vessel. When creating your sampling design, consider:

- Safety on deck should always be considered when establishing a sample station and deciding how to collect fish for your sample
- Where to collect and contain your weight sample
- What sampling biases could occur in your collection and how to minimize them
- How to collect your sample
- How many samples you will be able to collect
- What sample sizes you will be able to collect
- How you will process your sample
- If you need to use the Random Sampling Table (RST) or Random Break Table (RBT)

Sample Station - The sample station is the location where you will weigh and measure catch. Many C/P vessels have a sample station already set up for observer use and some have motion compensated platform scales (see page 2-25). However, the majority of the pot cod fleet are catcher vessels and do not have established work stations for the observer. On vessels that do not have established stations, select a location that is out of the way of wave action and crew traffic, and that has enough room to store one or two baskets of fish. On some vessels, you won't have much choice where you set up a sampling station and you will have to work with the area available to you. Explain your needs to the crew and work with them as much as possible. If storage space is an issue, you can always ask the vessel if they have an extra tote for you to use. If you are on a catcher vessel, you can also ask the plant for one or go to the field office and check out more observer baskets.

Draw a diagram of the sampling station in your logbook. In your Daily Notes, discuss the random sample design you intend to use. Your sampling design will be put to the test once you start sampling, and you may find that you need to make some changes to it. When you have settled on a random sample design(s), fill out a Sample Design Detail form in your logbook. On this form, describe your sampling design in detail. Day to day minor adjustments to the random sample design can be documented in the Daily Notes section of your logbook.

Inexperienced observers should be especially careful on deck until they are familiar with the way catch and gear are handled. Watch the retrieval of the first few pots of the string you are sampling to familiarize yourself with deck procedures. You may need to reduce your sampling effort for the first few hauls (fewer and/or smaller samples). Document your methods and the reasons for the reduced sampling effort in your Daily Notes. After only a few hauls you will be familiar with the catch handling process and deck procedures and will be able to decide on a sampling design that is right for that vessel and fishery. If you are unable to sample a haul for any reason, you must document the circumstances in your logbook.

Be sure to discuss safe deck practices, haulback procedures and potential sampling needs with the vessel before fishing begins!

You may alter your design as you gain experience, become aware of biases, the species composition changes, or the target fishery changes. Document all changes in the Sample Design Detail section of your logbook and explain why they were made. Sample designs for pot sampling are discussed in"Sampling Designs on Pot Vessels" on page 10-4. If you have problems designing or implementing a sampling system, contact your ATLAS inseason advisor or other NMFS staff member as soon as possible.

Selecting Hauls to Sample

On some vessels, you will be able to sample every set. This is typically the case for observers on pot vessels targeting sablefish. In general, observers with a familiarity with the vessel type and fishery are expected to sample all hauls when less than three per day are landed or if the boat only fishes for part of the day. When extenuating circumstances prevent this, document the circumstances in your logbook.

If you cannot collect species composition data from all hauls you must randomly select which hauls to sample using the appropriate Random Sample Table (RST) and/or Random Break table (RBT). Please refer to "How to Use the RST" on page 2-14 for instructions on using the RST and "How to Use the RBT" on page 2-14 for instructions on using the RBT. ***Please note that using the RST and RBT together is rarely done on pot vessels.*** Consult your inseason advisor or NMFS staff (see "Contact Addresses and Numbers" on page A-51) if you frequently use them together as the sampling effort for that vessel will be low. If the vessel retrieves one big haul per day you may need to take a break at some point. Use the RBT to select a 6 hour break within a 24 hour period and plan your sample periods around this time.

Preferred Sampling Method

There are several sampling methods available to you for collecting samples. These are covered in "Sampling Designs on Pot Vessels" on page 10-4. As discussed in the section "Introduction to Sampling Theory" on page 2-16, the preferred method for all vessel types is to take ***systematic random samples made up of approximately equal sized units.***

To achieve systematic random sampling on pot vessels, the set or estimated hauling time is divided into sampling units of equal size. Units to sample are chosen using a systematic random method. Pot fishing is unique in that individual pots are deployed over a given area, in clumps or lines. Spacing of samples throughout a set accounts for any fish stratification associated with topography changes over this area.

Pot Vessel Samples and Subsamples

On pot vessels, the fish you weigh will typically come from the same units that you sampled. When fish come from a sampled unit, the data are recorded as sample data.

On rare occasions you may need to collect fish from outside your sampled unit. This would be the case if you forgot to weigh fish from within your samples. If you are reporting information on fish that came from outside your sample, these data must be recorded as subsample data.

A specific numbering system is used to link subsample data to sample data in the database. This numbering convention is discussed on page 10-13 of the form instructions section. To indicate this relationship in this manual's text, the term "parent sample" is used. For any *subsample*, the parent sample is the sample immediately adjacent to the subsample.

Number of Samples per Sampled Haul

You should take as many individual samples within a haul as feasibly possible. Multiple samples, taken systematically throughout the set, capture stratification effects. ***At least three discrete composition samples are required for every sampled haul to allow data users to assess sample variance.***

There may be fisheries and vessel types where it is not possible to collect multiple species composition samples within a sampled haul. In those instances, you must document the circumstances in your logbook Daily Notes pages.

Sample Size Considerations

When deciding the size of your samples, consider your general health, the size of the set and the possible species diversity. Reduce the size of your samples if you are not feeling well, have not had enough sleep, or if species diversity has been high.

Samples taken within a haul should be of equal size. This is easy to achieve on pot vessels, because the crew is working with discrete units of gear (a pot). The total number of pots you are able to sample depends on vessel specific factors, but most observers find they can sample at least 1/3 of a set and still have time to complete their other sampling duties.

When to Sample for Species Composition

In the pot vessel fleet, there are vast differences in the amount of gear each vessel fishes and how quickly each vessel retrieves and deploys gear. Many catcher vessels retrieve gear around the clock, taking breaks at variable times throughout the day for short naps, and usually late at night for 5-6 hours of sleep. Vessels may

spend days prospecting or pulling a few short strings before they begin their normal hauling practices. Even "normal" hauling practices have no predictable schedule and long days of 18-20 hours are not uncommon. Catcher processors, with larger crew sizes, may set and retrieve pots around the clock. All of these factors will affect your ability to sample for species composition on these vessels. Develop sampling strategies to collect systematic random samples from as many strings as possible while keeping in mind your health and safety as well as other observer duties.

A captain may utilize one of two strategies in deploying pots; he may set one long string of pots or he may set several smaller groupings of pots. How you sample will be determined by the captain's method of setting gear.

- For several short strings of pots use the appropriate random sample table (RST) to determine which strings to sample or use the random break table (RBT). Use a systematic random sampling design to sample the pots retrieved from each string. In general, observers are able to collect 3 samples totalling 1/3 of each string.
- When strings have less than 20 pots, observers are generally able to sample every pot in the selected string.
- If the captain sets one or two long strings of gear per day, sample every string. As with shorter strings of gear, observers are usually able to collect systematic random samples from at least 33% (1/3) of the pots retrieved from each string.

Use the RBT if needed. See "How to Use the RBT" on page 2-14.

SAMPLING DESIGNS ON POT VESSELS

There are many similarities between sampling designs and sampling concepts on pot vessels and those on longliners. This chapter will often refer you to "Random Sampling on Longliners" on page 8-5 for figures illustrating the various sampling designs available to you.

There are four types of sample designs that can be used on pot vessels: **1)** spatial based systematic random, **2)** temporal-spatial based systematic random, **3)** spatial based simple random and **4)** temporal-spatial based simple random. A systematic random sampling design is preferred for species composition sampling. ***Make sure that you have explored systematic random sampling from a spatial or temporal frame as an option before resorting to simple random sampling from a spatial or temporal frame. Spatial and temporal based systematic random sampling is discussed beginning on page 10-5.*** If you need to use a simple random sample for your species composition collection, please document the circumstances in your Daily Notes.

Do not use a random sample design that is not listed above unless you contact FMA first!

While sampling all of the pots in a string is preferred over using a random sampling design, this would require you to count everything in every pot of a string, weighing all bycatch if possible. Sampling all pots may be possible in some situations, but when it is not, you must use a random sampling design to determine which pots to sample.

For all sample frames used on a pot vessel, units must be comprised of whole pots. A unit can be one or several pots in size, so long as ***the units are equal.*** In colder months, or where space is limited, you may want to have fewer pots in your sample unit. On vessels with a lot of space, you may be able to have larger sample units (*i.e.*, more pots per unit). Take into account how long you can stand on deck tallying and how much bycatch can be stored in the fish collection area when deciding on your unit size.

Remember, if you abort or alter a sampling design during the sampling of a haul for any reason, document the circumstances in the Daily Notes section of your logbook and mark the Deck Form as "unable to follow design."

Sampling Design Rules

Keep in mind the following rules when determining your sampling design:

1. **Number of samples trumps quantity of haul sampled.** If there is a possibility that you will only have two samples in your frame, reduce your unit size. By reducing the size of units in the sampling frame, you are assuring that there will be at least three sampled units within the frame. This may mean that you actually take four samples for a haul when you

intended on only three. It may also mean that you sample less than your intended sample fraction. Always reselect a start point if you have adjusted your frame to accommodate three samples taken systematically (see Figure 8-3 on page 8-9).

2. **Size discrepancy between hanging units and other sampling units should be minimized.** If the total number of pots is not evenly divisible by the number of pots comprising a sample unit, there will be a unit at the end of your frame that is smaller than all other units. This is called a hanging unit. It is critical that units be equal or as close to equal as possible, so a rule was developed to deal with this specific case. You must determine if including the hanging unit with the previous unit of the frame would cause less of a disruption to unit size than leaving it as a discrete unit. For example, if the hanging unit is comprised of 1 segment and the previous unit comprised of 3, unit size will be more consistent if the last two units are combined. Refer to the illustration in Figure 8-1 on page 8-6 for an example of how to reduce size discrepancy in hanging units.

3. If you are designating all pots hauled in one day as one set and the number of pots is an estimate, treat it as an open-ended population. Sample systematically until the hauling is complete for the day.

Systematic Sampling on Pot Vessels

On pot vessels, systematic sampling is always the preferred method of sampling.

A systematic sampling design can be used any time a simple random design can be used.

A systematic design is one in which you tally sample every "n^{th}" unit throughout the haul. For your sampling design, keep in mind that at least three samples per sampled haul is preferred. Sampling units can be defined either spatially or as temporal-spatial units.

The first step in creating a systematic design is to determine which unit type to use for the haul. If you can accurately keep track of how many pots have been retrieved, systematic sampling from a spatial frame may be easiest. If it is too difficult to keep track of each pot during the entire hauling process, systematic sampling from a temporal-spatial frame is best.

Designing a Spatial Based Systematic Sampling Scheme

Using a spatial frame requires you to identify when selected pots are pulled. This can be accomplished by working closely with the captain and crew. You may be able to track this information using the plotter or, for smaller strings, actually counting pots retrieved.

To create the spatial units of your frame:

1. Multiply the total pots in the set by the fraction of haul you can sample (observers are usually able to sample a total of 1/3 of a set). The resulting value is the number of pots you need to sample to meet your total sample size goal for the set.

2. Divide this value by the number of samples you intend to take. The resulting value represents the size of one ***spatial*** sampling unit. On pot vessels, the smallest a spatial unit can be is one pot.

3. Divide the total number of pots in the set by the number of pots in a unit. This gives you the total number of sampling units in the set.

4. Number the units in the set consecutively.

Once spatial units have been established follow steps 5 and 6:

5. Systematic sampling requires that you sample throughout the entire haul at equal intervals from a random start point. To determine the sampling start point for the set, refer to the sampling fraction you chose in step 1. The denominator in your sampling fraction is the sampling interval "*i*" for the set. For every *i*, you must tally one full sampling unit. If *i* is 4, randomly choose a number between 1 and 4. The random number represents the first unit you will sample from your frame. For example, if the random value chosen from a denominator of 4 was 3, you would begin your systematic sampling at unit 3.

6. From the random start point determined in step 5, sample at interval *i*. For example, if the random start unit was 3, and the denominator of your sampling fraction is 4, sample every 4 units from the random start unit: 3, 7, 11, 15, etc.

Once you have a sample design for the haul assess it to see if there is any chance you will get only two samples for the set. Map out the sampling sequence when you choose the last number in interval *i* as your start point. If this sampling sequence gives you only two samples

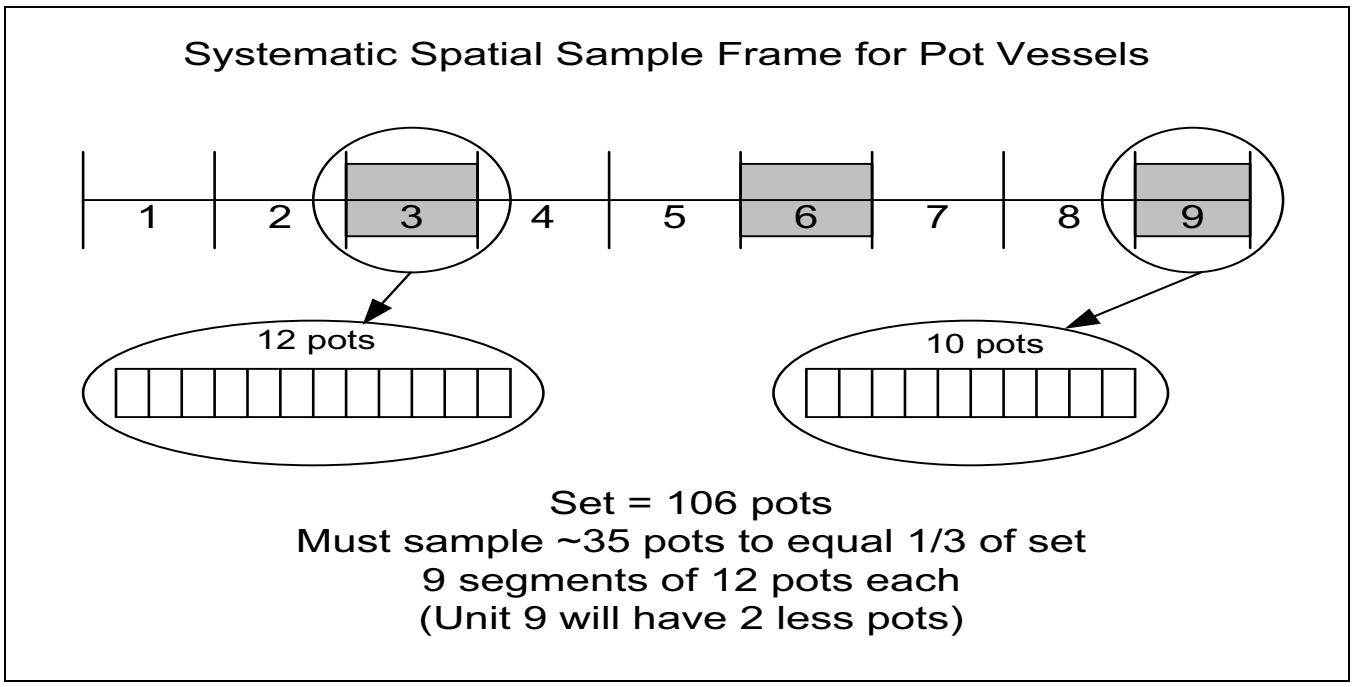


Figure 10-1: Size discrepancy with hanging units

for the set, reduce your sampling unit size by one or more pots, if possible. Refer to the illustration in Figure 8-3 on page 8-9 for an example of how to adjust your sample frame to accommodate at least three samples regardless of your random start point.

Simple Random Sampling from a Spatial Design

Follow steps 1-4 described on page 10-5 to establish your spatial units. Number the units consecutively starting with one and randomly select at least a third of the total units to sample. Use the RNT, dice, numbers from a hat, or any method that is truly random to select units to sample.

If the number of pots in the set is not equally divisible, the last sampling unit of the frame will not be the same size as all other units in that frame. Refer to Figure 8-1 and "Sampling Design Rules" on page 8-5 of the longline chapter for more details on how to deal with these smaller units.

Example of simple random sampling for a spatial frame: There are 20 pots in the string. The observer is seasick but feels well enough to collect one sample and wants to sample 1/4 of the pots. The pots are divided up into 4 units of 5 pots each. The observer uses the RNT to choose a number between 1-4 (the number of units in the haul). The observer chooses unit 3 so pots 11-15 are sampled for species composition. An example of simple random sampling from a spatial frame is illustrated in Figure 8-2 of the Longline Chapter. When referring to this figure think of the units as groups of pots, rather than segments.

Sampling from Temporal-Spatial Frames on Pot Vessels

Temporal-spatial frames are based on time, but you still track sampled gear by ***pots***. The advantage of using a temporal-spatial frame is that you do not have to start a sample period at a specific pot, but at an approximate time. On vessels with long sets comprised of tens of pots, a sampling system that allows you to disregard the passing of individual pots can be quite useful!

When sampling from a temporal spatial design, you determine the total number of pots sampled by counting them. Do not use "pots per time" to determine the number of pots sampled.

Designing a Temporal-Spatial Based Sampling Scheme:

1. Multiply the total number of pots in a set by the fraction of the set that you intend to tally. This will give you the total number of pots you need to tally to meet your total sample size goal for the set (observers are typically able to sample at least 1/3 of a set). For

example, if a set was 23 pots and you wanted to sample 1/3, you would need to sample 7.66 pots. You must sample whole pots, so you round this value to 8.

2. Take the total number of pots you need to sample and divide this by the total number of discrete samples you want to collect for the set. This value represents your sample unit size. On pot vessels, the smallest a spatial unit can be is one pot. If you had to sample 8 pots and wanted to do this over 3 samples, the size of the sampling units would be 2.66. You must tally whole pots, so this value would be rounded to 3.

Estimate how long it will take to retrieve one sampling unit. For example, 1 pot takes 5 minutes to haul so a unit of 3 pots equates to 15 minutes per sample unit. This time estimate represents one ***temporal*** unit. Number the ***temporal*** units in the set consecutively.

3. Use the Random Number Table (RNT), dice, slips of paper, or another random method to choose which of these temporal units to tally sample. Document the random selection method in your logbook.

4. Use your temporal unit to determine when to get to your sample station, but sample by spatial units once you get there. ***Do not begin sampling until the next whole pot.***

Systematic is always the preferred sampling method. If you have a sampling situation that requires a simple random design be sure to document this thoroughly in your Daily Notes.

Designing a Temporal-Spatial Based Systematic Sampling Scheme:

1. Multiply the total pots in the haul by the fraction of haul you can sample. Observers are usually able to sample a total of 1/3 of a set.

2. Divide this value by the number of samples you intend to take. The resulting value is your ***spatial*** sampling unit. On pot vessels, the smallest a spatial unit can be is 1 pot.

3. Estimate the time it will take to retrieve one of your sample units and multiply this by the number of sampling units in the set. This is the total estimated time to retrieve the entire set.

4. Divide the total estimated retrieval time for the set by the estimated time it takes to retrieve one unit. The resulting value is the number of ***temporal*** units in the set. Number these units sequentially.

The fraction of haul you can sample also gives you the sampling interval *i*. At every interval *i*, a sample is taken. If you intend to sample 1/4 of the haul, sample one in every four temporal units. If you intend to sample 1/3, sample one in every three temporal units.

5. Randomly choose a unit to start sampling. If sampling one in every four units, choose a number between one and four. If sampling one in three units, choose a number between one and three, etc.

6. The random number from step 5 indicates the first sampled unit from your sampling frame for that haul.

7. Now that you have your start sampling unit, sample size and sampling interval, you can map out the units that should be sampled to maintain your systematic sampling design for the haul.

8. Use your temporal units to determine when to get to your sample station, but sample by spatial units once you are there.

An important rule to recognize when sampling from a temporal spatial frame is that, although you are using time to select when to sample, you ***do not start sampling at the beginning of your designated time unit.*** Instead, you ***wait until the beginning of the next pot to start sampling.*** You must sample whole pots, so you do not immediately stop sampling at the end of your designated time interval, but ***continue to sample until you have sampled your full spatial unit.*** This type of sampling design can be useful for vessels that use all the pots retrieved in a 24 hour period as one set.

Refer to “Systematic Random Sample Design from a Temporal-Spatial Frame” on page 8-10 of the Longline Composition Chapter for an illustration of sampling from a temporal-spatial frame.

VERIFYING SAMPLED POTS

Important to both your verification of gear and to correctly recording catch per unit effort is verifying the number of pots in your sample. You must be able to track and count sampled pots on your Deck Form while collecting your species composition data. The deck is a busy place, and it is very easy to lose count of how many pots have been pulled unless you pay close attention. There are two ways you may track the pots on the Deck Form:

- Record each pot's tally of the predominant species as a total pot by pot on your Deck Form. Each total tally represents a pot and by counting the tallies you will know how many pots were pulled. Remember to record pots with no catch as they count as part of your sample. See "Example of Raw Data From a Pot Vessel" on page 10-18.
- If you are tallying all of the predominant species using a thumb counter you must clearly label a pot count on the Deck Form and make a tally mark for each pot retrieved. Remember to record pots with no catch as they count as part of your sample.

Always indicate the exact start and stop times for your sample collection. This will help you to verify gear if you are using a temporal method.

Addressing Challenging Sampling Situations

On rare occasions you may not be able to sample the entire sample unit or follow your intended sample design. If the original sample unit or design for the haul cannot be followed, indicate this by marking the "Unable to Follow Design" field on the Deck Form for the sample or samples affected, and document what happened in your Daily Notes. The sample design code and sample unit type you originally intended to sample must be recorded on the Observer Haul Form.

SAMPLING ON POT VESSELS

Collection of species composition samples depends on the amount of gear retrieved, the speed of gear retrieval, and the amount of fish that is being caught.

Species Composition Tally and Weights

The species composition sample is the accurate count/tally of all organisms caught in the sampled pots. Weights are collected to provide an average weight to apply to your tallies.

All species in each pot of your sample must be tallied. Be aware of fish that may fall onto the deck when the pot is dumped. These species must be included in your tally.

When there is little catch, all organisms from each sampled pot may be sorted, counted, and weighed. Most often this method is not possible with the predominant species, but may be possible with the non-predominant species.

When counting ***and*** weighing everything in a pot is not possible you should:

1. Tally all the predominant species in your sample.
2. Tally all of the bycatch species in your sample.
3. Collect, count, and weigh as many individuals of the predominant species from your sample that you can. You should be able to count and weigh at least 60 individuals over the course of the entire haul.
4. Collect, count, and weigh as many individuals of the bycatch species from your sample that you can. You should be able to count and weigh at least 50 individuals of each bycatch species throughout the entire haul.

Extra Bycatch

Remember that your tally is an accurate count of all that was caught in the pot. Occasionally you may find more bycatch collected in your baskets than the number of that species tallied in your sample. If this happens, record the tally with a weight of zero in the sample. You must then record the number and weight of the bycatch species that were collected as a subsample.

Taring Your Scale

Generally you will be using some container (*e.g.*, a basket) to weigh your fish. ***Remember to tare the scale for this container!*** Check your tare frequently and tare every time you change containers! If your scale is not properly tared the weights will not be accurate. For more information see "Taring Your Scales" on page 2-24.

How you collect weights for predominant and non-predominant species depends on the configuration of the vessel, how the crew processes the catch after dumping it from the pot, and how much is caught in each pot.

As a pot is dumped into a tote or onto a sorting table, count the predominant species using thumb counters and tally the bycatch species on the Deck Form. Depending on the number of individuals, you may be able to collect all non-predominant species in a separate tote or in your observer baskets and weigh them all. If you cannot collect and weigh all bycatch, use a random method to collect individuals of these species to obtain a weight.

Minimizing Sample Bias

Pot vessels typically dump catch from a pot onto a sorting table. If the pot is one of the randomly chosen sample pots, you must account for all fish in the pot. If all the fish in the pot are collected there is no bias to the sample. If a portion of the catch is taken from the pot to weigh, and the rest tallied, it is possible to bias the sample if the fish are not selected randomly.

When you are collecting fish for weights and biological data be sure to monitor for size bias and minimize this bias as much as you can. Due to safety reasons, you may need to ask the crew to assist with your collection of fish from the table. Be sure that you are monitoring the crew so that they are not hand-selecting the fish or otherwise size biasing your collection. Be assertive with your directions to the crew.

Make rules for which fish you will collect from the table or tote. If the crew are assisting you, make sure they follow the same rules. For example, tell the crew "All the fish in the left hand corner are my weight fish." Be sure to document how you collect your samples in your logbook.

Subset Sampling for Weights and Sex/Lengths

The best method is to count and weigh all of the fish from a pot for weight, sex/lengths, and biological sampling, thus eliminating the chance of bias. If there are too many individuals of a species for you to weigh them all, devise a system to avoid hand selection and ***always collect fish prior to the crew sorting the fish***. Following are suggestions for collecting fish for average weights listed in the order of preference:

1. Select all of the fish from a single pot. If you do not get the desired number of fish in the selected pot, continue your collection to the next pot. If there are more fish than desired here are some options:

   - If you have 2 totes available to collect fish, place them end to end under the launcher and let the crew dump the pot into the totes. Randomly select one of the 2 totes and use these fish for your sample. Make sure you have a rule for which tote receives any fish that spill onto the ground.
   - Select half of the fish from the table. Find a divider of some type (for example, a board or your baskets), place it in the middle of the table, and randomly select one side. Collect all the fish from the randomly selected side. Always use a predetermined dividing point.
   - If the catch is dumped into a tote, divide the tote into halves or quarters and select all the fish from a randomly selected side or quarter. Use a divider (a basket lid works well for this) to split the tote into equal parts and randomly select a side to collect fish for your sample.

2. Collect a small number of fish from the sorting table. Randomly select a corner of the sorting table and take the 5 fish closest to that corner. Do this for 4 consecutive pots. If possible, randomly select the corner for each collection of 5 fish. This method may be used when storage space is limited.

Regardless of the subset sampling method you choose, be sure to provide a number or number and weight for all catch encountered in your samples.

Collecting Weights for Non-Predominant Catch

Typically, you will be able to weigh all the non-predominant species in your sample. ***The observer program expects you to weigh all individuals of a non-predominant species when there are less than 50 in a sample.*** You can collect individuals of non-predominant species over the course of the sample, store them in a container and weigh them in between pots or samples. Try to spread the collection of weight samples over all your samples, rather than taking them from just one sample.

Collecting Weights for Predominant Catch

Typically, the predominant species will be too numerous in your sample for you to weigh every individual. ***The observer program expects you to collect and weigh at least 60 individuals of the predominant species for each sampled haul.*** Try to spread the collection of weight samples over all your samples, rather than taking them from just one sample. Prior to gear retrieval, randomly determine the pot(s) in a given sample from which you will collect the predominant fish. Do this by numbering the sample pots consecutively from 1 to the total number of pots in the sample. Use the random number table to determine

the pot or pots from which to collect catch for weighing. It is often difficult to know exactly how many pots you will need, and you may need to rely on opportunistic sampling on occasion.

When You Cannot Count All the Crab in a Pot

Resource managers manage prohibited crab species by number and not weight. Occasionally, a pot will contain several hundred crab (typically Tanner species), and counting these crab may take too much time which would adversely affect your ability to maintain your sample size and design. Although ***it is preferred that you count all of the individuals***, in this circumstance you are ***not*** expected to count all of the individual crab, but you are expected to weigh them. To allow resource managers to use these data, ***a subset sample for number and weight must be provided for every sample when it is not possible to count every individual crab***.

If you are overwhelmed with crab, ***randomly select about 50 individual crab to identify to species, sex, count, and weigh.*** The remaining crab can be scooped into baskets and weighed without providing a total number. ***This method is only an option for crab species and crab parts on pot vessels.*** All other species must have an actual number associated with them. See "Subset Sampling" on page 2-23 for more information.

The 50 crab that were randomly selected to be counted and weighed may then be reduced to approximately 20 individuals for sex/length and biological data. ***See "Sampling for Lengths and Specimens" on page 12-2***.

Dealing with Whole Crab Versus Crab Pieces

Document weight data for whole crab only. For our purposes, a crab is considered whole if it is essentially whole by weight. It is not necessary for a crab to be intact to be considered whole.

If you find that a crab in your sample, once whole, is now broken and missing a majority of its weight, you may be able to determine the species ***and you must report the weight of these parts without a number.*** Weights that do not represent whole crab are inaccurate from the data user's perspective and negatively impact weight to number relationships otherwise provided by the data.

On pot vessels, crab are usually intact and obtaining a number is as easy as counting individuals. If you encounter crab parts along with whole crab in your sample, proceed as follows:

1. Identify all whole crabs to species and report their number and weight. Remember that it is not necessary for a crab to be intact to be considered whole.

2. Identify loose crab parts to the best of your ability. Carapaces should be identified to species and legs can usually be identified to the appropriate genus group code. Report the weight of these parts on a separate line from any whole crab weight/number values and enter a value of zero for number of crab. ***Whenever crab are reported with a weight and a number of zero you must also provide a subset sample for number and weight.*** Doing so will allow the observer program to calculate a number of whole crab based on the weight of the parts.

3. If there are too many crab and you are only able to weigh, but not count, all of the whole crabs, it is acceptable to weigh crab parts with whole crab of the same species.

Tips for Sampling on a Pot Vessel

As the vessel is retrieving gear, there is generally enough time between pots to weigh fish from the predominant species for average weights and to weigh bycatch. There may even be enough time to measure fish for length frequencies. The crew tends to be more willing to cooperate with your sampling needs when you make attempts to reduce your effect on their processing time. This may be accomplished by bleeding or cutting the fish in your sample yourself. Have the crew show you how to bleed or cut the fish in your sample in the same manner as they do. Note that processing the fish in your sample is not required and should not be done if you find yourself running low on time.

COMBINED SAMPLES

The ***only*** time you combine sample data on a pot cod vessel is when you are unable to distinguish the tally data of one sample from another. There are going to be occasions when you are processing a sample and come across a fish that you think ***might*** belong to a previous sample taken for the set. When you know that a fish should be included in the species composition data for the set, but do not know which sample it came from, you must resort to "combining" samples. You only

combine those samples that you are unsure of; any intact samples are reported as discrete samples for the set.

On the Deck Form, mark the samples that will be rolled together as combined by checking the circle next to "Combined" for those samples. The combined samples are reported as one sample in ATLAS or faxed paper form. When reporting combined samples, enter the data for all the samples affected under a single sample number. By combining samples into one in the reported data, you are alerting data users to regard these samples separately from intact samples. You can have a mixture of combined and non-combined samples for a set. You combine only those samples you believe are no longer discrete samples.

WHEN THERE ARE NO FISH ENCOUNTERED DURING THE SAMPLE

On rare occasions there will be no fish in one or all sampled pots. Knowing that there are no fish in a sample is just as important to fisheries managers as knowing how many there were.

To report the absence of fish on a Deck Form and paper Species Composition Form, record the date of the haul, your cruise number, vessel permit, and sample number in the header portion of the form. Record the sample size (the total number of pots in the sample period), fill in the keypunch values with zero and write no fish across the sample block and mark the "no fish in sample" box on your Deck Form. In ATLAS you will simply enter an "N" in the "Species Comp in Sample" box. Please refer to the figures at the end of this chapter for documentation examples and page 18-10 of the ATLAS chapter for information on entering these data.

ESTIMATING PERCENT RETAINED

Each species reported in the species composition samples for a set must have an associated estimation of percent retained.

An individual fish is considered fully retained (100% retained) when more than 15% of its round weight is turned into product. Round weight is the weight of the whole fish, prior to processing. It is best to enter your estimate of percent retained after the haul is completed because percent retained for each species is done on a haul basis, not by sample. Refer to all the samples collected from the set for this information. See Figure 10-2 for an example of recording percent retained on pot vessels.

The percent retained you report for a species must be consistent for that species over all the samples collected during the set. For this reason, calculate percent retained after the set is completed.

HALIBUT VIABILITIES ON POT VESSELS

The criteria for assessing viability on pot vessels differs somewhat from that used for assessing trawl caught halibut. Use the "Halibut Condition Criteria For Pot Bycatch" on page A-43 to assess viabilities on pot vessels. Halibut used for viability samples must be in your hands, assessed immediately, and actually measured. ***Length estimates are not acceptable.*** All halibut viabilities must be recorded on the Deck Form as raw data, the Length and Specimen Form (non ATLAS vessels) or in the ATLAS program. Use E-(excellent), P-(poor), and D-(dead) in the **Viability** column. For halibut viabilities on a pot vessel, place a U in the sex column and leave the injury column blank.

Halibut for viability assessments must be randomly selected from sampled sets. Halibut assessed for viability do not need to come from your species composition sample, but they must reflect how the crew handles the fish. If the vessel is not catching many halibut, it is easiest to assess the viability of every halibut in your composition sample.

If the vessel is catching a lot of halibut, randomly select individual pots and assess halibut viabilities for all the halibut in these pots. Number the pots and then use the random number table to select an appropriate number of pots. Determine the number of pots to sample for halibut viabilities by estimating the number of halibut that could be in each pot. Attempt to assess viability from approximately 20 halibut per day.

In your logbook, document all methods you employed for collecting halibut and assessing viabilities. Use your best judgment to determine how much time you can spend assessing halibut viabilities. If you assess less than 20 halibut per day, record in your logbook what factors limited your ability to conduct viability assessments.

Other Halibut Related Issues on a Pot Vessel

If the vessel is catching a lot of halibut, make sure to verify that the halibut excluder devices are in place. The halibut excluders are required. In your logbook, record any instances of missing excluders. For a specific definition of halibut excluders that must be used see "Groundfish Pot Requirements§679.2" on page 20-15.

In addition, be aware of how the crew is discarding halibut. The fish should be supported as it is lifted or slid off the deck. The spine of halibut can be broken by mishandling, especially lifting the halibut by the caudal peduncle. In your logbook, record any incidences of the crew lifting halibut by the caudal peduncle or any other mishandling of halibut by the crew.

FISH MEASUREMENTS ON A POT VESSEL

Your duties for collecting predominant and prohibited species measurements and other biological data are the same as for all other vessels. How these duties are conducted may be constrained on a pot fishing vessel by the lack of cooperation from crew. Document any difficulties encountered and the methods you employed in your logbook. If you are having difficulties with cooperation from the crew please see "Specimen Data and Uncooperative Crews" on page 8-22 for further instructions. Please see "Regulatory Support for Cutting Fish to Obtain Sex Data" on page 13-16 for additional information.

SAMPLING ON LONGLINE POT VESSELS

There are a few boats that longline pots when targeting sablefish. Though there are some differences, you should be able to sample these vessels like any other pot vessel (*i.e.*, tally everything in your sample pots, weigh 60 of the predominant species and at least 50 of the non-predominant species per haul). The time in between pots is shorter, but the amount of bycatch is usually minimal. Because of the fast pace of this fishery, at times it may be difficult to complete all the sampling requirements; be sure that you are familiar with the sampling priority list. If you cannot complete the sampling requirements, contact your inseason advisor or FMA field staff and document the problems in your logbook.

Live Deliveries

Some of the longline pot vessels deliver live sablefish. If the vessel is delivering live sablefish, the crew will usually not allow you to cut the fish because it will decrease the value of their catch. In this case, you should collect unsexed sablefish lengths and have the plant observer collect sex length and otolith information during the delivery. Please see "Regulatory Support for Cutting Fish to Obtain Sex Data" on page 13-16 for additional information.

DECK FORM INSTRUCTIONS

Your Deck Forms are an important component of your data documentation. It is important to fill out the forms completely and legibly! ***Never recopy raw data and always return to debriefing with your original data.***

All raw species composition data collected by you must be documented on the Deck Form provided by the Observer Program, whether or not your vessel has ATLAS. PLEASE WRITE LEGIBLY!

On vessels equipped with ATLAS, you enter data from the Deck Form directly into the ATLAS system. On non-ATLAS vessels, information on the Deck Form must be transcribed to a paper Species Composition Form and faxed (see "Paper Form Instructions" on page 10-15).

The Deck Form is double sided with two sample blocks available on each side. The header information at the top of the Deck Form must be filled out and pertains to both sample blocks below it. You may have one haul's worth of samples on one side of a Deck Form and another haul's worth of samples on the other side, ***but you cannot mix two haul's worth of data on a single side of the Deck Form.*** You must maintain a separate set of forms for each vessel to which you are deployed.

Multiple samples and subsamples taken within a set should be maintained completely independent of each other with their own unique sample number and sample block (or blocks). If you have to combine samples, simply check the circle next to "Combined" for the affected samples (for information on combined samples see "Combined Samples" in the Longline Chapter on page 8-19).

As with longliners, weight data from outside the sample are reported as subsample data and weight and

number data from within the sample are reported as sample data. Subsamples have a specific numbering system that is associated with the parent sample, explained in "Subsample number" (see below).

Maintain a separate set of forms for each vessel.

Examples of a completed Deck Form start on page 10-18. ***The following Deck Form rules must be followed for all pot vessels. All fields must be filled out completely:***

Observer Name/Vessel Name - For each vessel assignment, write your name and the vessel's name across the top of the first page.

Date - Enter the date that the last pot of the set was retrieved. For the month and the day, use leading zeros when needed (*e.g.*, 01/01/13 for January 01, 2013).

Cruise, Permit: Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on page A-27.

Haul No., Offload No: For pot vessel data, leave the offload field blank. For each sample taken within a set, enter the set number the sample came from. Sets can be numbered sequentially beginning with the number 1, or you can follow the captain's numbering convention ***if the captain is not repeating set numbers with each new trip.*** On pot vessels, it is generally better if you can follow the captain's numbering system; when sets are retrieved out of order it can be difficult to track sets if your numbering system is different.

Set number must be unique for the vessel. If you disembark the vessel and then embark again at a later date, you can: continue numbering the sets from the number you left off with, continue with the captain's numbering convention (if s/he is not repeating set numbers), or skip a few numbers (*i.e.*, if you numbered sets of the first trip 1, 2, 3 and 4, you could number sets of the next trip as 11, 12, 13, 14).

Set numbers do not have to be sequential (although it is easier if they are), but they do have to be unique for the vessel.

Sample number: Every sample taken from within a set must have a unique identifying sample number. Number samples taken within a set sequentially, starting with the number 1. You do not need to make sample numbers between sets unique; you can start with the number 1 for the first sample of every sampled set.

Subsample number: For pot vessel sample data, the only time you will have a ***subsample*** is when you are reporting weight data for fish taken from outside sampled pots. Subsamples must be linked to the parent samples from which they came. You do this by using a numbering convention designed specifically for subsamples. Every subsample number must be three digits in length, with the first digit designating the parent sample from which the subsample came, and the next two digits indicating the number of that subsample for the parent sample. Subsample numbering convention is explained further below:

- The first subsample of sample number 1 for a set should be numbered 101, the second subsample for sample number 1 of a set should be numbered 102, the third 103, and so on...
- The first subsample of sample number 2 for a set should be numbered 201, the second subsample for sample number 2 of a set should be numbered 202, the third 203, and so on...
- The first subsample of sample number 3 for a set should be numbered 301, the second subsample for sample number 3 of a set should be numbered 302, the third 303, and so on...

Sample size:

- Samples: on pot vessels, every sample must have a sample size in pots. Record the total pots in your sample, and circle the "pots" text.
- Subsamples: on pot vessels, subsamples do not have a sample size. Leave the sample size blank for subsample data.

# of Sampled Hooks: Leave this blank for pot vessels.

Pre-sorted: Do not check this field. You cannot have pre-sorted samples on pot vessels.

Combined samples: If the samples for a set are going to be combined in the reported data, check the circle next to the word "Combined" for ***only those samples that will be combined.*** When these data are entered into ATLAS or on a paper form, samples designated as combined are rolled up into a single sample entry. See "Combined Samples" on page 10-10 for a description of when samples must be reported as a "Combined Sample."

Unable to Follow Design: If the original sample unit or design for a collected sample cannot be followed, you should indicate this on the Deck Form by marking the "Unable to Follow Design" field. This field is sample specific. When entering data into ATLAS, this field is labeled "Sampled As Designed." If you checked this field on your Deck Form you must enter ***No*** ("N") in ATLAS, otherwise the field will default to ***Yes*** ("Y").

No Fish in Sample: Fill this in if no organisms were caught in the sample.

Species: Enter the common name for each species. If a species is too abundant for you to weigh all individuals, you must take a subset sample for number and weight. Enter these data on a separate line from the entry for the individuals of the species that were counted only. Generally you will be able to weigh all of the non-predominant species in your samples. In this instance enter the number and weight for each of the species.***When transcribing to the paper Length and Specimen form, consolidate the data for the number and weight of a single species into a single line of entry.*** These calculations must be documented on your Deck Form or in your logbook.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and sex. Record "M" or "F" for these species when sex is determined. Leave the sex field blank for any unsexed items and for non prohibited species. Do not record sex codes for any other species even if they were sexed for length samples.

Number: For each species, enter the number of individuals. ***Every species entry must have a number recorded!*** The ***two*** exceptions occur when crab are too abundant to count or if you have an entry for crab parts.

Use as many lines and columns as necessary for each species.

- For decomposed fish (code 899) and miscellaneous items (code 900) enter the actual number of items.
- For subsample data, enter the number of individuals weighed. Unlike samples, subsamples must always have a number ***and*** a weight.

Weight: For weighed fish, enter the weight by species with a well defined decimal. Weights must be recorded to the nearest 0.1 or 0.01 kg. If you feel that your scale cannot be read accurately to the tenth, you must fill in at least a trailing zero. ***Do not enter weights to more than two decimal places.*** If a species in your sample was too small to weigh (*e.g.*, one brittle star) ***enter the weight as 0.01 kg***. This holds true for both sample and subsample data.

For organisms that were not weighed, enter zero in the weight field by species.

Percent Retained: This is a rough estimate of the percent of each species retained by the vessel. See "Estimating Percent Retained" on page 10-11.

If the vessel made any product from more than 15% of the fish, the whole fish is considered retained.

Keypunch check: In the spaces to the right of the word "Keypunch," write the calculated sum for species number and species weight values you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunch checks are a valuable tool for staff who enter your faxed data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries they made. If you are sloppy with your keypunch calculations, staff have to investigate each discrepancy. This is a waste of valuable time for both you and for staff. Please double check your keypunch summaries! The keypunch check for species number should match your tally keypunch (Tally K/P) on the right of the Deck Form.

Length, viability, injury, specimen, tally data: Use the blank area of the Deck Form sample block to record tally data. Use this space to record other sample

specific information such as: sex/length information, specimen information, halibut assessments, and notes pertaining to any biases to the sample, etc. Make comments about anything unusual with the catch or your sampling technique for the set. More complete descriptions of these notes should be documented in your logbook. Making note of unusual occurrences on your Species Composition Form will assist in the debriefing process, and help you distinguish one set from the others. ***Raw data of this sort must be documented!***

Tally K/P box: The tally keypunch box is located on the right-hand side of the Deck Form. This number is the sum of all tallied species which should be recorded on the right side of the Deck Form. The tally keypunch of all the species from the right-hand side of the Deck Form should equal the keypunch for species number on the left side of the Deck Form. If there is a discrepancy between numbers in each keypunch, double check your tallies/numbers and compare them to the numbers in your species composition. Remember to include ***all species counted and/or tallied*** in the tally keypunch. ***This is a required field on the Deck Form.***

PAPER FORM INSTRUCTIONS

If you are on a vessel without ATLAS, you must transfer your raw data from the Deck Form to a paper Species Composition Form. Paper forms are then faxed to the Seattle NMFS office after every trip.

Three samples will usually fit on one species composition page. Each sample must be documented as a distinct sample for that set (except in cases of combined samples - see "Combined Samples" on page 10-10). Unlike the Deck Forms, samples from two or more sets can go on a single page; on paper forms, you do not need to start a new page for each sampled set. Maintain a separate set of forms for each vessel to which you are assigned.

Ensure that your entries to the paper composition form exactly match your entries on your Deck Form.

Cruise, Permit, Observer name and Vessel name: Your cruise number will be given to you during training or briefing, or by your employer. Vessel permits are listed on page A-27. Write your full name and the name of the vessel on the lines provided at the top of the form.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Also, please circle the items that have changed since your last transmission of the data: this will aid keypunchers in making the appropriate modifications to your data.*** You do not need to start a new form after faxing; you can continue to use the form until all sample blocks are filled with data. Be sure to enter the correct header information for each new sample.

Haul #, Offload #: Copy the sample's set number from your Deck Form. Leave the offload number blank.

Sample number: Every sample taken from within a set must have a unique identifying sample number. Number samples taken within a set sequentially, starting with the number 1. You do not need to make sample numbers between sets unique: you can start with the number 1 for the first sample of every sampled set.

Subsample number: For pot vessel sample data, the only time you will have a ***subsample*** is when you are reporting weight data for fish taken from outside sampled pots. Subsamples must be linked to the parent samples from which they came. You do this by using a numbering convention designed specifically for subsamples. Every subsample number must be three digits in length, with the first digit designating the parent sample from which the subsample came, and the next two digits indicating the number of that subsample for the parent sample. Subsample numbering convention is explained further below:

- The first subsample of sample number 1 for a set should be numbered 101, the second subsample for sample number 1 of a set should be numbered 102, the third 103, and so on...
- The first subsample of sample number 2 for a set should be numbered 201, the second subsample for sample number 2 of a set should be numbered 202, the third 203, and so on...
- The first subsample of sample number 3 for a set should be numbered 301, the second subsample for sample number 3 of a set should be numbered 302, the third 303, and so on...

Pre-sorted: Do not check this field. You cannot have pre-sorted samples on pot vessels.

Combined samples: If the samples for a set are going to be combined in the reported data, check the circle next to the word "Combined" for ***only those samples that will be combined.*** When these data are entered into ATLAS or on a paper form, samples designated as combined are rolled up into a single sample entry. See "Combined Samples" on page 10-10 for a description of when samples must be reported as a "Combined Sample."

Unable to Follow Design: If the original sample unit or design for a collected sample cannot be followed, you should have indicated this on the Deck Form by marking the "Unable to Follow Design" field. If the field is marked on the Deck Form, be sure to mark it on the paper composition form.

No Fish in Sample: Fill this in if no organisms were caught in a sample.

Sample size:

- Samples: on pot vessels, every sample must have a sample size in pots. Record the total pots in your sample, and circle the "pots" text.
- Subsamples: on pot vessels, subsamples do not have a sample size. Leave the sample size blank for subsample data.

# of Sampled Hooks: Leave this blank for pot vessels.

Species name and species code: List each species (or species group) encountered by their common name (or group name) and enter the associated species code. Species codes can be found starting on page A-1. Enter the code that corresponds to the most specific identification you were able to make. ***Consolidate the data for the number and weight of a single species into a single line of entry.*** These calculations must be documented on your Deck Forms or in your logbook.

Generally you will be able to weigh all of the fish in your samples. In this instance enter the number and weight for each of the species. If a species is too abundant for you to weigh all individuals, you must take a subset sample for number and weight. Enter these data on a separate line from the entry for the individuals of the species that were counted only.

Sex: Tanner crab, king crab, and salmon should be listed separately by species and by sex. Record an "M" or "F" for these species when sex was determined. ***Leave the column blank when sex was not determined or for any non-prohibited species.***

Number: For each species, enter the number of individuals. ***Every species entry must have a number record!*** The ***two*** exceptions occur when crab are too abundant to count or if you have an entry for crab parts.

Use as many lines and columns as necessary for each species.

- For decomposed fish (code 899) and miscellaneous items (code 900) enter the actual number of items.
- For subsample data, enter the number of individuals weighed. Unlike samples, subsamples must always have a number ***and*** a weight.

Weight: Copy the weight entry from the raw data on the Deck Form for the haul/species. Enter weights with two digits following the decimal point printed on the form for the clarity of the faxed data. Even if you feel that your scale cannot be read accurately to the tenth, you must fill in trailing zeros. ***Always enter weights to only two decimal places.*** If a species in your sample was too small to weigh (*e.g.*, one brittle star) ***enter the weight as 0.01 kg***. This holds true for both sample and subsample data.

For fish that were not weighed, enter a 0.00 in the weight field by species. Remember to subtract the number of any weighed individuals from that species or species group.

Percent Retained: This is a rough estimate of the percent of each species retained by the vessel. See "Estimating Percent Retained" on page 10-11.

If the vessel made any product from more than 15% of the fish, the whole fish is considered retained.

Keypunch check: In the spaces to the right of the words "Keypunch check," write the calculated sum for species codes, species number, species weight, and percent retained values you recorded for the sample. If your species composition sample has too many species to fit in one sample block, enter the total sums on the

keypunch line in the first block for the sample and leave the keypunch line blank for the second block used for the sample.

Keypunch checks are a valuable tool for staff who enter your faxed data. If the keypunch value the computer calculates does not match the keypunch value you wrote down, staff know to double check for errors in the entries they made. If you are sloppy with your keypunch calculations, staff have to investigate each discrepancy. This is a waste of valuable time for both you and for staff. Please double check your keypunch summaries!

REVIEWING FORMS FOR ERRORS

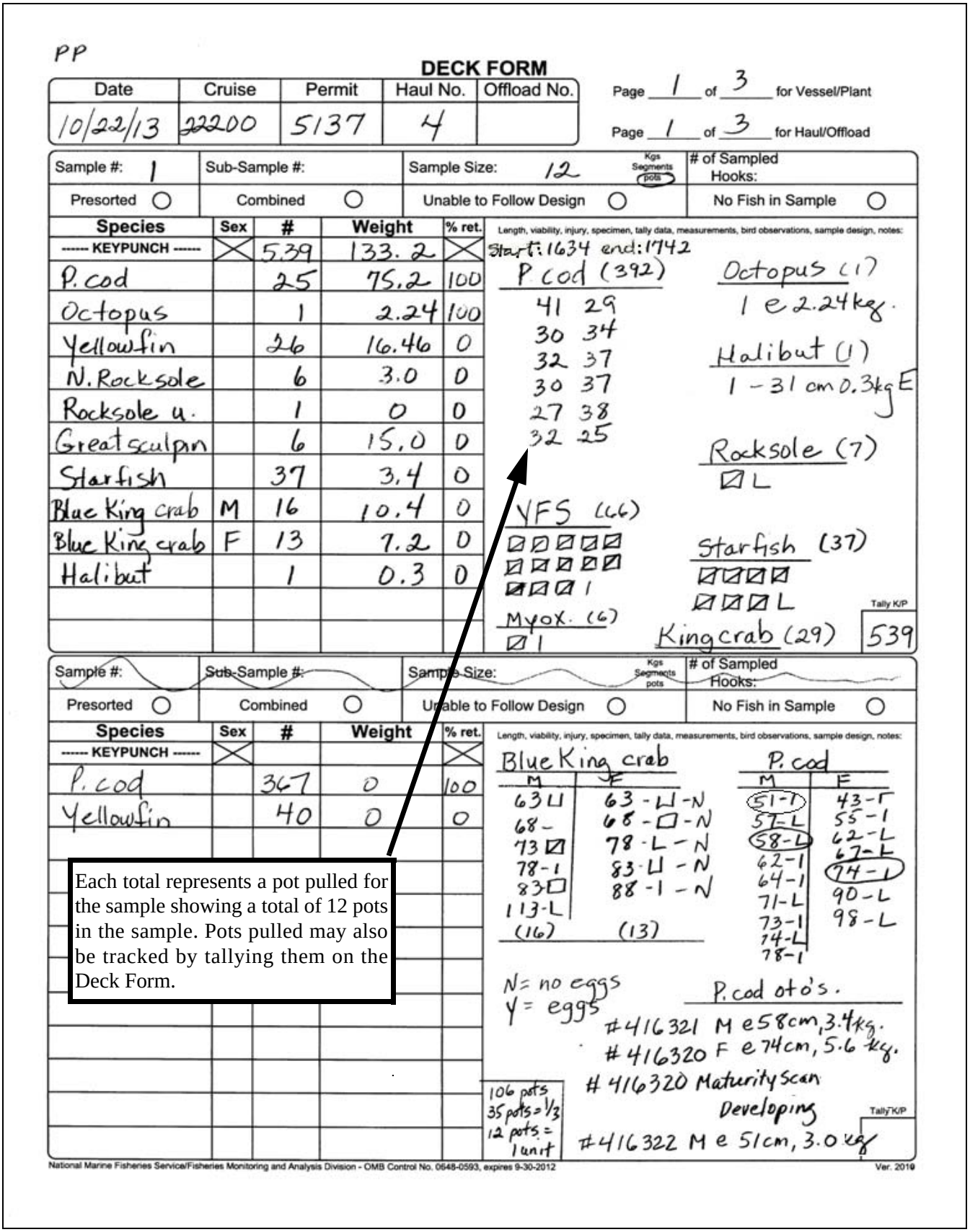
To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. ***It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once!*** Follow the guidelines below when reviewing your data for errors.

Check All Forms For:

- Your name and vessel name on the first page of each form type
- Pages numbered properly, no skipped or duplicate numbers
- Every page has your cruise number and vessel permit number
- All fields with pre-printed decimals have numbers listed to two decimal places
- Your handwriting is clear and legible
- Keypunch fields are complete

Check Species Composition Form for:

- Haul numbers correspond with dates and hauls listed on the VHF
- Species names match species codes (paper forms)
- No species codes are listed twice except for different sexes of prohibited species
- No species codes are listed without corresponding data
- Sex codes are included only for salmon, Tanner and king crab species
- If sex is unknown, the sex field is left blank
- Zeros are recorded for those number entries with no weight
- Decimal points are distinct and recorded to no more than two decimal places
- All weights are in kilograms
- Accurate keypunches of numbers, weights and species codes!
- Percent retained numbers are whole numbers entered for all species and are consistent between samples for a haul



PP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
10/22/13	22200	5137	4	

Page 1 of 3 for Vessel/Plant

Page 1 of 3 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 12 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	539	133.2	X
P. cod		25	75.2	100
Octopus		1	2.24	100
Yellowfin		26	16.46	0
N. Rocksole		6	3.0	0
Rocksole u.		1	0	0
Great sculpin		6	15.0	0
Starfish		37	3.4	0
Blue King crab	M	16	10.4	0
Blue King crab	F	13	7.2	0
Halibut		1	0.3	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Start: 1634 end: 1742

P. cod (392)

41 29
30 34
32 37
30 37
27 38
32 25

Octopus (1)
1 e 2.24kg.

Halibut (1)
1 - 31 cm 0.3kg E

Rocksole (7)
☑ L

YFS (66)
☑☑☑☑☑
☑☑☑☑☑
☑☑☑ 1

Starfish (37)
☑☑☑☑
☑☑☑ L

Myox. (6)
☑ 1

King crab (29)

Tally K/P: 539

Sample #: | Sub-Sample #: | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X
P. cod		367	0	100
Yellowfin		40	0	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Blue King crab

M	F
63 L	63 - L - N
68 -	68 - ☐ - N
73 ☑	78 - L - N
78 - 1	83 - L - N
83 ☐	88 - 1 - N
113 - L	
(16)	(13)

P. cod

M	F
51 - 1	43 - 1
57 - L	55 - 1
58 - L	62 - L
62 - 1	67 - L
64 - 1	74 - 1
71 - L	90 - L
73 - 1	98 - L
74 - L	
78 - 1	

N = no eggs
Y = eggs

P. cod otolith's.

#416321 M e 58cm, 3.4kg.
#416320 F e 74cm, 5.6 kg.
#416320 Maturity scan Developing
#416322 M e 51cm, 3.0 kg

106 pots
35 pots = 1/3
12 pots = 1 unit

Tally K/P

Each total represents a pot pulled for the sample showing a total of 12 pots in the sample. Pots pulled may also be tracked by tallying them on the Deck Form.

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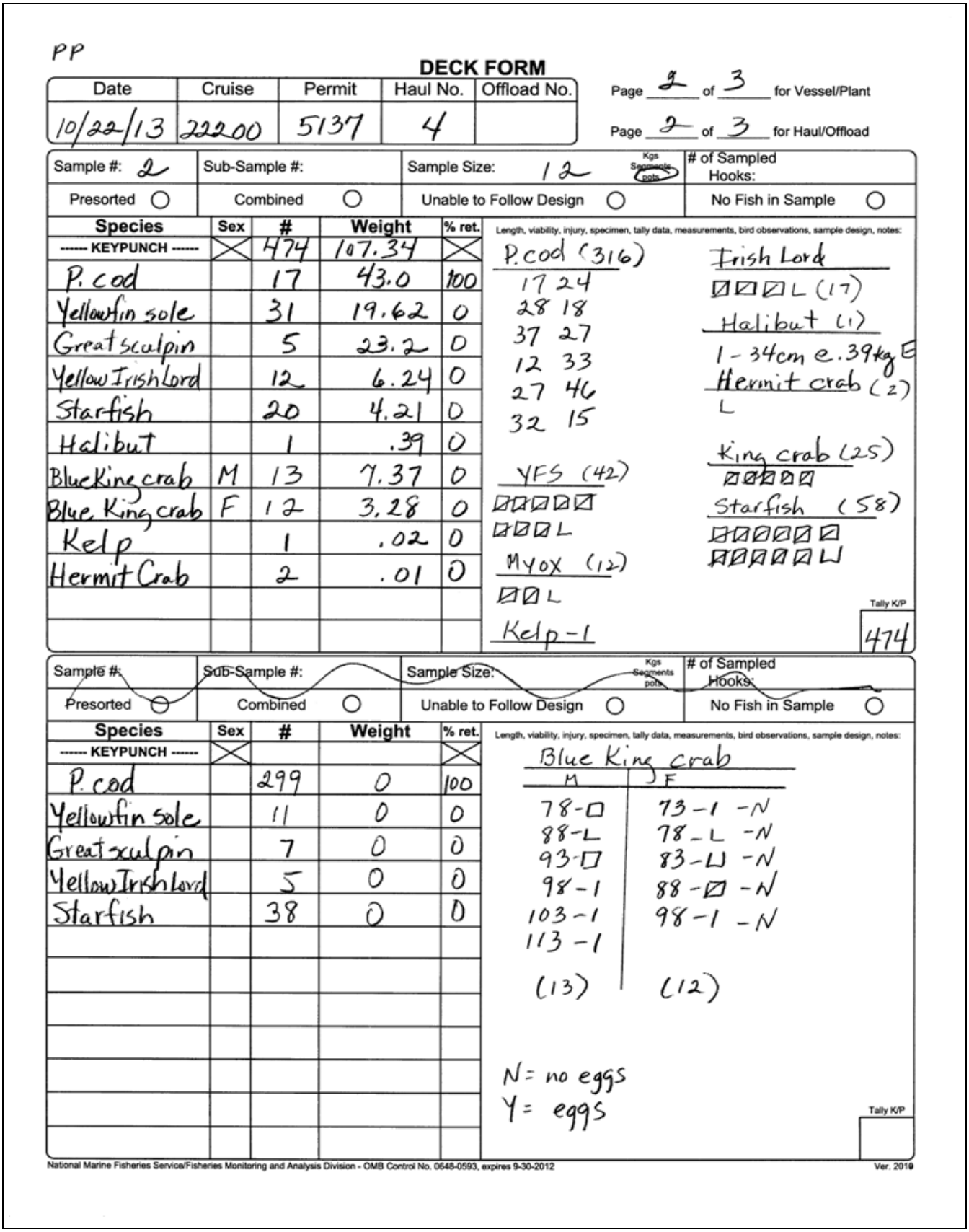
Figure 10-2: Example of Raw Data From a Pot Vessel



PP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
10/22/13	22200	5137	4	

Page 2 of 3 for Vessel/Plant

Page 2 of 3 for Haul/Offload

Sample #: 2	Sub-Sample #:	Sample Size: 12 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	474	107.34	X
P. cod		17	43.0	100
Yellowfin sole		31	19.62	0
Great sculpin		5	23.2	0
Yellow Irish Lord		12	6.24	0
Starfish		20	4.21	0
Halibut		1	.39	0
Blue King crab	M	13	7.37	0
Blue King crab	F	12	3.28	0
Kelp		1	.02	0
Hermit Crab		2	.01	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

P. cod (316)
17 24
28 18
37 27
12 33
27 46
32 15

YES (42)
☑☑☑☑☑
☑☑☑L

MYOX (12)
☑☑L

Kelp-1

Irish Lord
☑☑☑L (17)

Halibut (1)
1-34cm e.39kg E

Hermit crab (2)
L

King crab (25)
☑☑☑☑☑

Starfish (58)
☑☑☑☑☑
☑☑☑☑☑L

Tally K/P: 474

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X
P. cod		299	0	100
Yellowfin sole		11	0	0
Great sculpin		7	0	0
Yellow Irish Lord		5	0	0
Starfish		38	0	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Blue King crab

M	F
78-☐	73-1 -N
88-L	78-L -N
93-☐	83-L -N
98-1	88-☑ -N
103-1	98-1 -N
113-1	
(13)	(12)

N = no eggs
Y = eggs

Tally K/P:

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Figure 10-2: Example of Raw Data From a Pot Vessel

PP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
10/22/13	22200	5137	4	

Page 3 of 3 for Vessel/Plant

Page 3 of 3 for Haul/Offload

Sample #: 3	Sub-Sample #:	Sample Size: 12 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ●

Species	Sex	#	Weight	% ret.	Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:
------ KEYPUNCH ------	X	0	0	X	# of Pots Pulled
					☒☒L
					NO FISH

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.	Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:
------ KEYPUNCH ------	X			X	

Tally K/P

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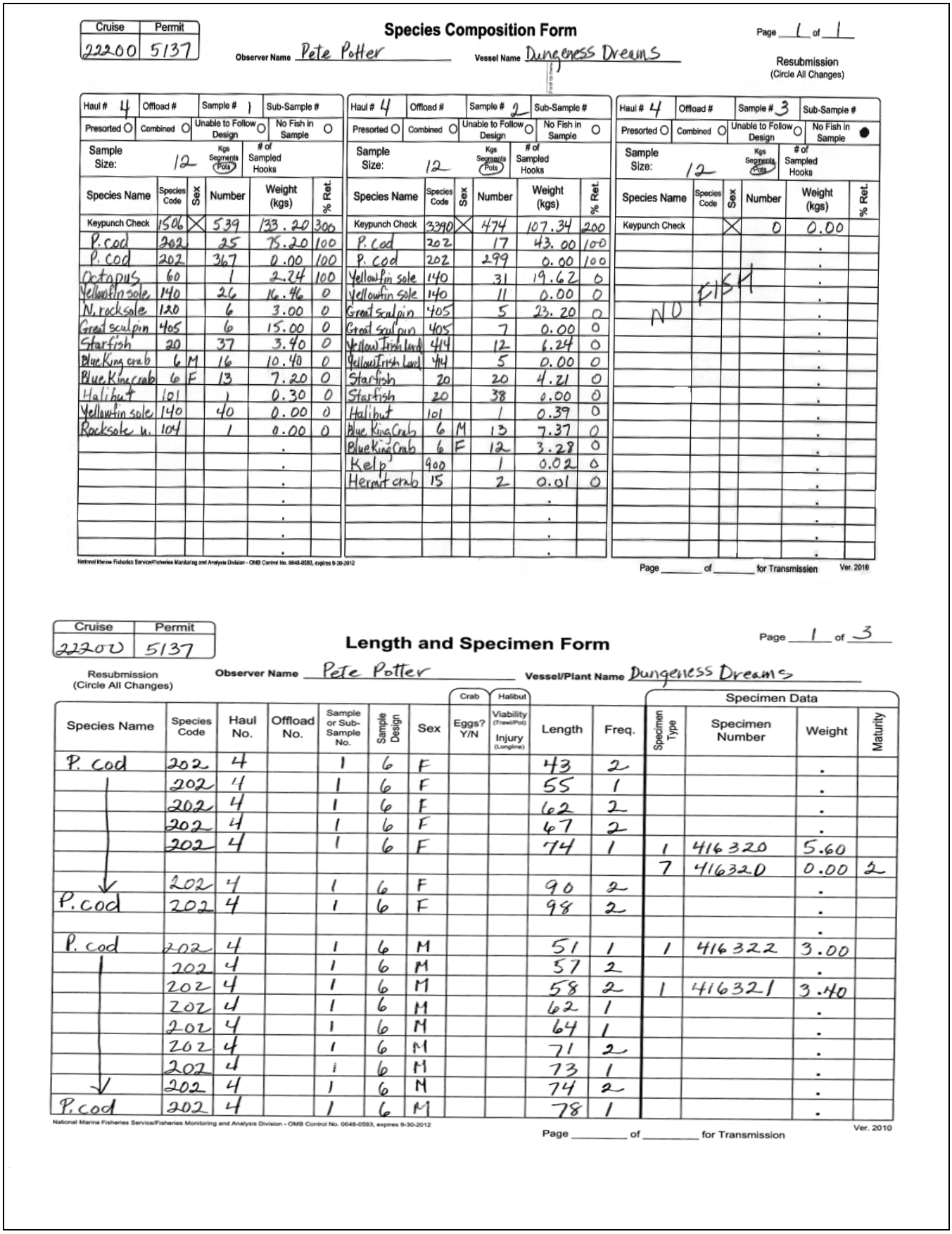
Figure 10-2: Example of Raw Data From a Pot Vessel



Species Composition Form

Cruise	Permit
22200	5137

Observer Name: Pete Potter — Vessel Name: Dungeness Dreams — Page 1 of 1 — Resubmission (Circle All Changes)

Haul # 4 | Offload # | Sample # 1 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 12 | Kgs Segments Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	1506	X	539	133.20	300
P. cod	202		25	75.20	100
P. cod	202		367	0.00	100
Octopus	60		1	2.24	100
Yellowfin sole	140		26	16.46	0
N. rocksole	120		6	3.00	0
Great sculpin	405		6	15.00	0
Starfish	20		37	3.40	0
Blue King crab	6	M	16	10.40	0
Blue King crab	6	F	13	7.20	0
Halibut	101		1	0.30	0
Yellowfin sole	140		40	0.00	0
Rocksole u.	104		1	0.00	0

Haul # 4 | Offload # | Sample # 2 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○ | Sample Size: 12 | Kgs Segments Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check	3390	X	474	107.34	200
P. cod	202		17	43.00	100
P. cod	202		299	0.00	100
Yellowfin sole	140		31	19.62	0
Yellowfin sole	140		11	0.00	0
Great sculpin	405		5	23.20	0
Great sculpin	405		7	0.00	0
Yellow Irish Lord	414		12	6.24	0
Yellow Irish Lord	414		5	0.00	0
Starfish	20		20	4.21	0
Starfish	20		38	0.00	0
Halibut	101		1	0.39	0
Blue King Crab	6	M	13	7.37	0
Blue King Crab	6	F	12	3.28	0
Kelp	900		1	0.02	0
Hermit crab	15		2	0.01	0

Haul # 4 | Offload # | Sample # 3 | Sub-Sample # | Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ● | Sample Size: 12 | Kgs Segments Pots | # of Sampled Hooks

Species Name	Species Code	Sex	Number	Weight (kgs)	% Ret.
Keypunch Check		X	0	0.00	

NO FISH

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Length and Specimen Form

Cruise	Permit
22200	5137

Page 1 of 3 — Resubmission (Circle All Changes) — Observer Name: Pete Potter — Vessel/Plant Name: Dungeness Dreams

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab: Eggs? Y/N	Halibut: Viability (Trawl/Pot)	Halibut: Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
P. cod	202	4		1	6	F				43	2			.	
↓	202	4		1	6	F				55	1			.	
	202	4		1	6	F				62	2			.	
	202	4		1	6	F				67	2			.	
	202	4		1	6	F				74	1	1	416320	5.60	
												7	416320	0.00	2
↓	202	4		1	6	F				90	2			.	
P. cod	202	4		1	6	F				98	2			.	
														.	
P. cod	202	4		1	6	M				51	1	1	416322	3.00	
↓	202	4		1	6	M				57	2			.	
	202	4		1	6	M				58	2	1	416321	3.40	
	202	4		1	6	M				62	1			.	
	202	4		1	6	M				64	1			.	
	202	4		1	6	M				71	2			.	
	202	4		1	6	M				73	1			.	
↓	202	4		1	6	M				74	2			.	
P. cod	202	4		1	6	M				78	1			.	

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Page ____ of ____ for Transmission — Ver. 2010

Figure 10-3: Examples of Species Composition Form and Length and Specimen Data From a Pot Vessel

Cruise	Permit
22200	5137

Resubmission (Circle All Changes)

Length and Specimen Form

Page 2 of 3

Observer Name Pete Potter Vessel/Plant Name Dungeness Dreams

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Halibut	101	4		1	10	U		E	31	1			.	
													.	
Blue King crab	6	4		1	10	F	N		63	3			.	
	6	4		1	10	F	N		68	4			.	
	6	4		1	10	F	N		78	2			.	
↓	6	4		1	10	F	N		83	3			.	
Blue King crab	6	4		1	10	F	N		88	1			.	
													.	
Blue King crab	6	4		1	10	M			63	3			.	
	6	4		1	10	M			68	1			.	
	6	4		1	10	M			73	5			.	
	6	4		1	10	M			78	1			.	
↓	6	4		1	10	M			83	4			.	
Blue King crab	6	4		1	10	M			113	2			.	
													.	
Halibut	101	4		2	10	U		E	34	1			.	
													.	
													.	

Cruise	Permit
22200	5137

Resubmission (Circle All Changes)

Length and Specimen Form

Page 3 of 3

Observer Name Pete Potter Vessel/Plant Name Dungeness Dreams

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Blue King crab	6	4		2	10	F	N		73	1			.	
	6	4		2	10	F	N		78	2			.	
	6	4		2	10	F	N		83	3			.	
↓	6	4		2	10	F	N		88	5			.	
Blue King crab	6	4		2	10	F	N		98	1			.	
													.	
Blue King crab	6	4		2	10	M			78	4			.	
	6	4		2	10	M			88	2			.	
	6	4		2	10	M			93	4			.	
	6	4		2	10	M			98	1			.	
↓	6	4		2	10	M			103	1			.	
Blue King crab	6	4		2	10	M			113	1			.	
													.	
													.	
													.	
													.	
													.	
													.	

Figure 10-4: Examples of Length and Specimen Data From a Pot Vessel (continued)

SHORESIDE PLANTS AND FLOATING PROCESSORS

Table of Contents

PRIORITIES

- Your safety!
- Record delivery information on the Plant/Vessel Offload Form.
- Collect salmon retention data from pollock deliveries.
- Collect salmon genetic specimens.
- Transmit data to NMFS daily.

As applicable to your assignment:

- Verify delivery weight.
- Prepare and distribute a Delivery Weight Verification explanation to vessel observers.
- Verify Plant/Vessel Offload Form data.
- Assist vessel observers.
- Collect length and biological specimens.
- Complete standard and research projects.

SAFETY AT PROCESSING PLANTS

Your highest priority is safety. Each processing plant is different but there are several concerns specific to plants you should be aware of to ensure your safety.

It is very important to always be aware of your surroundings. Here are some examples of things to watch out for at a plant.

1. The forklift drivers often drive around very quickly both on the docks and in the factory. They can move both in forward and reverse and may not see you, so you need to watch for them.

2. The docks and processing floors may be slippery with fish slime, guts, and/or ice and snow.

3. Processing plants may be very noisy; you should wear ear protection to protect your hearing.

4. Be aware of cranes transporting equipment or fish on and off vessels. Wear a hard hat to protect yourself against injury.

Plant observers board vessels daily. It is the expectation of the Observer Program that you wear a PFD ***every time*** you cross from the dock to a vessel or vice versa. If the conditions are questionable, do not cross. See "Boarding Vessels at the Dock" on page 19-7 for specific instructions.

INTRODUCTION

When you are assigned to a shoreside plant or floating processor, your duties and priorities are different from those of a vessel observer. You are responsible for gathering data from incoming vessels delivering to your facility. You are also responsible for assisting pollock vessel observers and informing them about your plant's processing procedures. If your plant is receiving Bering Sea pollock deliveries, your highest data collection priority is to monitor those offloads in their entirety for salmon bycatch, with the vessel observer providing assistance as needed. Lastly, you may be responsible for gathering target species length frequency data and age structures from unobserved vessels.

How your employer assigns an observer to a plant can vary, and some observers may be assigned to cover multiple plants at once. Regardless of how many plants you are assigned to, your time will be under a great deal of demand. It is important that you understand all of your duties and their relative priority when you arrive.

This assignment will be very different than sampling aboard a vessel, so please read this chapter carefully, and refer to it often.

DELIVERY SCHEDULE

In order to gather fishing effort, salmon census data, and biological data, you will need to know when to expect delivering vessels. Most plants have a "radio schedule" between one and three times daily. From the radio schedule, the plant personnel will prepare a delivery schedule. You will need to either attend the radio schedule, or get a reliable copy of the delivery schedule. It is vital that you communicate with the person(s) responsible for updating these schedules. They are not definitive schedules, and changes occur frequently. Many vessels, such as small jig vessels and IFQ vessels, deliver outside of the schedule and often without prior notice. It is necessary for you to communicate your needs directly to the plant management to ensure you receive sufficient prior notification for deliveries from which you are responsible for obtaining data.

Check in with the plant frequently. Your physical presence at the plant is important, and plant personnel are more willing to cooperate with a person whom they see on a regular basis. Do not rely solely on the plant to contact you when there is a delivery.

Plant observers often have the unique situation of being on land. This presents opportunities to move about, and it is understood that you will not always be at your duty station. The decision to leave the plant is up to you. ***Keep in mind that you are expected to meet every delivering vessel and accomplish all other plant observer duties. Missing deliveries due to being***

absent from the plant does not meet FMA expectations and this will be reflected in your final evaluation.

POLLOCK OFFLOAD SALMON CENSUS

While the data collected from offloads are similar in the Bering Sea (BS) and the Gulf of Alaska (GOA) there are different rules and regulations for each region as well as different sampling protocols during the delivery. Vessels in the directed pollock fisheries in the BS and GOA are prohibited from sorting salmon from their catch and must deliver all salmon to the processing plant. Protocols and rules specific to monitoring and sorting Bering Sea pollock offloads at processing plants are described below. The GOA pollock vessels and plants are subject to different regulations and offload sampling protocols. See "GOA Pollock Deliveries to an AFA Plant (Full Coverage)" on page 11-5 for GOA pollock delivery protocols. Regardless of location, both plant and vessel observers will participate in sampling pollock offloads for salmon bycatch. See "Salmon Data Collection" on page 12-8 for a full description of salmon data collection protocols for pollock deliveries.

Collecting Salmon Retention/genetics information from each pollock delivery is the plant observer's highest data priority.

Salmon Retention/Genetics

Pollock offload salmon census information is essential to management for the pollock fishery. Observers at plants receiving pollock deliveries are responsible for reporting Salmon Retention data and collecting salmon genetics specimens.

Recording and Reporting Salmon Data

For examples of how to record salmon retention and genetics data on a Deck Form see "Plant Deck Form Raw Data Example of Bering Sea Pollock Delivery(1 of 2)" on page 11-24. See "Salmon Retention Data in the Pollock Fishery" on page 12-13 for Salmon Retention reporting instructions. See "Salmon Genetics Sampling" on page 12-12 for instructions on collecting genetics specimens.

Bering Sea Protocols

For BS pollock deliveries the plant observer, with assistance from the vessel observer, is responsible for monitoring the sorting of salmon by plant personnel, collecting biological samples from salmon species, and reporting salmon retention data. The Salmon Retention data comes from a census of the entire offload. An observer must be present on the line during the entire pollock offload.

Rules for Bering Sea Pollock Offload Monitoring

There are strict standards that must be followed for Bering Sea pollock offloads. These standards listed below must be followed and are addressed in each plant's Catch Monitoring and Control Plan (CMCP).

1. All salmon must be sorted by designated plant personnel from the offload and placed in the designated salmon storage container identified in the CMCP.

2. The sorting and weighing should occur within view of the observation area designated in the plant's CMCP.

3. The observation area must have clear, unobstructed view of the salmon storage container.

4. As part of the CMCP a work station is provided for the observer. The work station is adjacent to where the observer counts and collects biological information.

5. It is the plant's responsibility to ensure all salmon are properly sorted from the offload.

6. If the salmon container becomes full at any point in the delivery, the offload must cease until the observer has completed the count and collected all biological samples.

7. Once the observer has completed sampling, the salmon must be removed from the area in the presence of the observer.

8. The observer must complete the count and biological data collection before the next delivery begins.

9. No salmon may be allowed to enter the factory until after the observer's duties are completed.

10. The vessel observer may assist the plant observer with biological sample collection but at no time should one observer be collecting samples while the other is watching the offload.

By federal regulation pollock catcher vessel observers must not be assigned to another vessel or sent to debriefing prior to completing their sampling duties.

Bering Sea Delivery Rules and Relief Guidelines

Monitoring the pollock offload is a shared duty between the plant observer and vessel observer. It is required that all pollock offloads are monitored 100%. ***This is the highest priority for all Bering Sea pollock deliveries.*** Relief provided by the vessel observer is to allow the plant observer to perform other duties. The following guidelines are to be followed for Bering Sea pollock deliveries.

Pre-Offload Meetings with Industry

Pre-offload meetings are essential to ensure ***all Bering Sea pollock deliveries*** are monitored in their entirety for salmon bycatch**.** These meetings are expected to take place when a catcher vessel targeting BS pollock comes in with a deckload, have fish in a live tank, or when an interruption of an offload occurs. See "Pre-Offload Meetings with Industry for Bering Sea Pollock Deliveries" on page 2-31 for further information.

Bering Sea Pollock: Plant Observer Offload Guidelines

1. Monitoring the offload of a BS pollock delivery is your highest data priority.

2. Both plant and vessel observer must be available for the pre-offload meeting if one is required.

3. The plant observer and vessel observer each monitor about 50% of the offload. This will allow the plant observer to complete other plant duties. The plant observer may need their relief at any time within the offload. The plant observer may have just finished 2-3 hours on the sorting line when the next offload begins, so the vessel observer may need to monitor the start of their vessel's delivery.

4. The plant observer is responsible for reporting the salmon retention data, collecting biological data and for monitoring the offload. The vessel observer assists the plant observer as needed with biological data collection.

5. Near the beginning of each offload, you should meet with the vessel observer to coordinate the schedule to ensure the offload is monitored 100%. When deciding on the schedule, it is important to keep in mind your other duties and the possibility of the vessel observer having to leave before the completion of the offload.

6. Work out a fair schedule with each observer. Relief periods received must be recorded in your Daily Notes and on the Deck Form. You will likely need relief periods for meals, time to do paperwork, verify delivery weights, sample other delivering vessels, and to complete other plant duties. Ensure that the vessel observer checks on you throughout the offload as they may need to assist with collecting biological data from salmon and/or provide a relief period for you.

The plant is required to stop sorting fish during the salmon count and while biological specimens are collected. It is not acceptable for one observer to watch the sorting line while the other is counting salmon or collecting biological specimens from salmon.

Bering Sea Pollock: Plant and Vessel Observers

1. Both the vessel and plant observer are ***required*** to monitor the offload and both must ensure the offload is monitored 100%.

2. The plant and vessel observer are ***required*** to be present at the beginning and end of each offload. The only exception is when the vessel observer has to leave because the vessel decides to go out fishing before the completion of the offload.

3. Both observers should remain flexible and professional.

Actions resulting in the offload not being monitored 100% will reflect poorly on the observer's work performance evaluation.

Bering Sea Pollock Vessel Observers

See "BS Pollock Offload Salmon Census" on page 5-28 for your responsibilities for a BS pollock delivery.

The offload must be monitored in its entirety. Salmon retention data is your number one data collection priority during your delivery.

GOA Pollock Deliveries to an AFA Plant (Full Coverage)

Full coverage plants will often receive deliveries of GOA pollock. If you are assigned to an AFA plant your duties for a GOA pollock delivery differ slightly than a Bering Sea pollock delivery. You are expected to collect salmon genetics data and salmon retention data. If it is an observed vessel you are expected to give the vessel observer breaks following the GOA pollock delivery break guidelines. For unobserved deliveries collect sex/length and otoliths (see "Length Frequency Sampling" on page 11-13). See the "Gulf of Alaska Protocols" for GOA pollock delivery guidelines.

Gulf of Alaska Protocols

Plants that do not receive Bering Sea pollock deliveries may be required to have partial observer coverage. Observers who are assigned to plants for the purpose of sampling GOA pollock (in the partial coverage category) have different duties than those of an observer assigned to a plant that receives Bering Sea pollock. If you are assigned to a plant in the partial coverage category your data collection priorities are:

- Record delivery information on the Plant/Vessel Offload Form.
- Collect salmon genetic specimens.
- Collect salmon retention data from pollock deliveries.
- Assist pollock vessel observers as time permits.
- Transmit data to NMFS daily.

If you are assigned to a plant receiving GOA pollock please follow the protocols below.

GOA Salmon Genetics/Retention

For GOA pollock deliveries the plant personnel are responsible for sorting the salmon from the offload and placing them in a bin or tote. The plant observer should ask to be notified when an offload sorting is complete and the salmon are ready to be sampled so that the plant observer may collect biological specimens and Salmon Retention data. ***The plant observer is not required to be present or to monitor offloads for unobserved vessels.*** Notify plant personnel when sampling is complete so that they may dispose of the salmon. Any salmon discarded at sea and reported by the vessel observer should be included in the retention count.

Along with the collection and reporting of salmon retention data, observers assigned to plants taking GOA pollock deliveries are expected to collect genetic specimens from Chinook and chum salmon. For protocols for genetics data collection see "Salmon Genetics Sampling" on page 12-12.

For GOA pollock deliveries from observed vessels the vessel observer may sort salmon from their offload. The vessel observer may set the salmon aside for the plant observer or the plant may want the salmon returned to the belt to be sorted out inside the factory and then stored for the plant observer's sampling. The plant observer collects biological specimens from salmon and Salmon Retention data from these offloads.

The vessel observer is responsible for monitoring the offload and sorting salmon from the delivery for their offload salmon census. See "GOA Vessel Observer Offload Salmon Census" on page 5-30.

GOA Pollock: Plant Observer Delivery Break Guidelines

For deliveries of GOA pollock, the vessel observer is responsible for conducting the salmon census during the delivery and reporting the offload species composition sample. The vessel observer may need the plant observer to give them a break provided the plant observer is available. As a general guideline, the vessel observer should get a 90 minute break for every five

hours of monitoring. Give more frequent breaks in cold weather. Work out a fair schedule with each observer. As the plant observer, you should be aware of the processing speed and be able to inform the vessel observer of how long you think their offload will take. Be responsible and provide a break if you know it will be more than 5 hours.

Assisting With the Offload Census
While you are monitoring the offload for the vessel observer, you must sort salmon, identify and tally them for the vessel observer's offload salmon census. See "GOA Vessel Observer Offload Salmon Census" on page 5-30.

GOA Plant After-Scale
The fish that make it past the sorters are referred to as "after-scale" fish. The "after-scale" area is where factory workers will set aside bycatch that was not sorted out and made it into the factory. This bycatch has been weighed as the target species. Plant personnel should deduct the weight of the after-scale bycatch from the target species weight. They also need to add after-scale weights to the appropriate group on the fish ticket. Check to ensure that after-scale bycatch are being recorded as the correct species and not as the target species. You should also ***check the after-scale area for any salmon species that may have been missed by the vessel observer during the pollock vessel offload.*** If you are present at the plant monitoring for after-scale and are able to verify the after-scale salmon came from the observer's vessel, record the number of each species to be included in the vessel observer's offload salmon census composition. Provide this number to the vessel observer at the next opportunity.

Gulf of Alaska Vessel Observers
See "GOA Vessel Observer Offload Salmon Census" on page 5-30 for vessel observer responsibilities for a GOA pollock delivery.

GOA Plant Sampling Specifics
Sampling at plants in the GOA is unique. Plant observers in the GOA may be assigned to multiple plants simultaneously and accommodations are not located on site of most plants. The plant observer will have to maintain good communications with personnel at all plants and establish a system to exchange information such as discard of salmon with observers on delivering vessels. Each plant is different and you will need to spend some time during the first few days of your assignment learning the operation and meeting key personnel. You are required to fulfill all your duties at each plant every day. Remember that you must keep the data collected for each plant separate!

GOA seasons can be extremely fast paced. Take great care in maintaining distinct data from each offload and plant if you have multiple assignments. Establish good communication at the very beginning and work to maintain this to collect great data.

Salmon Genetics
If you are assigned to multiple plants you need to maintain the same systematic sampling design for your genetics samples regardless of which plant you are collecting data from. If any salmon are discarded at sea they are not to be included in the genetics sequence selection.

For example: You are assigned to 2 plants in Kodiak, Plant X and Plant Y. You go to plant X at the end of the offload, count and identify the salmon for retention and collect genetics samples. The offload had 22 Chinook salmon, so you collect 2 genetics samples from the 4th and 14th Chinook. When this offload is finished you head over to plant Y where another vessel has just finished offloading. You identify 6 Chinook. Since your last sample was collected from the 14th of 22 Chinook at plant X you collect a genetics sample and FMA ID scale from the 2nd Chinook pulled from the tote of salmon at plant Y (the 24th Chinook overall).

ADF&G PORT SAMPLER
There may be an ADF&G port sampler during some fisheries in the Gulf of Alaska (Kodiak and Sand Point). Collect salmon data regardless of whether or not it is sampled by an ADF&G port sampler. Do not collect sex/length and otolith data from a delivery if the port sampler is sampling it. You may need to coordinate with the ADF&G port sampler on a daily basis to avoid sampling the same deliveries. All eligible deliveries should be sampled.

Shoreside Plant and Floating Processor Orientation for Vessel Observers

It is very important to keep in contact with vessel observers delivering to your processor. When possible, it is expected that you meet all observed pollock vessels. This is necessary for you and the vessel observers to coordinate sampling of the offload and to provide contact information. You will need to give each vessel observer a tour of the plant and explain to them your delivery weight verification process. The tour of the plant should include:

- Potential safety hazards and emergency contingencies. Document these in the "Plant Orientation Summary" in your logbook.
- The area in which the offload will be monitored for salmon bycatch.
- The "after-scale" area for non-AFA pollock deliveries.
- A description of the plants salmon sampling area and the salmon containers.
- Areas of potential size or composition bias (sorters, incline belts, etc.).
- The location of the office, phone, fax machine, and computer.
- Where they can obtain verified delivery weights and messages from you.
- Location of stomach buckets.

You will need to set up a method for vessel observers to reach you whenever they are in and during their offload so that they will be able to reach you to receive delivery data from previous deliveries. Most plants provide their plant observers with cell phones. Remember, this cell phone is to be used for plant business only. Most plants have a phone at the dock or in the office that the vessel observer may use for contacting the plant observer. Be sure to note the location of this phone during your orientation tour. You may have to establish a "message board" which is accessible 24 hours a day.

Collecting Delivery Information

One of your duties is to gather information from the various vessels delivering to your plant. These data are recorded on the Plant/Vessel Offload Form. Each day you are assigned to the plant must be accounted for on this form even if there are no deliveries that day. The information required for the Plant/Vessel Offload Form can be obtained from the ADF&G fish ticket. You can verify the information on the ADF&G fish ticket in a variety of ways:

- **Ask the vessel observer.** This is a great way to get reliable data for a delivery. Asking the observer is the most accurate method of getting information.
- **Consult the vessel's logbook.** If there is no observer aboard, you can get the gear type and NMFS fishing area from the delivering vessel's logbook (if they are required to use one). You should always introduce yourself as the plant observer, and inform the skipper of what information you are looking for in the logbook.
- **Interview the captain.** Vessels under 60 feet long are not required to carry NMFS logbooks, so you will need to ask the skipper for the pertinent data. At the King Cove-Peter Pan, Trident-Sand Point, the southeastern Alaskan and Kodiak plants, these boats will make up a large portion of your delivering fleet. In the past, observers have made up "worksheets" for the captain to take with him for each trip, and this is occasionally successful.

Regardless of which method you use, it is important to meet each vessel at the dock when it comes in, and to establish a working relationship with the captain and vessel observer. In the GOA you may not be able to verify delivery information using the methods described above; if you cannot verify delivery information document the circumstances in your Daily Notes.

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NMFS Landing Report/ADF&G Fish Tickets

The species delivered and weight information is reported by the plant using the NMFS Electronic Landing Report, often referred to as "E Landings" report and is printed out as the ADF&G Electronic Fish Ticket. The whole weight of the species in each delivery are listed on the fish ticket with a summary at the bottom.

If you determine that ADF&G fish tickets are the most reliable way to obtain verified delivery weights, it is important that they are read correctly. Familiarize yourself with how the processor personnel completes the fish tickets, where their data come from, and if it is accurate at your plant. The processing plant office personnel will familiarize you with their method of completing the fish ticket. See "ADF&G Electronic Groundfish Ticket (examples)" on page 11-21.

Information on the ADF&G fish ticket is confidential and cannot be shared with anyone but the delivering vessel's observer. You must fax (never email) fish tickets for vessel observers only to FMA offices in Dutch Harbor, Kodiak, Anchorage or Seattle. ***DO NOT fax fish tickets to contractors or to other plants; it is confidential information!***

VERIFYING DELIVERY WEIGHTS

Verification of delivery weights is a high priority. You must become familiar with all processing operations and the flow of fish. You must be able to say to the best of your knowledge that the delivery weight on the fish ticket is correct. You need to provide delivery weights to vessel observers and verify delivery weights for your offload form. Ask yourself:

- Are all species delivered present on fish tickets?
- Does the plant sort by species and are species recorded separately on the fish tickets?
- Is the total weight on the fish ticket correct?

Verification requirements differ depending on your assignment:

- If you are assigned to a plant for AFA coverage, verify delivery weights for as many deliveries as possible.
- If you are assigned to a plant in the partial coverage category, verify delivery weights for pollock deliveries only.

Document in detail all verification methods used in your Daily Notes and show all calculations in the "Additional Calculations" pages of your logbook.

Verification Methods

During your first few days at the plant you should determine the best method of obtaining this information. Two methods are:

1. Sum the scale weights.

2. Interpret the ADF&G fish ticket. Verify the weights entered on the fish ticket by comparing the numbers with other documents where weights of fish are recorded such as "dock tallies" and "scale reports."

Summing actual scale weights is preferred, but if you find that the fish tickets are consistently accurate when checked against summed weights, you may use them instead. If the summed scale weights do not match the fish ticket weight contact your inseason advisor or NMFS field office. Should you determine that the ADF&G fish tickets are ***not*** reliable, do not use the fish ticket amount for delivery weight. Document this in your Daily Notes and tell your inseason advisor why your are using a different weight than the fish ticket.

Plants use various means to record species and weights. They may use any combination of the methods below to track species and calculate the actual data they record on the final fish ticket.

- Tote or brailer weights may be recorded by hand on a sheet of paper with the species listed at the top of the column or the weight may be entered to a computer with a code for the species. Watch for incorrect species code entries resulting in the wrong species appearing on the fish ticket.

- Hopper scales record weights electronically. The plant may print all of these weights or only the totals. If the catch is weighed and then sorted there will be tote weights of bycatch subtracted from the final hopper scale weight.

If you are not there to record the scale readouts or you cannot check the original records (sometimes referred to as ticker tape readouts) you will have to use the fish ticket weight as delivery weight.

Delivery Worksheet Verification

You will need to let each vessel observer know how you are obtaining delivery weights. This is a very important task, and crucial to the vessel observers delivering to your plant. To do this, prepare a written paragraph or two explaining how the delivery weights are verified, and what the weights include. In this description, you will need to address each of the concerns regarding verifying delivery weights listed under "Verifying Delivery Weights" on page 11-8. Make several copies of this to give to each of the observers delivering to your plant. If you are assigned to a plant in the partial coverage category you need to provide this worksheet to only the pollock vessel observers. Examples of such descriptions are shown in Figure 11-1.

Large Offload Verification

For large deliveries (*e.g.*, pollock) you might be available at the end of the offload to note the weight on the hopper scale readout. Note if the hopper scale readout includes all fish or if the bycatch is sorted out prior to being weighed by the hopper scale. If bycatch has been sorted out watch these sorted fish being weighed and note this on your Deck Form. The total delivery weight will be the sum of the hopper scale readout and the weight(s) of the sorted bycatch or just the hopper scale readout if no fish were sorted out. Compare the totals you obtain from the readout to the fish ticket. This verification should be done as often as possible. This is not the same as simply summing scale reports from deliveries when you were not present.

Small Offload Verification

For small offloads it may be possible to actually watch an entire offload, record the tote or brailer weights as fish are weighed, and sum the weights to obtain an independent delivery weight. When the fish ticket is available you can compare the your numbers to the fish ticket. This is usually done on smaller deliveries of mixed catch such as a Pacific cod catcher boat delivery of under 50,000 lbs. This verification should be done when possible.

Scales

Plant hopper, tote, and hanging scales are required to be tested annually by the State of Alaska and display panels are sealed and protected against tampering. Therefore, it is not necessary to verify that the scale displays the correct weight. Plant scales are sometimes tested daily, but a daily test is not required. Plant observers need to check that plant personnel are recording the weights accurately and that the entire delivery is weighed.

Items to check on scales:

- Does the scale weigh the entire catch, or is bycatch sorted out first, and weighed separately?
- Do summed scale readouts equal the total delivery weight on the ADF&G fish ticket?
- Do plant personnel subtract a percentage of the pollock weight for water before filling out the fish ticket?
- Does the fork-lift driver record weights for every tote and how are the tote weights tared on the scale?
- Are product codes on the fish ticket accurate?

The electronic platform scale provided at AFA plants for use at the observer sample station must be tested daily by the plant observers.

Alaska Processing Inc. Delivery Weight Verification

Cell: 907-359-5555 Office:907-555-5555

For All Vessel Observers:

We will verify the delivery weight for each delivery in the following manner:

Delivery weights are usually taken from the ADF&G electronic fish ticket. The plant manager does not want us giving out copies of the fish ticket, so we will give you a copy of all our calculations.Wewill add up the fish ticket weights after they have been verified. If we find any discrepancies during the verification process, we will include that information for you. (We checked all the fish tickets during cod and never found any discrepancies.)

Every fish ticket is checked against the hopper scale ticker-tape for pollock weights. These are stapled to a copy of the fish ticket in the plant office, if you ever need them.

All bycatch weights are double checked against the tote weights from the dock tally. (These are also stapled to a copy of the fish ticket.)

We try to check the dock tally once a day during a non-observed delivery. The tote tare weights are checked, and we check to ensure the forklift drivers are recording the information correctly. If you notice any totes being weighed incorrectly during offloads, be sure to let us know!

No water weight is deducted at this plant.

All Pollock Offloads: Please let us know of any at-sea salmon discards as we'll need this information for the Salmon Retention data! We need to track after-scale for the salmon retention data so let us know if you encounter any after-scale salmon during your offload or when you are relieving us.

Bering Sea Pollock Offloads
Come find us when you arrive at the plant and we'll meet to go over monitoring the offload and when your offload will be scheduled to start. You can call the cell phone, find us in the office, or if there is a pollock vessel offloading, we will most likely be on the line monitoring the offload for the salmon. We'll also meet at the start of the actual offload in the sorting area so we can work out a schedule for monitoring the offload and so you can let us know roughly how many salmon we might encounter in the offload.

Gulf of Alaska Pollock Offloads
Come find me when you arrive at the plant and we'll meet to go over completing the offload census for salmon and when your offload will be scheduled to start. You can call the cell phone, find me in the office, or if there is a pollock vessel offloading, I may be in the factory collecting salmon data. I may be sampling at my other assigned plant but I will meet with you as soon as I can. We'll also meet at the start of the actual offload in the sorting area so we can work out a schedule and decide when you will need your break. You can let me know roughly how many salmon we might encounter in the offload. I will write any after-scale salmon that I can verify as being from your offload on the bottom of your fish ticket.

Thanks!

Figure 11-1: Delivery Weight Verification Process (example)

Round (Whole) Weight Delivered
Round weight is the weight of the entire fish, as it was when it was alive. In some fisheries, such as Pacific cod and sablefish, the catcher vessels begin processing their catch at sea. The weight listed in the main body of the fish ticket will be the processed weight of the fish delivered. Pacific cod is usually bled and sablefish are usually headed and gutted. Since parts of the fish have been removed prior to delivery, the recorded delivery weight must be adjusted to represent a delivery ***round weight***. The NMFS Electronic Landings Program, used by all plants, calculates these round weights and lists them at the bottom of the fish ticket, referred to as the notes section, by species as "delivered" and "discarded."

If your are missing the notes section of the fish ticket you must use the product recovery rates (PRR) listed in the appendix. See "Product Recovery Rates (PRR)" on page A-20 for instructions on calculating round weight and PRR codes.

Delivery weight calculations may be recorded in your logbook or on the fish ticket/delivery worksheet. Observers who calculate delivery weight on the fish ticket do not need to transcribe it into their logbook, provided the observer includes the fish ticket with their final data turned in to FMA at debriefing. As with any calculation do not round until the final weight and be sure to label all your numbers.

Organisms Delivered but Not Weighed
You must verify that everything delivered to your plant is accounted for in the ADF&G fish ticket. For pollock deliveries, there are occasions when sharks and other large organisms are delivered but not weighed because they were too big to be pumped into the factory. ***It is your responsibility to ask the vessel observer (if one is assigned) or the plant dock workers if this occurred to make sure anything not weighed is accounted for in the ADF&G fish ticket.*** These items are recorded as code 99 (code 99 is anything delivered but not made into product and /or discarded at the plant).

Improperly Recorded Weight Data
If you determine that data are not being recorded accurately at your plant, you must verify as many delivery weights as possible. Document how the fish ticket and delivery information is recorded by the plant personnel, and what you think is the problem. Notify your inseason advisor. The problem may be easy to correct. For example, if you notice that the plant deducts 3% of the delivery weight as water weight, but you never see any water go over the scale, you can correct the problem by adding 3% back as the target species weight. In the Pacific cod fishery, the catch is often weighed in totes. If the totes are not properly tared, the delivery weight will be inaccurate. Check the tare weight by asking the forklift drivers to weigh empty totes for you. If you find that the totes are not being weighed properly, you must work with the dock personnel to assure correct recording or calculate the weights yourself.

Properly Recorded Weight Data
If you find that the fish ticket weights are recorded properly, continue verifying one or two deliveries per day. In your logbook, document how you are checking these weights. Once you determine the best method for obtaining delivery weights, you should inform vessel observers to use that method. All vessel observers delivering to your plant should use the same method. In your logbook, document your reasoning for picking the method you did, and any problems or concerns you have with the data.

DELIVERIES FROM TENDER VESSELS

Tender boats are vessels which receive catch from catcher boats. They do not carry observers and are not set up to process any fish. Rather, they serve as a "middle-man" by picking up fish from several vessels and bringing it to a processing plant. Tender vessel deliveries are potentially sorted and are usually from several different vessels. Tenders will issue their own ADF&G fish tickets to delivering vessels. The fish ultimately delivered to your shoreside plant already have several fish tickets associated with them. When documenting deliveries on the Plant/Vessel Offload Form follow the protocols below (see Figure 11-5 on page 11-23 for an example):

- Record
  1. The date on which the delivery was completed.
  2. The offload number.
  3. Gear type.
  4. The total weight delivered.
  5. The ADF&G number of the tender vessel.

6. The Elanding Management Program (EMP) code. If the tender vessel delivered fish from multiple EMPs record the EMP where the majority of the fish were caught.

- Do not write a Landing Report ID Number on the Plant/Vessel Offload Form.
- Do not fill out the NMFS area fields on the Plant/Vessel Offload Form.
- Do not collect length/specimen data from tender vessels.

HALIBUT DELIVERIES

When IFQ boats fish for halibut, they are required to keep all incidental catch of rockfish, and abide by IR/IU regulations by keeping some or all pollock and Pacific cod. You may be required to sample the groundfish bycatch delivered.

JIG BOAT DELIVERIES

Record the delivery information on the Plant/Vessel Offload Form. Sample for sexed lengths and otoliths unless a state port sampler is present and sampling an offload, then it is not necessary to collect sexed lengths and otoliths from that delivery.

CDQ/AFA INFORMATION FOR PLANT OBSERVERS

Plant observer duties vary depending on the type of vessel delivering and the fishery the vessel participated in. The 12-hour rule applies during both CDQ and AFA fisheries at all plants (see "Lead Observer's Role" on page 2-29). All plants are equipped with the ATLAS program. Transmit data daily.

Plants are required to weigh all CDQ species on certified scales. Unlike flow scales, there is no daily test requirement for the plant. The State of Alaska tests and certifies scales at plants.

Scale and Catch-Weighing Requirements for Bering Sea Pollock Inshore Processors

All plants receiving deliveries of Bering Sea (BS) pollock are required to have a Catch Monitoring and Control Plan (CMCP). This plan defines the method in which each individual plant will sort and weigh all species during any BS pollock deliveries. Upon arriving at the plant you should review a copy of the CMCP with the plant liaison listed in the plan. If the plant is not following any portion of their CMCP, inform the plant liaison as well as your inseason advisor or staff at an FMA Division office.

The sorting and weighing should occur within view of the observation area designated in the CMCP. As part of a CMCP, a work station is provided for use by the observer. This work station does not have to meet the same requirements as a CDQ sample station. The platform scale provided for use by the observer needs to be tested at 10, 25, and 50 kg on a daily basis and the results should be documented in your logbook. Make sure to inform the vessel observers delivering to the plant that the scale has been tested daily. You should be able to walk between the work station and the observation area without encountering any safety hazards.

Each plant's CMCP will be different so be sure to review each plan carefully even if you have worked at plants before. Contact your inseason advisor if you have any questions about the specifics of your plant's CMCP.

The plan should:

- Detail the size and location of space for sorting catch, the number of staff assigned to catch sorting and the maximum rate catch will flow through the sorting area.
- Identify by serial number each scale to be used to weigh groundfish and describe each scale's use.
- Describe the procedure used to test the scale, list the test weights used, list where these weights will be stored and the plant personnel responsible for testing. Observers are not required to request scales be tested or be present when scales are tested. There are no daily test requirements for the plant's scales.

- Identify the delivery point. The delivery point is the first location where fish removed from a delivering vessel can be sorted.
- Designate an observation area. This observation area is the location where an individual may monitor the flow of fish during a delivery. It must be freely accessible to observers and have an unobstructed view of the flow of fish between the delivery point and the location where sorting and weighing occurs. Plants may use video cameras, parabolic mirrors or other devices to meet this requirement.
- Identify an observer work station. This station should include a platform scale, a table, and a lockable cabinet. The area must be at least 4.5 m^3. This work station will not have to meet the same requirements as a CDQ sample station. The work station should correspond to the one detailed in the CMCP. Test weights should be available to test the platform scale. The scale needs to be tested at 10, 25, and 50 kg on a daily basis and the results should be documented in your logbook. You should be able to walk between the work station and the observation area in less than 20 seconds without encountering any safety hazards.
- Describe the communication equipment for the observer to facilitate communication within the plant. This communications equipment should be the same used by the plant staff.
- Identify a plant liaison. This person is responsible for orienting new observers to the plant and assisting with the resolution of observer concerns.
- Be accompanied by a scale drawing of the plant showing the delivery point, the observation area, the observer work station, the location of each scale used to weigh catch and each location where catch is sorted.

Inshore processors receiving deliveries of groundfish from AFA catcher vessels are required to submit a Shoreside Processor Electronic Logbook Report ***daily.*** The processor is required to generate and retain printed copies of the shoreside processor electronic logbook report at the processing plant for use by NMFS Enforcement and groundfish observers.

Requirements for Processors Taking Deliveries of BS Pollock

Please see "Rules for Bering Sea Pollock Offload Monitoring" on page 11-3.

CDQ Deliveries

For fixed gear catcher vessels, delivery weights are used to manage the CDQ quota. It is the plant observer's responsibility to verify delivery information.

Plant Observer Duties

When you are assigned to a plant in the full coverage category the plant is required to notify you of CDQ deliveries and all CDQ species must be sorted and weighed by species. If no groundfish are delivered, you have no sampling responsibilities as the plant observer and the plant is not required to notify you of these deliveries.

All halibut PSQ (under size halibut for CDQ halibut boats) and crab must be discarded at sea. To the best of your ability, familiarize yourself with the plant's sorting and weighing activities and notify your inseason advisor if the plant is not complying with the regulations.

TARING YOUR SCALES

Generally you will use your brass scales to weigh fish. Be sure to check that the weight indicator is at 0.0 kg when the scale has not weight on it. If you use a container (*e.g.* a basket) to weigh your fish ***remember to tare the scale for this container!*** Check your tare frequently and tare every time you change containers! If your scale is not properly tared the weights will not be accurate. For more information see "Taring Your Scales" on page 2-24.

LENGTH FREQUENCY SAMPLING

For plant observers in the full coverage category collecting length frequency data is a lower priority than completing the offload salmon census, collecting salmon retention data, and verifying delivery weights. Please see "FISH MEASUREMENT AND SPECIMEN COLLECTION" on page 13-1 for instructions on how to collect a length sample and how to sex and measure fish. ***Do not collect length frequency data for non-salmon species if you are assigned to a plant in the partial coverage category***, Do not sample exempted/experimental fisheries.

Be sure to work closely with plant personnel at your plant to ensure you minimize your effects on the product quality when collecting length and specimen data.

Plant observers take 20-30 sexed lengths per unobserved delivery that was not size sorted at sea. Selection of sampled fish is based on the"Length and Specimen Priority List for Plants and Floating Processors" on page 13-36.

You should not collect more than 150-200 lengths per day, even if more could be done! You need to take lengths from deliveries meeting the following criteria:

- The delivery is from a vessel with no observer onboard. ***If all vessels delivering to your plant are carrying observers, do not take lengths.***
- ***There is no at-sea discard of the roundfish target species associated with the delivery.*** Prior to gathering lengths, ask the skipper if any of the target species was discarded at sea. At-sea discards could introduce a size bias, and lengths should not be taken. ***If all roundfish deliveries are sorted at sea, do not take lengths. The exception to this rule is for the flatfish fishery.***

If you find that the majority of delivering vessels are carrying observers, or if all roundfish deliveries are sorted at sea, you may not be able to collect lengths everyday. If only a few of the vessels meet the above criteria, track these boats carefully and take lengths from their catch whenever they deliver. Alternatively, you may find that the majority of delivering vessels are small, unobserved boats which report no sorting at sea. In this case, you need to attempt to spread out your length sampling. Attempt to get lengths from a variety of vessels and NMFS fishing areas.

Note that plant observers:

- ***Do not*** collect pollock length-weight samples.
- ***Do not*** collect lengths/specimens on trawl caught Pacific cod.
- ***Do not*** collect lengths/specimens from tender deliveries.
- ***Do*** collect lengths on species from jig deliveries ***unless*** an ADF&G port sampler is present and sampling.
- ***Do*** collect lengths and otoliths from observed vessels that ***deliver live sablefish,*** provided the vessel observer was unable to collect these data.
- ***Do*** collect lengths and otoliths from groundfish bycatch delivered with halibut vessels.

If more than one preferred target species is delivered, you should take lengths from each delivered species, up to 3 species per delivery. Take 20-30 sexed lengths per sampled delivery for each target species. Please refer to page 13-10 for the correct methods to sex and measure different species of fish.Your plant may be accepting various species of flatfish during your deployment. You may be able to gather lengths on several of these species. Flatfish vessels will always sort at-sea for preferred species. During this process, some size sorting may occur. If all the flatfish vessels delivering to your plant report at-sea sorting of delivered species, take lengths anyway, and document this in your logbook.

Collect your lengths using a random sampling design. Be sure to record the correct sample design type for your length and specimen data (see "Completing the Length and Specimen Form" on page 13-20). If unsorted mixed fish are delivered, divert the flow of fish to half fill a basket. Sex and measure all species in the basket. This will allow you to take randomly collected lengths on a variety of species at once. Fill out the Length and Specimen Form according to standard directions (see page 13-20).

Use a Deck Form to record and keep your raw length and specimen data. You must submit your raw data during debriefing in an organized and consistent format. The observer program does not have a plant specific Deck Form so you must adapt the vessel Deck Form to plant data. Figure 11-6 on page 11-24 is an example of how observers have adapted the Deck Form to accommodate biological data collected by the plant observer.

AGE STRUCTURE SAMPLING

Otolith collection is a standard duty for plant observers in the full coverage category. Otoliths should be collected from every delivery from which you take lengths. Follow the length priority lists on page 13-36 to determine from which species to collect lengths and otoliths. Otoliths must come from fish that are in your length frequency sample. If you are unable to complete

both a length and otolith collection for a delivery, the otolith collection takes priority. ***Do not collect otoliths if you are assigned to a plant in the partial coverage category.***

Refer to "Otoliths" on page 13-7 for collection methods. The number of otoliths you collect each day will depend on the number of target species being delivered to your plant. ***You should try to collect at least 5 otoliths per delivery sampled for lengths, up to a maximum of 25 otoliths per day.*** During some fisheries, there may be many deliveries which fit the unsorted, unobserved criteria for collecting lengths and otoliths. You should not collect more than 25 otoliths per day, even if more could be collected. Collect otoliths according to the following frequencies:

- If only one species is being delivered that is measured for length frequencies, collect five pairs of otoliths per delivery sampled for lengths.
- If two or more species are being delivered that are measured for length frequencies, take two pairs of otoliths per species per delivery sampled for lengths.
- Try to collect otoliths from at least four deliveries per day that meet length frequency collection criteria, for a total of at least 20 otoliths per day.

Note that you should not take otoliths from arrowtooth flounder or trawl caught Pacific cod. Remember that if you are collecting otoliths from pot or longline caught pacific cod, the fish will likely have been bled before delivery, you must divide the weight of the individual fish by the PRR of 0.98. Show your calculations in your logbook or on the Deck Form, and record the calculated weight on the Length and Specimen Form. The Length and Specimen Form should be filled out according to directions on page 13-20.

Sampling Example:
A plant observer sampling a trawl vessel delivery that targeted roundfish in the BS and retained their maximum retainable amounts (MRA) of both sablefish and Pacific cod follows the roundfish priority table (page 13-36). Their length and otolith collection would consist of the following:

1. Sablefish - 20 SLF and 2 otoliths
2. The two most predominant species of rockfish: 20 SLF and 2 otoliths from each species
3. No SLFs or otoliths from trawl caught P.cod

This would be a total of 60 SLFs and 6 pairs of otoliths collected from this delivery.

REFERRING SAMPLING QUESTIONS

Plant observers are a tremendous help to vessel observers, but it is important that they do not overstep their boundaries. ***Plant observers should not answer sampling questions that do not pertain to their plants.*** Vessel observers should be encouraged to contact a FMA staff member if possible. If the observer is not at the plant during FMA hours, have them write their question down and fax it to one to the FMA offices. Give the written response back to the vessel observer. Do not interpret answers or relay the answer to the observer. Follow the same procedure for a text message if you relay the questions via ATLAS.

RESEARCH PROJECTS

Plant observers have the unique arrangement of having access to lots of fish, freezers, field offices, and airports. Therefore, they will frequently be asked to complete fish collections for training use. If you are asked to collect fish, please work with plant personnel to obtain secure, easily accessible freezer space in which to store your collection. During fisheries where sorting at sea is common, you should work with vessel observers to collect requested species. The research project will be assigned to you, so lack of cooperation from vessel observers is not an excuse for not completing it. Please note that prohibited species cannot be collected without a permit. When you are picking which fish to collect, try to choose fish which have just been delivered, and freeze them individually. Rockfish spines should be folded down, and ***the fish frozen flat.*** Small fish are preferred, since more fit in a box, but do not hesitate to bring back fish that are outside of normal size or geographical range. The Observer Program needs to verify any species reported outside these ranges.

Although fish collections are a common research project assignment, there are many projects that may be assigned. Contact an FMA Division Observer Program

office if you have questions about your project, or if you are having difficulty completing it while keeping up with your other duties.

OBSERVER PROVIDER RESPONSIBILITIES

Observer provider companies are responsible for providing all logistics to place and maintain observers aboard fishing vessels or at the site of the processing facility. This includes all travel arrangements, lodging, per diem, and any other services required to place observers aboard vessels or at processing facilities. Each observer deployed to shoreside processing facilities shall be provided with a working cell phone or pager for notification of upcoming deliveries. If you are unable to perform your duties as an observer because there is no reliable transportation to the plant, please contact the FMA Division. If your accommodations are inadequate, document this in your Daily Notes, contact the FMA Division, and let your employer know about the problem.

SALMON RETENTION FORM/DATA

Salmon Retention data must be entered in ATLAS for all pollock deliveries. See "Salmon Retention Form Instructions" on page 12-16 for instructions on recording this data in ATLAS.

PLANT/VESSEL OFFLOAD FORM INSTRUCTIONS

Follow these guidelines for delivery entries on the offload form:

- **If you are assigned to an AFA plant** you must make an entry for every groundfish delivery made to the plant.
- **If you are assigned to a plant for GOA pollock coverage only** record only pollock deliveries. Maintain a separate set of forms for each plant (if assigned to multiple plants). For days with no pollock deliveries record a zero for the delivery number.

Enter at least one line every day. For days with no deliveries, write in a zero for delivery number and note whether you were assigned to the plant that day, and whether or not they were still processing groundfish. These notes are required by NMFS to verify coverage days. Do not sample exempted/experimental fishing permits and do not include them on your Plant/Vessel Offload Form.

Submitting Data

Observers at plants must transmit their data ***daily.***

You must maintain and bring back paper copies of the Plant/Vessel Offload Form, regardless whether or not the plant is equipped with ATLAS!

Cruise, Plant Permit, Year: Your cruise number will be given to you during training or briefing, or by your employer. The plant permit numbers are listed on page A-27. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13").

"Vessels Only" Tab

These fields are only completed by vessel observers. Leave these fields blank.

Observer Name/Plant Name: Enter your name and the name of the plant.

"Plants Only" Tab

Catcher Boat Name: Enter the name of each catcher boat delivering to your plant.You only need to list each boat once per data set, and the vessel does not have to be listed at the top of the page where its deliveries are listed. When all the lines on the first page are used up, go on to page 2, etc. Keep the catcher boat list together on the first several pages of your Plant/Vessel Offload Forms.

Catcher Boat ADF&G #: You can find the number written in one foot high numbers on the wheelhouse of each delivery boat. It is also recorded in the vessel and plant logbooks and on the fish ticket.

Vessel Permit #: Record the vessel permit number. Permit numbers are listed on page A-27. If the vessel does not have a listed permit number, leave this entry blank. Contact NMFS to provide you with a vessel permit number.

Trip Number: This field is completed by vessel observers only.

Offload Number: These must be listed in order by completion date with only one line of data for each delivery. Try to list the offload numbers sequentially but offload numbers can be out of order due to the sequence of how boats are offloaded. Do not split delivery data due to fishing in two NMFS areas. The "Offload Number" on the Length and Specimen Form must correspond to the offload number on the Plant/Vessel Offload Form. Plant observers must enter "0" for any days that no deliveries occurred.

Completion Date: Enter the date of ***completion*** of each delivery to the processing plant. Offloads completed on the same day must be grouped together on the Plant/Vessel Offload Form. If the delivery continues over two or more days, use the date when the delivery is complete. This date should coincide with the one on the fish ticket. Dates must be in two digit format (*e.g.*, 01/01).

"Plants Only" Tab

Gear Type: Enter the appropriate code from the list below. If the delivering vessel is acting as a tender, enter the predominant gear type that you believe was used for fishing.

1= Non pelagic trawl	6= Pot or trap
2= Pelagic trawl	7= Jig
3= Mixed trawl	8= Longline
4= Pair trawl	9= Gill net
5= Shrimp trawl	10= Scottish Seine

NMFS Area: This is the three digit code for the area in which the delivering vessel fished. If the vessel fished in two or more areas for the delivered catch, record the area in which most of the fish were caught. Do not divide delivery data by area. To determine NMFS areas, see page A-34. Leave this field blank for tender offloads.

Total Delivered, Kg or Lb.: Record the total round weight delivered to the plant for that trip. Delivery weights must be reported in pounds or kgs and recorded to the nearest whole number. Remember that when cut or bled fish are delivered, the round weight must be used and is listed at the bottom of the ADF&G fish ticket. ***Delivery weight calculations must be recorded in your logbook. Observers who calculate delivery weight on the fish ticket do not need to transcribe it into their logbook, provided the observer can include the fish ticket with their final data turned in to FMA.***

If there are multiple fish tickets with the same Landing Report ID Number, sum the individual delivery weights to obtain a single total delivery weight.

Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, and the delivery was not from a tender vessel, list each Landing Report ID Number separately in the Offload Form with the corresponding total delivery weight for that individual Report.

"Plants Only" Tab

Total Pollock Weight: Complete this column for Bering Sea pollock deliveries only. Gear code must be "2" and all pollock must be from the Bering Sea. Record the total weight of all pollock in that delivery.

Were All Groundfish Weighed?: Enter "Y" (Yes), "N" (No), or "U" (Unknown) to indicate if all groundfish ***delivered*** to the plant were actually weighed. If you enter "N" or "U" you must note why all fish were not weighed, or why you are unsure, in your logbook. For groundfish deliveries, enter "Y" if all species delivered were weighed. For halibut IFQ deliveries, enter "Y" if all species other than halibut were weighed.

ADF&G # of Delivering Vessel: Record the ADF&G number of the delivering catcher vessel. This number should correspond to the vessel name recorded in the "Plants Only" tab on the top of your first few Plant/Vessel Offload Forms. You can find the ADF&G number written in one foot high numbers on the wheelhouse of each delivery vessel. It is also recorded in the vessel and plant logbooks and on the fish ticket. If you are unable to locate the ADF&G number, contact NMFS staff.

Receiving Processor Permit #: This field is completed by vessel observers only.

Was Catch Sorted?: Enter "Y" if any part of the catch was extensively sorted at sea, or "N" if it was not. If you are unsure whether or not catch was sorted, enter "Y" and document the circumstances in your logbook.

Tender Offload?: Enter "Y" if fish were delivered by a tender and a "N" if they were not. See "Deliveries from Tender Vessels" on page 11-11 for more information on tender deliveries.

Landing Report ID Number: Record the Landing Report ID number associated with the delivery from this vessel.This information is taken directly off the fish ticket. Labeled "Landing Report ID," the number is listed on the left side of the fish ticket, above where the round weights are listed. Record the Landing Report ID number ***exactly*** as it appears on the ticket. Single deliveries to the same plant with multiple fish tickets will usually have a single Landing Report ID Number. In this case, there should be a single line of entry for this delivery. Leave this field blank for tender offloads.

Occasionally, there may be more than one Landing Report ID Number for an offload. If this occurs, and the delivery was not from a tender vessel, each one must be listed separately on the Offload Form as if they were separate offloads. The offload numbers and total delivery weights will be unique to each Landing Report ID Number.

Elanding Management Program: Record the Management Program number associated with the delivery from the vessel. This information is taken directly off the fish ticket. The code is listed on the right side of the fish ticket across from the vessel name. The code is labeled "Mgmt Pgm" and consists of 2-4 characters. Use the table below to find the lettered code. Enter its corresponding numeric code in the Elanding Management Program column on the Plant/Vessel Offload Form and in ATLAS.

Elanding PGM Code	Form Entry Code	Description
A 80	1	Amendment 80
ADAK	2	Adak Com. Crab Fishery
AFA	3	AFA Pollock Program
AIF	4	Annette Is. Fishery
AIP	5	Aleutian Is. Pollock
CDQ	6	Community Dvlp Quota
CPF	7	Comm. Permit Fishery
EXP	8	Experimental/Exploratory
IFQ	9	Individual Fishery Quota
LE	10	Limited Entry
OA	11	Open Access
RES	12	Special Study or Research
RP	13	Rockfish Program (not entered in ATLAS; leave blank)
SMO	14	State Managed GF/Other
SMPC	15	State Managed P.Cod
SMS	16	State Managed Sablefish
STB	17	Salmon Troll Bycatch
TEST	18	Long Term Stock Assesmnt
(No code)	19	Mixed CDQ-AFA
(No code)	20	Mixed Other
(No code)	21	Other

CDQ No.: If the Elanding Management Program code is CDQ, enter the appropriate CDQ number in this column. The CDQ number can be found on the fish ticket directly below the Elanding Management Program code or in the following table. Leave this field empty for all other management codes.

CDQ #	Group Description
C99	Other unidentified Fishing Group
C51	Aleutian Pribilof Island
C52	Bristol Bay Economic Corp.
C53	Central BS Fisherman's Assoc.
C54	Coastal Villages Fishing Coop.
C55	Norton Sound
C56	Yukon Delta
M01	Makah Tribe Whiting Association

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your plant data for errors.

Check Plant/Vessel Offload Form for the following:

- All mandatory information is on the forms. If information is missing, explain the circumstances on the form.
- ADF&G numbers are listed for each of the delivering catcher vessels.
- Every day at the plant is recorded with the date and any sampling activity or lack thereof.
- The entire Landing Report ID Number is listed for each delivery.
- Elanding Management Program number is recorded correctly for each offload.

A. Fish tickets only contain accurate information on the catch delivered. The condition code “98” indicates an estimate of catch discarded at sea and should not be included in your delivery weights. Weights from fish retained for bait at sea or onboard use affect the weights at the bottom of the fish ticket. You must calculate the delivery weight from the Main Body of the ticket. Product codes 92, 95, and 97 are usually not delivered fish, but you must verify this with the plant’s office personnel. Plants are not consistent with the use of these codes and fish may have actually been offloaded and then returned to the vessel.

B. The amount shown in the “Total” field of the fish ticket is not necessarily the total weight of the delivery. You must add up the whole weight of all species delivered to obtain the total delivery weight. If a partial delivery took place a box in the partial delivery box on the fish ticket should be checked. The other fish ticket associated with this offload will be listed on the bottom of the ticket once that offload is completed.

C. Fish tickets may contain only numbers of the prohibited species delivered. If the fish ticket does include a prohibited species weight include this value for the total delivery weight.

D. Completion of fish tickets is often delayed. Coordinate with vessel observers to ensure that they get the delivery weights when the fish ticket is finalized. This may be during their next offload, or it may require you to fax the information to an FMA Division office.

E. **Condition/Delivery codes** - Round weights of fish are needed for delivery weight calculations. Look at the condition codes for the fish weights listed in the main body of the fish ticket. If the code listed is not a “1,”you will need to use the converted round weight listed on the bottom of the fish ticket to calculate total delivery weight.

F. Weights listed below the Permit Holder’s Signature are referred to as the “Notes Section” of the fish ticket. The total round weight by species are listed as “delivered” and “discarded” in the Notes Section. Single entries of the total round weight by species will be listed in the Notes Section. Fish with a delivery condition code other than “01” will be listed in the Notes Section with calculated Product Recovery Rates (PRR). Occasionally a plant may exclude certain species from the bottom of the fish ticket so be sure to check the main body of the fish ticket. ***Do not include the round weight of at-sea discards (code 98) in your delivery weight. See “Product Recovery Rates (PRR)” on page A-20 for instructions on using PRR to calculate round weights.***

G. Halibut round and net weight are listed in the Notes Section. Use the round weight and ignore the net weight. Salmon delivered and donated to the food bank (code 86) may be listed in the Notes Section as discards but should be included in the delivery weight.

H. Some of the weights listed may not be correct. Fish of no value to the plant may have weight estimates rather than scale weights. Check for this and make a note on the fish ticket indicating the estimated weights.

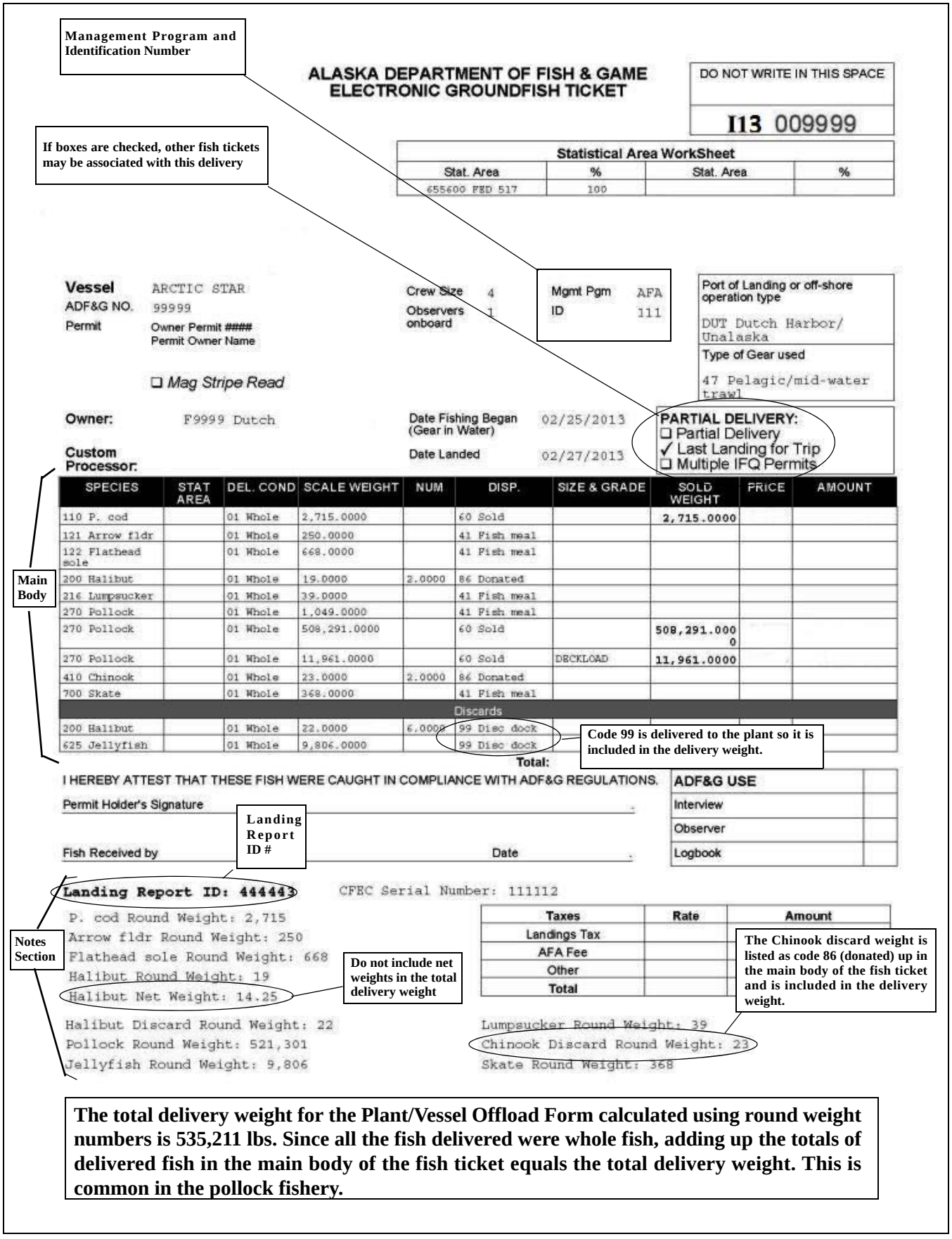
I. The bycatch species listing is sometimes incorrect. Bycatch species may all be lumped together. You must check that the weight for total bycatch was recorded properly somewhere, even if it was combined under one species listing and one weight. This should not be a concern for you, as you only need the total weight of bycatch and not the breakdown by species. Check if the weights are estimates and don't worry about species identification. If the delivery is AFA or CDQ please see page 11-12.

J. Water weight deductions may appear on the fish ticket. These deductions may occur in the pollock fishery, but are not appropriate at all plants. If you do not see water passing over the scale, and feel that the water weight deduction is not necessary, then add the deducted amount back in as target weight, include it in the total delivery weight, and document the reasons in your logbook. Other deductions such as rocks, ice, or slime should be handled in the same manner. These deductions may be noted only on the plants delivery worksheet and may not be on the fish ticket.

K. Deliveries of fish may have ice and slime deductions noted in the main body of the ticket with “I/S” next to the whole weight. This denotes a deduction of 2% from the scale weight to get the actual whole weight of fish (without the weight of the ice and slime). If you feel the deduction is not necessary, add the deducted amount back in as target weight, include it in the total delivery weight, and document the reasons in your logbook.

L. Species may be missing from the fish ticket. Some plants do not record other “non-allocated species” weights (such as jellyfish or Pacific flatnose). Processing plants are not required to record these weights. If the delivery is AFA or CDQ please see page 11-12.

Figure 11-2: ADF&G Electronic Groundfish Ticket Instructions



The total delivery weight for the Plant/Vessel Offload Form calculated using round weight numbers is 535,211 lbs. Since all the fish delivered were whole fish, adding up the totals of delivered fish in the main body of the fish ticket equals the total delivery weight. This is common in the pollock fishery.

Figure 11-3: ADF&G Electronic Groundfish Ticket (examples)

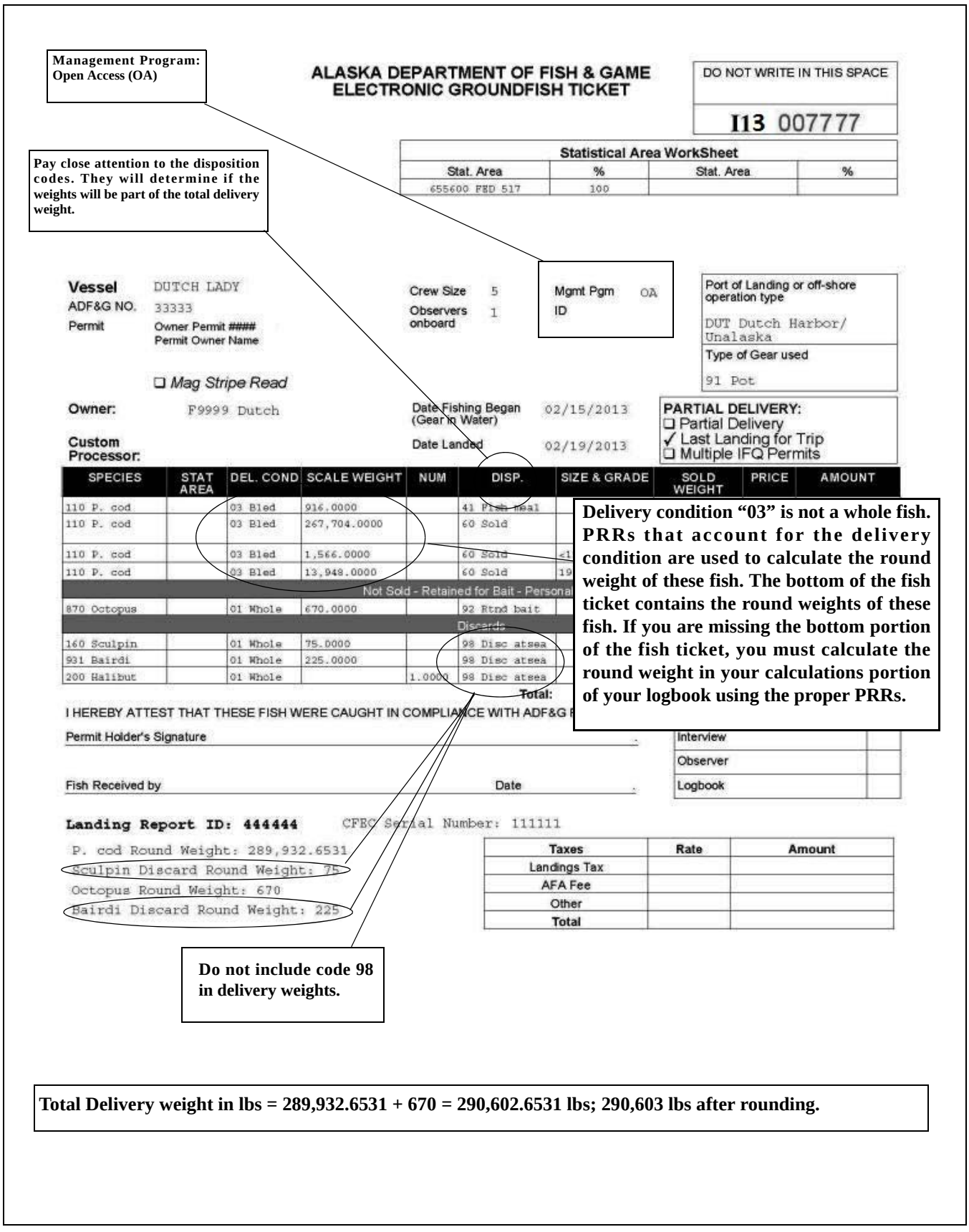
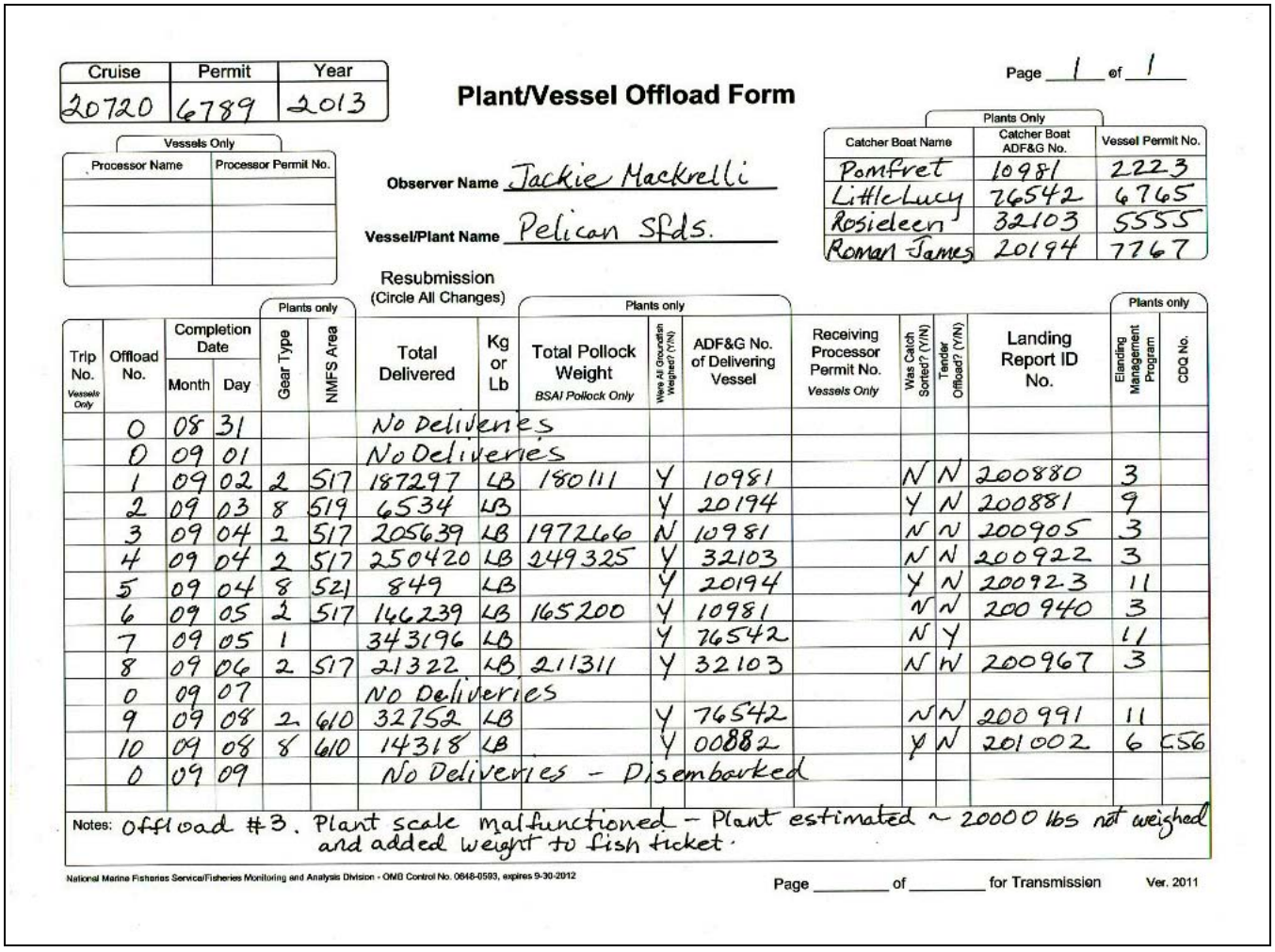


Figure 11-4: ADF&G Electronic Groundfish Ticket (examples)



Cruise	Permit	Year
20720	6789	2013

Plant/Vessel Offload Form

Page 1 of 1

Vessels Only

Processor Name	Processor Permit No.

Observer Name: Jackie Mackrelli

Vessel/Plant Name: Pelican Sfds.

Resubmission (Circle All Changes)

Plants Only

Catcher Boat Name	Catcher Boat ADF&G No.	Vessel Permit No.
Pomfret	10981	2223
Little Lucy	76542	6765
Rosieleen	32103	5555
Roman James	20194	7767

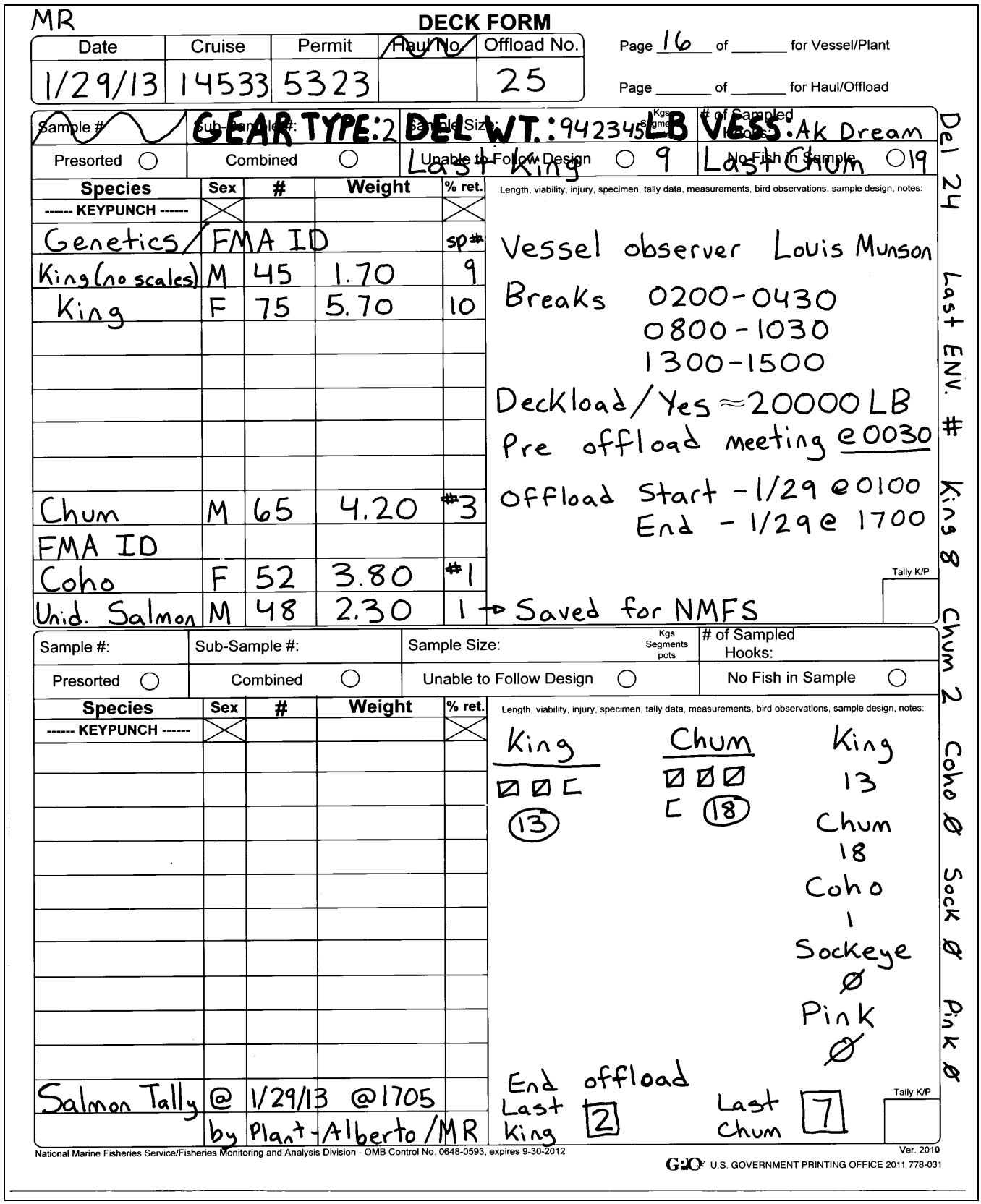
Trip No. (Vessels Only)	Offload No.	Completion Date Month	Completion Date Day	Plants only: Gear Type	Plants only: NMFS Area	Total Delivered	Kg or Lb	Plants only: Total Pollock Weight (BSAI Pollock Only)	Plants only: Were All Groundfish Weighed? (Y/N)	Plants only: ADF&G No. of Delivering Vessel	Receiving Processor Permit No. (Vessels Only)	Was Catch Sorted? (Y/N)	Tender Offload? (Y/N)	Landing Report ID No.	Plants only: Eland Management Program	Plants only: CDQ No.
	0	08	31			No Deliveries										
	0	09	01			No Deliveries										
	1	09	02	2	517	187297	LB	180111	Y	10981		N	N	200880	3	
	2	09	03	8	519	6534	LB		Y	20194		Y	N	200881	9	
	3	09	04	2	517	205639	LB	197266	N	10981		N	N	200905	3	
	4	09	04	2	517	250420	LB	249325	Y	32103		N	N	200922	3	
	5	09	04	8	521	849	LB		Y	20194		Y	N	200923	11	
	6	09	05	2	517	146239	LB	165200	Y	10981		N	N	200940	3	
	7	09	05	1		343196	LB		Y	76542		N	Y		11	
	8	09	06	2	517	21322	LB	211311	Y	32103		N	N	200967	3	
	0	09	07			No Deliveries										
	9	09	08	2	610	32752	LB		Y	76542		N	N	200991	11	
	10	09	08	8	610	14318	LB		Y	00882		Y	N	201002	6	C56
	0	09	09			No Deliveries - Disembarked										

Notes: Offload #3. Plant scale malfunctioned - Plant estimated ~ 20000 lbs not weighed and added weight to fish ticket.

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Page _____ of _____ for Transmission Ver. 2011

Figure 11-5: Plant/Vessel Offload Form Data by Plant Observer Example



MR

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
1/29/13	14533	5323		25

Page 16 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

Sample #: ~~ | Sub-Sample #: GEAR TYPE: 2 | Sample Size: DEL WT.: 94234 LB | Kgs / Segments / pots | # of Sampled Hooks: VESS: Ak Dream

Presorted ○ | Combined ○ | Unable to Follow Design ○ 9 | No Fish in Sample ○ 19

Last King | Last Chum

Del 24 Last ENV. # King 8 Chum 2 Coho Ø Sock Ø Pink Ø

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X
Genetics / FMA ID				sp#
King (no scales)	M	45	1.70	9
King	F	75	5.70	10
Chum	M	65	4.20	#3
FMA ID				
Coho	F	52	3.80	#1
Unid. Salmon	M	48	2.30	1 → Saved for NMFS

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Vessel observer Louis Munson

Breaks 0200-0430
0800-1030
1300-1500

Deckload / Yes ≈ 20000 LB

Pre offload meeting @ 0030

Offload Start - 1/29 @ 0100
End - 1/29 @ 1700

Tally K/P

Sample #: | Sub-Sample #: | Sample Size: | Kgs / Segments / pots | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X
Salmon Tally	@	1/29/13	@1705	
	by	Plant - Alberto / MR		

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

King ☒☒☐ (13)

Chum ☒☒☒ ☐ (18)

King 13
Chum 18
Coho 1
Sockeye Ø
Pink Ø

End offload
Last King [2]
Last Chum [7]

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Ver. 2010

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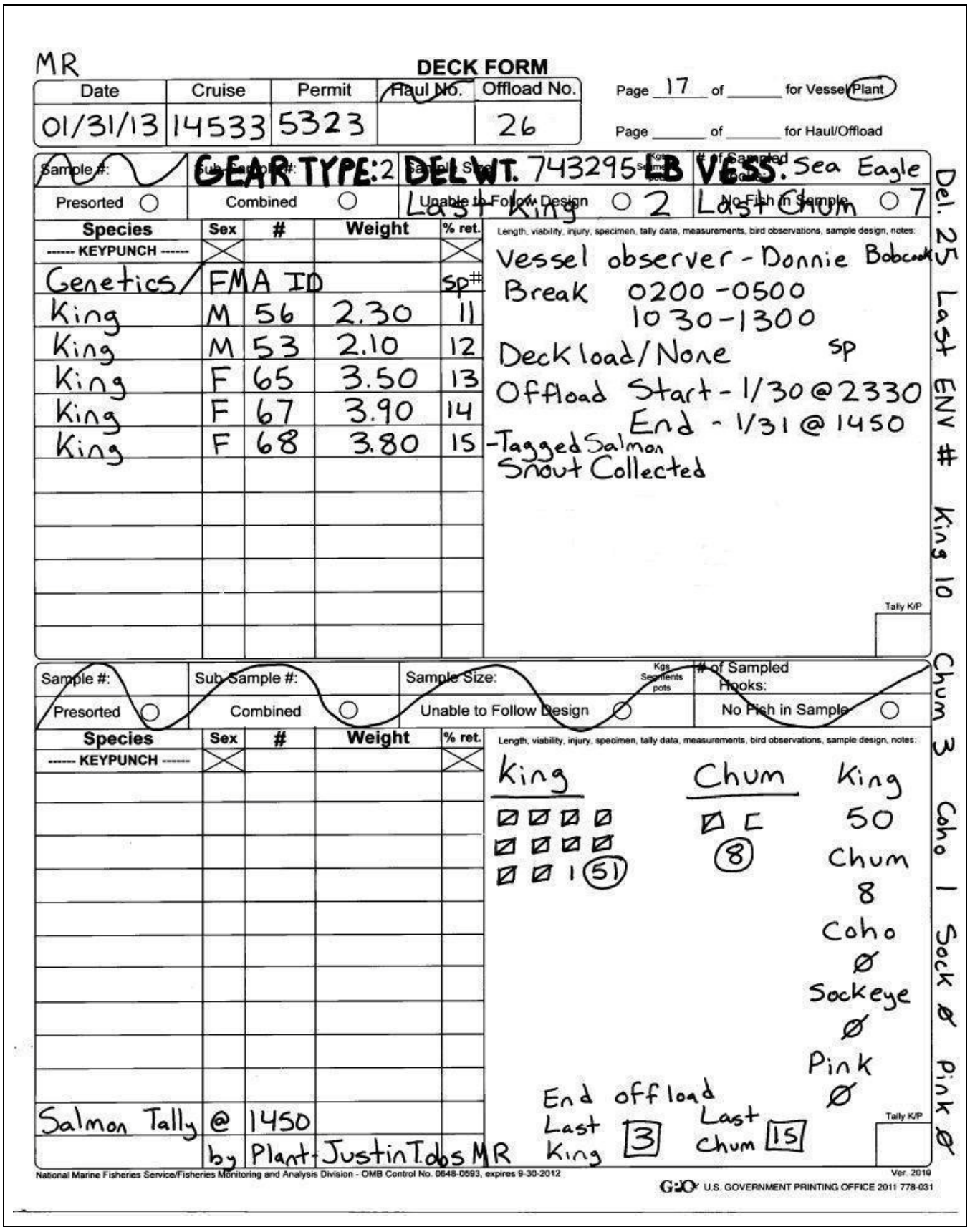
Figure 11-6 Plant Deck Form Raw Data Example of Bering Sea Pollock Delivery(1 of 2)



MR

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
01/31/13	14533	5323		26

Page 17 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

Sample #: | Sub-Sample #: GEAR TYPE: 2 | Sample Size: DEL WT. 743295 LB | # of Sampled Hooks: VESS. Sea Eagle

Presorted ○ | Combined ○ | Unable to Follow Design ○ 2 Last King | No Fish in Sample ○ 7 Last Chum

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				
Genetics/	FMA ID			sp#
King	M	56	2.30	11
King	M	53	2.10	12
King	F	65	3.50	13
King	F	67	3.90	14
King	F	68	3.80	15

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Vessel observer - Donnie Babcock
Break 0200 - 0500
1030 - 1300
Deck load/None sp
Offload Start - 1/30 @ 2330
End - 1/31 @ 1450
- Tagged Salmon Snout Collected

Tally K/P

Del. 25 Last ENV # King 10 Chum 3 Coho 1 Sock Ø Pink Ø

Sample #: | Sub-Sample #: | Sample Size: Kgs / Segments / pots | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				
Salmon Tally	@	1450		
	by	Plant - JustinT. obs	MR	

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

King ☐☐☐☐ ☐☐☐☐ ☐☐ 1 (51)

Chum ☐ C (8)

King 50
Chum 8
Coho Ø
Sockeye Ø
Pink Ø

End offload
Last King 3
Last Chum 15

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Ver. 2010

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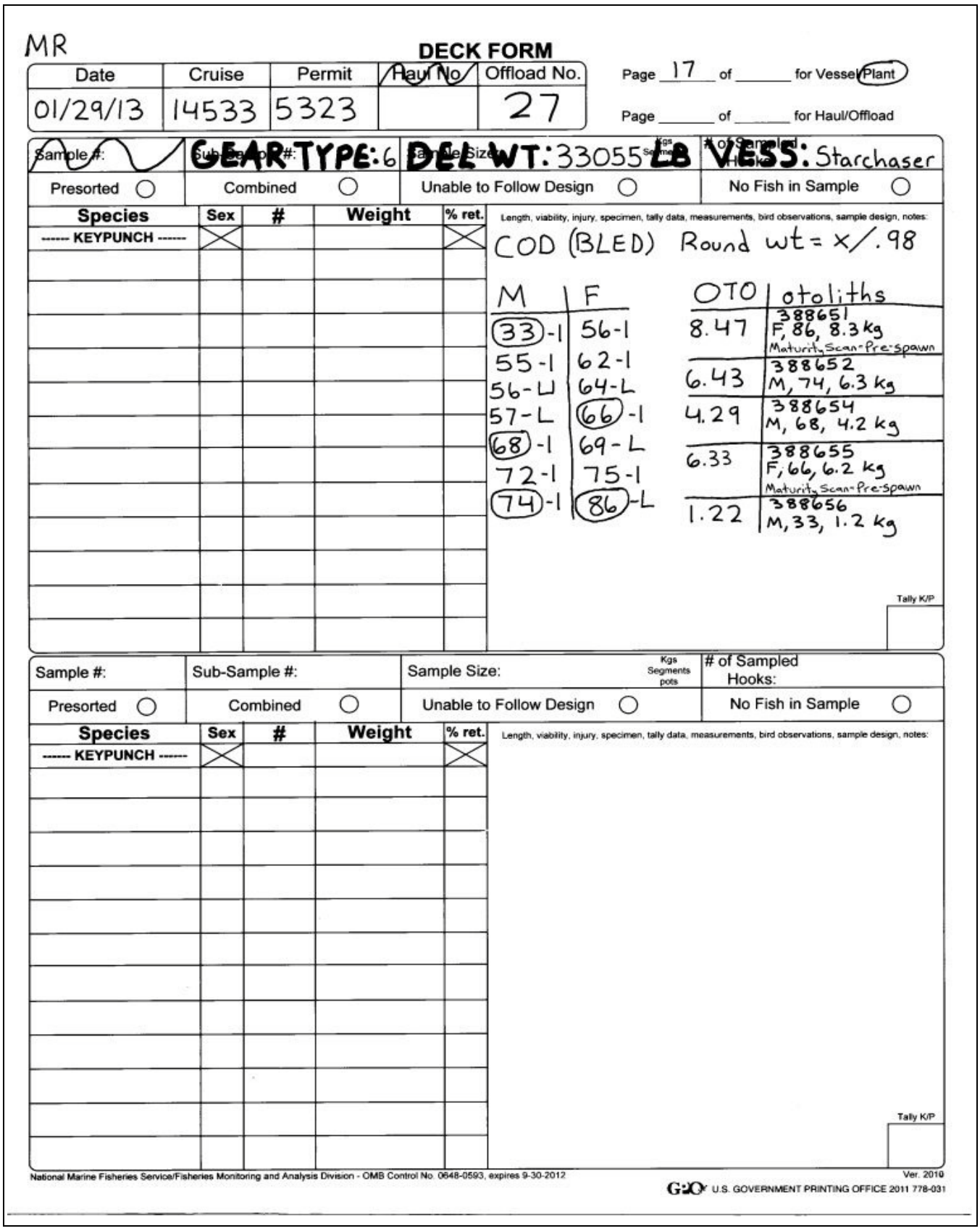
Figure 11-7: Plant Deck Form Raw Data Example of Bering Sea Pollock Delivery (2 of 2)



MR

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
01/29/13	14533	5323		27

Page 17 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

Sample #: | Sub-Sample #: GEAR TYPE: 6 | Sample Size: DEL WT: 33055 LB (Kgs Segments pots) | # of Sampled Hooks: VESS: Starchaser

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

COD (BLED) Round wt = x/.98

M	F
(33)-1	56-1
55-1	62-1
56-L	64-L
57-L	(66)-1
(68)-1	69-L
72-1	75-1
(74)-1	(86)-L

OTO	otoliths
8.47	388651 F, 86, 8.3 kg Maturity Scan-Pre-spawn
6.43	388652 M, 74, 6.3 kg
4.29	388654 M, 68, 4.2 kg
6.33	388655 F, 66, 6.2 kg Maturity Scan-Pre-spawn
1.22	388656 M, 33, 1.2 kg

Tally K/P

Sample #: | Sub-Sample #: | Sample Size: (Kgs Segments pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2010

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Figure 11-8: Plant Deck Form Raw Data Example

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
09/28/13	14628	5333		

Page 26 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

DEL #: 45 | GEAR TYPE: 2 | DEL WT: 262427 LB | VESS: AK Sun

Presorted ○ | Combined ○ | LAST KING ○ 7 | LAST CHUM ○ 28

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				
Salmon Genetics/FMA Scales				sp
sp.	Sex	len	wt	#
King	M	47	1.92	13
King	M	66	4.42	14
Chum	F	75	5.63	7

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Vessel observer - Owen Jackson
No break given. Short offload

Owen's salmon #'s King = 19
Chum = 5

Salmon tally - 9/28/13 @ 1802

King ☑☑☑☐ (19)

Chum ☑ (5)

Coho 0

Pink 0

Sockeye 0

Tally K/P

DEL #: | GEAR TYPE: | DEL WT: | VESS:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2010

Figure 11-9: Plant Deck Form Raw Data Example of GOA Pollock Delivery

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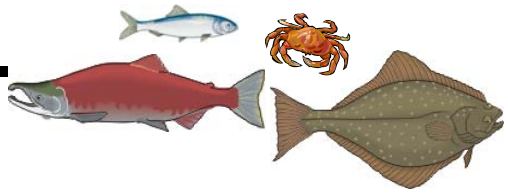
PROHIBITED SPECIES SAMPLING



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PRIORITIES

- Collect salmon retention data (BSAI and GOA plant observers) or offload census data (GOA vessel observers).
- Collect salmon genetics samples.
- Collect salmon scales.
- Count, weigh, and identify all prohibited species in your species composition sample.
- Collect halibut length measurements from species composition.
- Collect crab measurements from species composition.
- Collect halibut viabilities or injury assessments.

INTRODUCTION

Certain species cannot be retained when fishing in particular fisheries. These species can not be consumed by the crew, even if killed by the fishing operations, and must be returned to the sea as soon as possible with minimum of injury. These are referred to as “prohibited species.” These species are also managed by other agencies and the data needs differ slightly from other species encountered in the North Pacific fisheries. The prohibited species group includes all Tanner crab species, all king crab species, all salmon species, Pacific halibut, and herring. In addition to collecting data on the abundance of these species in the composition of commercial catches, observers are

asked to collect measurements and other significant biological data from these animals, with the exception of herring.

Just as the length measurements on target species help provide information on what populations are being targeted by fishing operations, the measurements of prohibited species provides information as to which parts of the populations of prohibited species are being caught as bycatch. Specimen data for prohibited species is recorded on the Length and Specimen Form. Data that must be recorded for prohibited species include:

- Genetics data from Chinook and chum salmon.
- Sex, length, weight, and scale data from salmon
- Length and condition data from halibut
- Sex and length or width from crab
- Presence of eggs in female crab

Tagged salmon data are recorded on the Bag and Tag Specimen Collection Label (see page 15-3).Tagged prohibited species data are recorded on the paper Tagged Fish Form (see Figure 15-1 on page 15-5).

For instructions on how to complete the Length and Specimen Form, see "Length and Specimen Form Instructions" on page 13-20.

SAMPLING FOR LENGTHS AND SPECIMENS

Most length and specimen data will be collected from the fish encountered in your randomly collected species composition samples. Some prohibited species data may be collected from outside the composition samples.

All prohibited species fish and crab listed on the Length and Specimen Form must be identified to the species level and sex. Biological data from unidentified salmon or crabs are useless to resource managers.

- If there are too many king and Tanner crab in a haul for you to sex and measure all individuals, collect a simple random or random systematic sample of about 20 individuals to identify to species, sex, and measure.
- If there are too many halibut in a haul or set, be sure to randomly collect 20 per day to measure and assess for viability or injury.

Refer to "Collecting Fish for Measurement and Specimen Data" on page 13-2 for instructions on how to collect a random or systematic sample.

You must record raw data on your Deck Form to assist you and staff if questions arise during your mid-cruise or debriefing interview.

HERRING DATA COLLECTION

Count and weigh all the herring from within your samples. These data are recorded on the species composition form along with other data for the sample. ***You do not measure or sex herring.***

Herring occur most often in the pollock fishery. They can be numerous at times and difficult to sort if samples are large. You must be able to account for all species in a sample, so if you are missing herring, you must reduce your sample size (unless herring are one of two predominant species; in this case you can sample for two predominant species. See "Subsampling for Two Predominant Species" on page 5-19).

CRAB DATA COLLECTION

Complete crab data collection tasks in the following order of priority:

- Count, weigh, and identify every crab in your randomly collected species composition data.
- Measure crabs.
- For prohibited species only, sex the crab and check for eggs in the females.
- Look for tagged crabs. Refer to "Tagged Crab" on page 15-3 for information on what type of tags are used and what data to collect.

Crab in Species Composition Samples

In your species composition samples, identify all crab to species or species group. For the two prohibited species groups (Tanner and king crab) identify the crabs to species and sex, then record their numbers and weights for the sample on the Deck Form. Fisheries managers manage prohibited crab species by number not weight. If there are too many crab to identify, or too many to weigh or count, refer to appropriate section for your gear type:

- For ***trawl vessel*** guidelines refer to "Counting and Weighing Prohibited Species Crab and Salmon on Trawlers" on page 5-23.
- For ***longline*** vessel guidelines refer to "Tallying the Tanner Crab and King Crab Complex" on page 8-15.
- For ***pot*** vessel guidelines refer to "When You Cannot Count All the Crab in a Pot" on page 10-10.

Recording Biological Data

Separate data records for any crab in your samples by species, sex, presence of eggs (females only), and carapace measurements. ***You must record raw data on your Deck Form*** to assist you and staff if questions arise during your mid-cruise or debriefing interview.

Measurements, Sex Determination, and Egg Presence

Biological data such as measurements, sex, and the presence of eggs should only be collected from Tanner crab and king crab species within your composition samples. The nine species of concern to the North Pacific Fisheries Management Council are: *Chionoecetes bairdi* Tanner crab, *C. opilio* Tanner crab, *C. bairdi/opilio* hybrid Tanner crab, *C. angulatus* Tanner crab, *C. Tanneri* Tanner crab, brown or golden king crab, blue king crab, red king crab, and Couesi king crab.

Measuring Crab

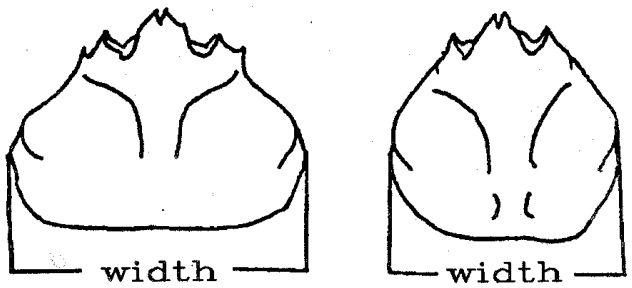
All prohibited crab species must be measured using the calipers provided by the Observer Program. If you do not have calipers, do not attempt to measure crabs. Never use a tape measure or fish length strip for crabs because these are only accurate to the nearest centimeter.

To measure crab, lay the individual on a flat surface facing away from you to avoid the claws. Spread the calipers across the top of the crab and close the caliper arms until the tips are touching the carapace (see Figure 12-1). If the crab tries to walk away, hold the body down with one hand while you work the calipers with the other hand.

- King crab are measured from the right eye socket to the middle of the ***posterior margin of the carapace.*** Do not include the second abdominal segment in your measurement. Be careful not to let the caliper tip slip into the eye socket; keep the tip at the socket rim.

- Tanner crab are measured across the carapace. Measure the width across the back, at the widest part of the carapace, excluding any spines at the carapace edge (see Figure 12-1.)

Proper measurement technique for Tanner crab



Proper measurement technique for King crab

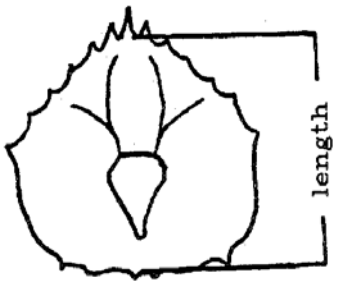


Figure 12-1: Measurement Techniques for Crab

Transferring Measurements

You will be given a plastic Crab Measuring Form to record crab measurements. The form is marked in 5 mm increments starting at 3 mm. Crab lengths read

from this sheet will always end in digits 3 or 8. For example, all crabs 41 to 45 mm in size are recorded as 43 mm, crabs 46 to 50 mm are recorded as 48 mm.

Measure the crab and without moving the arms of the calipers, lay the tip of one arm on the 'start line' at the bottom of the plastic form. Lay the tip of the other arm perpendicular to the start line.Record the length directly to the Deck Form. If you choose to mark lengths on the crab length strip make a pencil mark within the millimeter range indicated by this tip. Be sure to make your mark in the appropriate sex category and take great care when transcribing lengths to the Deck Form! If the caliper arm falls directly on a line, report the smaller measurement for this individual. Do not use any other measuring device to determine crab lengths.

Measuring Crab in the BSAI Pollock Fishery

All catcher processor and catcher only vessels participating in the BSAI pollock fishery are required to use pelagic gear. ***The presence of 20 or more of any species of crab*** indicates the vessel was non-pelagic fishing, or 'fishing the bottom.' When more than 20 crab occur in a pollock haul, observers are asked to do the following: 1) count and measure any crab in the composition samples, regardless of species and 2) ***begin measuring all the crab you find,*** if there are more than you can handle, measure as many as you can.

Measure prohibited species crab as described previously. For non prohibited species of crab measure as follows:

- For hermit and sponge crab inside of their shell or sponge, measure the width at the widest point of the shell or sponge. On the Deck Form, make sure to indicate that these measurements were of the shells and not the actual crabs. If you are using ATLAS note this in your logbook.
- All other crabs should be measured in the same manner as Tanner crabs (across the widest part of the carapace).

The measurements of these crab should be recorded on the right side of your Deck Form. ***Record only those crab found within your species composition sample on your Species Composition Form and Length and Measurement Form.*** If your vessel has ATLAS, enter data from only those crab found within your species composition sample. Clearly label the crab found within your species composition sample and the crab found outside of your species composition sample on your Deck Form.

Do not sex or look for eggs on non-prohibited crabs. For specifics on this regulation (see "Crab §679.7" on page 20-9).

Sexing Crab and Checking for Eggs

The shape of the abdominal flap indicates the sex of Tanner and king crab. Refer to Figure 12-2 and Figure 12-3 for images depicting the differences between the abdominal flap shape of mature male and female crab.

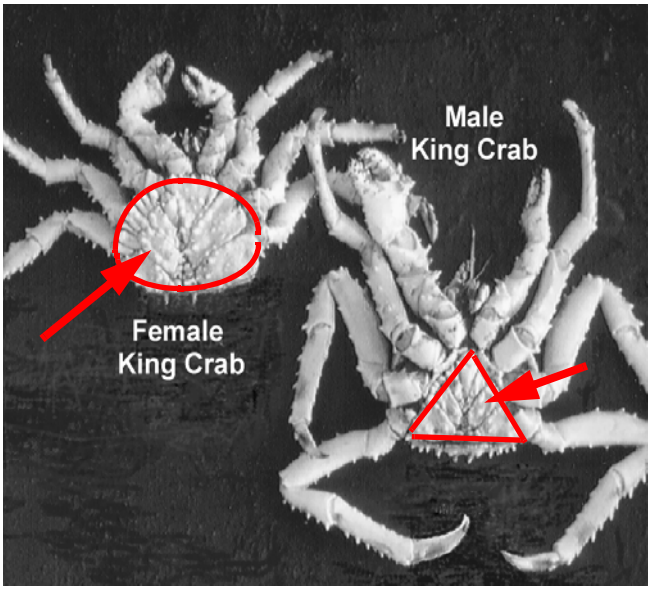
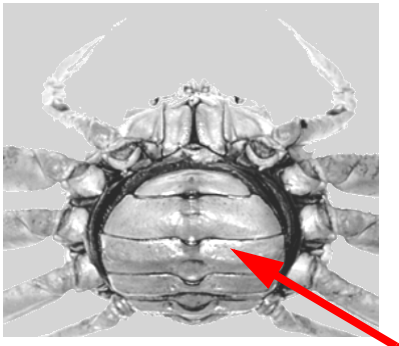
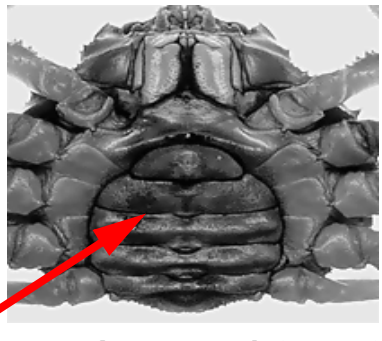


Figure 12-2: Male and female king crab (arrows and lines indicate abdominal flap)

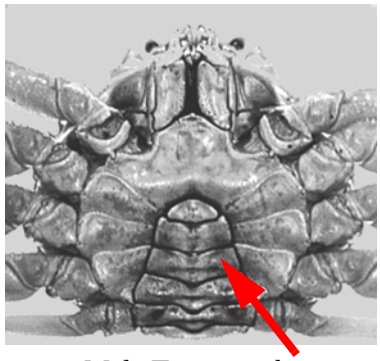
- Female king and Tanner crab have an abdominal flap that is rounded at the lateral margins. By lifting the flap slightly, you can determine if females are carrying eggs.
- Male king and Tanner crabs have a V or U-shaped abdominal flap that does not cover the bottom of the carapace. When immature, the abdominal flap is shaped like a finger. When male crabs are mature, the abdominal flap is V-shaped in king crabs and U-shaped in Tanner crabs.



Mature Female Tanner crab (many eggs)



Immature Female Tanner crab (no eggs)



Male Tanner crab

Figure 12-3: Male and Female Tanner Crab (arrows indicate abdominal flap)

HALIBUT DATA COLLECTION

Data collected on halibut are used to monitor bycatch against the halibut prohibited species cap (PSC). All halibut caught as bycatch in the North Pacific groundfish fisheries must be returned to the sea with minimal injury. Many of these halibut are released alive and remain a part of the stock. The International Pacific Halibut Commission (IPHC) relies on observer assessments of halibut viability to estimate the fraction of the released fish that die in order to account for bycatch mortality in the management of the halibut stock. With information on halibut length and viability, the IPHC also monitors trends in halibut size and release condition as they relate to capture, crew handling, and fishing practices.

Complete halibut tasks in the following order of priority:

- Obtain the total number and weight of Pacific halibut in your composition sample. ***Halibut are never sexed by observers***. They should only be sexed when a research project directs the observer to sex halibut.
- For sampled hauls, measure halibut and assess viability (trawlers and pot vessels) or injury (longliners) at the point of discard. Measure and assess approximately 20 halibut per day. These fish may be from either inside or outside your composition sample but they ***must be representative*** of how the crew handles halibut and ***they must be randomly collected.*** If halibut are collected from outside your composition samples, record any related data at the haul level, not the sample level.
- Check for tagged halibut. Refer to "TAGGED FISH AND CRAB" on page 15-1 for information on what sort of tags are used and what data to collect from tagged fish.

Halibut management and careful release methods for longline vessels are discussed on page 8-19.

Technique for Measuring Halibut

Halibut are measured by fork length; see the definition of fork length in your Species Identification Manual or see page 13-5 of this manual. Lay the halibut on the plastic length strip or on top of a tape measure. Do not obtain measurements derived from laying the tape measure over the top of the fish and "sighting down." These are curvilinear lengths and they are not viable data for data users!

For large halibut, offset your length strip by twenty or more centimeters, or use your measuring tape. If using the measuring tape, lay the halibut on the tape, or mark

the halibut's length on the deck and measure that. Do not take a curvilinear length! Ignore the F and M for sexes on the top of the length strip and write a viability or injury code for each measured halibut. Record halibut by length/frequency and viability code on the Length and Specimen Form.

Do not record estimated lengths of halibut on the Length and Specimen Form! Record only actual measurements!

Viabilities/injury assessments without a corresponding length *cannot* be used, but lengths without viabilities/injury assessments *can* be used.

Determining Viability of Halibut on Trawlers and Pot Vessels

Determine if the condition of the halibut is excellent (code E), poor (code P), or dead (code D). For Discard Condition Criteria use the dichotomous keys in "Key to Pacific Halibut Viability for Trawl Vessels" on page A-42 or the dichotomous key in "Key to Pot Condition Codes for Pacific Halibut" on page A-45. If you were not able to assess the halibut or you cannot determine the viability, record the condition as "U" and measure the individual's length.

You ***must*** record raw data on your Deck Form to assist you and staff if questions arise during your mid-cruise or debriefing interview.

Viabilities must always be from a sampled haul or set. You may measure and assess viability on halibut from within species composition samples ***or*** from outside your composition samples. Use appropriate methods to ensure that your sample for halibut length measurements and viabilities is a random sample design. ***Also, make sure the halibut you assess are representative of normal crew handling.***

Viabilities on a Catcher Processor

On a CP, you may assess halibut viability from within your sample if it is determined that nothing in the factory beyond your sample collection point will affect the viability. If you are on a CP and assessing viability from within your sample, be sure to assess the halibut immediately as these halibut would normally be discarded right away by factory personnel.

Viabilities on a Catcher Vessel

On a catcher vessel, take assessments at the point of discard. Catcher vessels may have multiple points of discard to be considered when conducting your viability assessment. Time on deck and handling procedures affect halibut viability. ***If you cannot gather representative halibut viabilities at the point of discard, do not collect these data!***

For those instances when you are unable to collect viability data, document the circumstances in your logbook.

Example 1: An observer on the factory trawler Aurora Borealis has two possible locations in the factory where he could collect halibut to assess their condition. The first is at the conveyor leaving the live tank, and the second is at the discard area as halibut drop out the discard chute. Between the live tank door and the discard are several belts, some with inclines, that halibut have to pass over, falling back and getting squeezed and spined by other fish, until they reach the discard belt, some 30 minutes later. A halibut that seems to be in excellent condition when it exited the bin may end up in poor or dead condition by the time it is discarded. To determine how the fishing practices and conditions in the factory have affected halibut viability, the observer must choose the discard belt station for measuring halibut and assessing viability.

Example 2: An observer is on the catcher vessel Pit Bull and the crew normally sorts fish from the trawl alley. As they encounter halibut, they throw them over the side. The observer is only able to collect one sample, due to space and time constraints. The observer collects his entire sample, then tells the crew they can begin to sort. The observer should wait to pull out halibut from his sample until the crew begin to discard halibut from the trawl alley. If the observer were to collect halibut viability data immediately, his assessments would incorrectly document better conditions for the halibut than what normal crew handling would result in. Another option would be for the observer to inform the crew to put all halibut into a separate checker bin or tote instead of discarding them. The observer could then assess the viability of each halibut as it is put into the bin/tote.

Use the following rules for assessing halibut viabilities on a trawler or pot vessel:

- Halibut lengths and viability assessments must be from sampled hauls or sets.
- Halibut must be examined in hand and on both sides while using the dichotomous keys provided. Never guess the condition of the halibut!
- If you cannot assess halibut viability at the time of discard and your sample is not an indication of the normal handling practices of the crew, **do not** record viability data at all. ***If the halibut were from inside your composition samples, you should record length data for these individuals!***
- If you are on a catcher vessel delivering **unsorted** catch to a plant, halibut from your at-sea samples should be coded as unknown, since halibut discarded from your sample do not reflect crew handling of halibut.

Halibut Injury Assessments on Longliners

In order to assign mortality information to halibut bycatch, the IPHC needs an assessment of injuries to halibut caught as bycatch . These data are analyzed by the IPHC staff and used to estimate future mortality rates. The halibut mortality rates have a direct impact on the duration of the longline fishery. As a result, you must be careful in conducting your assessments. ***The halibut you assess for injury must be handled in the same manner as the crew normally handles halibut.***

Collect halibut for injury assessment from outside the tally sample period. Only assess injuries for halibut that you have in hand. ***Attempt to assess injury from approximately 20 halibut per day.*** Collect halibut for the injury assessment using a random or systematic random sampling design. The easiest method is to collect every fifth, tenth, or nth halibut during a randomly selected non-tally period. ***The data you collect for these individuals are recorded at the haul level.***

To complete the halibut injury assessment, measure the halibut, check for injuries using the key found in "Key to Longline Injury Codes for Pacific Halibut" on page A-49, and return the fish to the water. Use the sample design code appropriate to the method you used to randomly select your injury assessment segment (see "Sample Design" on page 13-21). ***The injury data you collect must be reported at the haul level.***

When assigned to an IFQ vessel, collect injury assessments on halibut not retained by the vessel. List retained halibut lengths collected with injury as "9-unknown."

Use the following rules for assessing halibut injuries on a longliner:

- Assess injuries of halibut from hauls sampled for species composition.
- Halibut used for the injury assessment must actually be ***measured.***
- Ensure that vessel personnel use the same release methods when you assess halibut injuries as they use during normal operations.
- You must have a direct line of sight of the rollerman landing ***all*** the halibut chosen for injury assessments. This will eliminate any potential for size bias. These halibut must be landed by the crew.
- Only assess injuries from halibut that you have in hand and on both sides using the dichotomous key provided. Never guess the condition of the halibut!
- Ignore any injuries caused by the crew landing the halibut for the injury assessment. This includes gaff wounds caused when bringing the halibut on board.
- Over the duration of your cruise, obtain injury assessments of halibut landed by each rollerman.
- Only include fishing related injuries in your assessment.
- Use the dichotomous key on page A-49 to categorize the injury.
- When assigned to an IFQ vessel, collect injury assessments on halibut not retained by the vessel. List retained halibut lengths collected with injury as "9-unknown."

- If the vessel is using a release method that cannot be duplicated inboard (i.e. hook straightening), halibut length data without injury assessment data are acceptable. List these halibut with injury code "9-unknown."

Collect halibut injury assessments in a manner that reflects the normal operations of the vessel. Vessel personnel have an incentive to bias these data. Be aware of how halibut are handled when you are not sampling and compare this to when you are sampling. Fully document any differences in your logbook, try to resolve any problems diplomatically, and contact NMFS as soon as possible about the problem.

SALMON DATA COLLECTION

Complete the following salmon tasks in order of priority:

- Collect and report salmon retention data for all AFA pollock CPs, motherships, and plant deliveries of pollock catches. See "Salmon Retention Data in the Pollock Fishery" on page 12-13.
- Identify, count, sex and weigh all the salmon in your species composition samples.
- Collect salmon genetics data on all pollock vessels and deliveries according to fishery area, vessel type protocol, and species. See "Salmon Genetics Sampling" on page 12-12.
- Collect tagged salmon data on all vessels and deliveries according to fishery area, vessel type protocol, and species. See "Tagged Salmon" on page 15-2.
- Catcher Vessel observers complete an offload salmon census sample for all observed GOA pollock deliveries. See "GOA Vessel Observer Offload Salmon Census" on page 5-30.
- Collect sex/lengths and FMA ID scales from salmon according to fishery area and vessel type protocol (See "Salmon Scale Collection Guidelines" on page 12-9).

All raw data must be recorded on your Deck Form.

Salmon in Species Composition Samples

Determine the species of each salmonid in your at-sea composition samples and record the sexes, numbers, and weights for each species on the Species Composition Form. The six species of salmonid encountered in the North Pacific are: king (Chinook), silver (coho), steelhead, sockeye (red), chum (dog), and pink (humpy) salmon.

- On AFA pollock CPs and motherships, all salmon from within the observer sample are placed in the salmon storage container after you have collected the required composition data from them.
- On catcher vessels in the directed pollock fishery in the BS and GOA, all salmon in your species composition sample must be placed in the RSW tank to be accounted for at the delivery after you have collected the required composition and biological data from them.
- All other vessels, collect required composition and biological data and then discard the salmon or return to vessel personnel to dispose of.

Recording Biological Data

Measure and sex all salmon according to the protocols for your vessel/plant type (see "Sex/Length Data for Salmon" on page 12-9). Data records for salmon must be separated by species and sex. You must record raw data on your Deck Form to assist you and staff if questions arise during your mid-cruise or debriefing interview.

Salmon Discarded at Sea (Pollock Catchers)

If any salmon are discarded at sea document this in your Daily Notes and notify NMFS immediately upon delivery or through ATLAS. The vessel observer should track at sea salmon discards, count and identify them, and provide this information to the plant observer at the delivery. The plant observer will use this information to complete salmon retention data.

At-sea discard of salmon is prohibited in the directed fishery for pollock in the BS and GOA.Observers on catcher vessels directed fishing for pollock in the GOA must include any at-sea salmon discard in their offload species composition sample. For more information on collecting and recording data from salmon on a pollock catcher vessel, refer to "GOA Vessel Observer Offload Salmon Census" on page 5-30.

Sexing Salmon

Salmon gonads are far forward in the body and immediately under the backbone. You must cut open salmon to determine sex. Make an incision on the salmon from the pectoral fins and across about mid way up from the belly to see into the top of the peritoneal cavity near the head. The gonads will be two long tubes laying parallel to the backbone. Females, mature and immature, will have tubes containing granular eggs in sacs that are red, pink, yellow, or orange. Mature males will have smooth textured tubes that are white or cream color. Immature males will have translucent white tubes that appear empty.

Data records for salmon must be separated by species and sex.

Sexing Salmon for the Food Bank

Some shoreside and floating processors retain delivered salmon bycatch for a food donation program. If your vessel delivers to a plant participating in this program, it is preferred that you sex salmon with a cut from the anus to the isthmus so as not to damage the product.

Sex/Length Data for Salmon

Collect sex/length data from salmon within your species composition sample according to vessel type, fishery, and species. Measure salmon to the fork length using the plastic length strip (see "Measuring Fish" on page 13-5). Record raw salmon sex/length data on your Deck Form and enter it to the Length and Specimen Form. Collect salmon sex/length data according to the following protocols.

- **Pollock Catcher Vessels** - Collect sex and length data from all salmon within your at-sea species composition sample. Sex/length data are recorded at the sample level.
- **Plants receiving Bering Sea pollock, AFA CPs, and AFA motherships,** - Collect sex/length data only as salmon are removed from the salmon bin. Collect sex and length data from only the Chinook and chum salmon selected for genetic sample collection. Collect sex and length data from all other salmon species during your collection of salmon retention data. Sex/lengths for salmon are recorded at the haul level for CPs and motherships. Record sex/lengths at the offload level at plants.
- **GOA pollock deliveries to plants** - Collect sex/length data during the salmon retention count only. Collect the sex and length from only the Chinook and chum salmon selected for genetic sample collection. Collect sex/length data from all other salmon species. Record sex/lengths at the offload level at plants.
- **All vessels not targeting pollock** - Sex and length all salmon within your species composition sample. Sex/length data are recorded at the sample level.

See "Salmon in Species Composition Samples" on page 12-8 for instructions on what to do with salmon in your species composition sample after collecting composition and biological data from them.

SCALE SAMPLE PROTOCOLS

Salmon scales are used to age the salmon, confirm the identity of the species, and in some cases can reveal the area of origin. Salmon scale samples are collected for ***three different specimen types***:

1. FMA species identification
2. Salmon snout collections (tagged fish). See "Tagged Salmon" on page 15-2 for more information on tagged salmon collections.
3. Genetics sample collections. See "Salmon Genetics Sampling" on page 12-12.

The physical process of collecting of the scales for each of these three types of samples is identical. For each of these uses, collect scales according to the salmon scale collection guidelines.

Salmon Scale Collection Guidelines

Salmon lose scales easily and lost scales are replaced with regenerated scales. Regenerated or lateral line scales are unreadable. To make sure you have usable scale samples, always collect at least 10 scales from the fish and never collect scales from the lateral line.

If the scales are coated with tissue or blood, or the sample is contaminated with other fish scales, it may be useless. Remember, your salmon rubbed against many other fish, even other salmon of different ages and species. To ensure your hard work produces usable data make sure your scale samples are clean:

1. Wipe the area on the fish where you plan to collect scales. This ensures no other fish scales will be mixed with the individual's scales. It also removes slime which causes scales to decompose in the scale envelopes.

2. Pluck salmon scales out of the flesh using the forceps or knife. ***Minimize mucus on the scales by plucking rather than scraping.*** Collect at least 10 scales preferably from the optimal "A" zone (see Figure 12-4). If scales cannot be found in the "A" zone then search for and collect scales from the "B" zone, then the "C" zone if necessary. For the genetics specimen collection only 5 scales are needed.

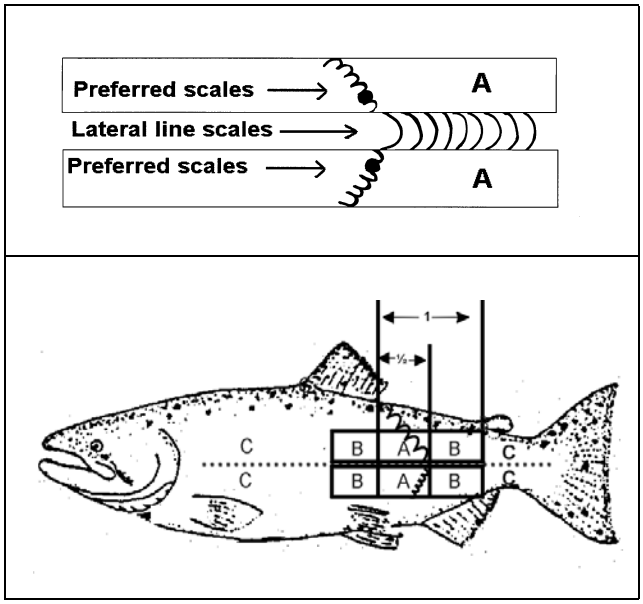


Figure 12-4: Salmon Scale Collection Zones

3. If usable scales are limited and the specified number is not possible, divide the available scales between the FMA ID scale specimen, the scale envelope that accompanies the snout specimen if the fish is tagged, and the genetic specimen.

4. Each group of scales taken from an individual salmon is placed in a paper envelope to dry. Paper envelopes keep the scales from rotting.

5. Open a salmon scale envelope and wipe the scales inside. Seal the envelope closed.

6. Clean the forceps before collecting scales from another salmon.

7. It is important that you keep the envelopes dry to protect against rot or mildew. Let the envelope dry before storage to avoid rot and do not store your scales samples where they might get wet or moist as this will ruin the specimens.

Scales are not usable if the scales are clumped together and dry this way inside the envelope. Pluck scales from the flesh using forceps or a knife. Never scrape scales from the salmon with a knife.

Salmon Specimen Data Reporting: Sex, Length, and Weight

A sex, length, and weight specimen is recorded for every FMA ID scale, salmon snout, and genetics sample collected. All specimens collected from the same fish must have the same specimen number. Only one sex/length/weight entry needs to be made for FMA ID scales, snout, and genetics specimen collected from the same salmon. See "Length and Specimen Form Instructions" on page 13-20 for information on reporting salmon data on the Length and Specimen Form.

Recording Specimen Collection in Your Data and on the Salmon Envelope

Once you have collected the required number of scales follow these guidelines for salmon data collection and recording your specimen collection in your raw data, the Length and Specimen Form, and on the scale envelope:

1. Weigh the salmon, determine the sex, and measure the length of the fish.

2. Record the salmon's species, length, weight, sex, and specimen number on the Deck Form.

3. For salmon sex, length, and weight specimen numbers, select and record a unique specimen number for each species beginning with number 1 and continuing the series until the end of your cruise (1, 2, 3... for Chinook, 1, 2, 3... for chums, etc).

4. Write the species name, specimen number, haul /sample or offload number, scale zone, vessel permit, cruise number, and whether or not the salmon was missing it's adipose fin on the scale envelope.

5. Cross out the length, weight, sex, and date fields on the scale envelope. These data are recorded on the Deck Form and the Length and Specimen Form.

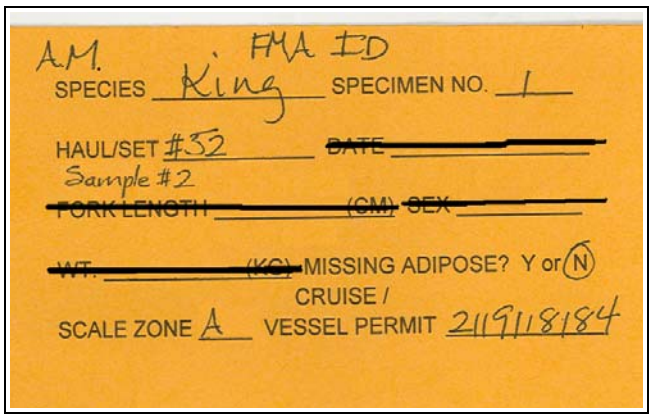


Figure 12-5: Salmon Scale Envelope Example for "FMA ID" Pollock Catcher Vessel

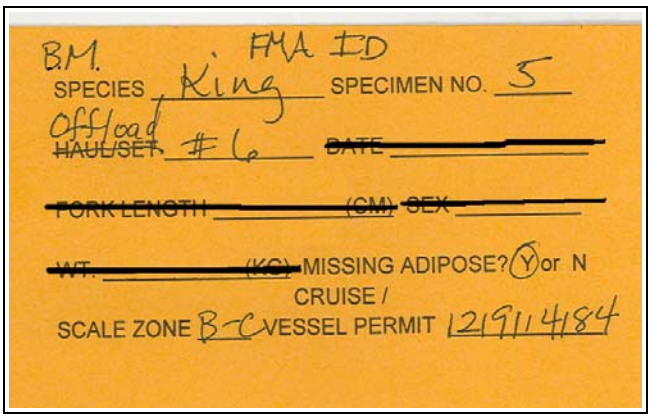


Figure 12-6: Salmon Scale Envelope Example for "FMA ID"

6. FMA ID, snouts, and genetics specimens have the same specimen number as the associated sex, length, and weight specimen. All specimens collected from the same fish must have the same specimen number (see "Salmon Scale Collection Guidelines" on page 12-9).

7. If the scale came from an offload and not a haul or sample cross out the text "Haul/Set" on the envelope and write in the word "Offload" followed by the associated offload number. Label each scale sample specimen envelope with the type of specimen contained in the envelope (see Figure 12-6, Figure 12-7, and Figure 12-8):

- "FMA ID" for FMA species identification
- "Snout" for salmon snout collections
- "Genetics" for genetics sample collections

8. Write your initials on the envelope if you are the second observer.

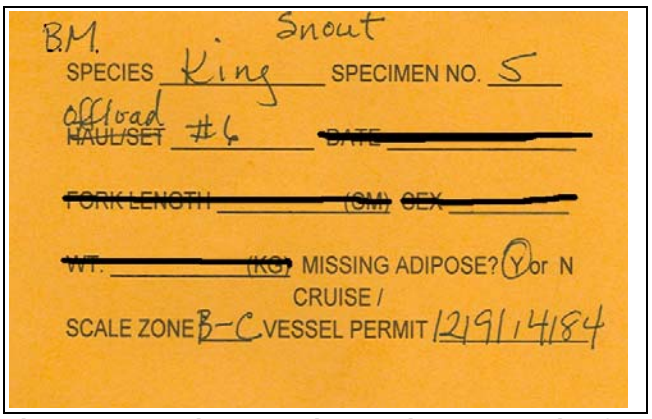


Figure 12-7: Salmon Scale Envelope Examples for "Snout"

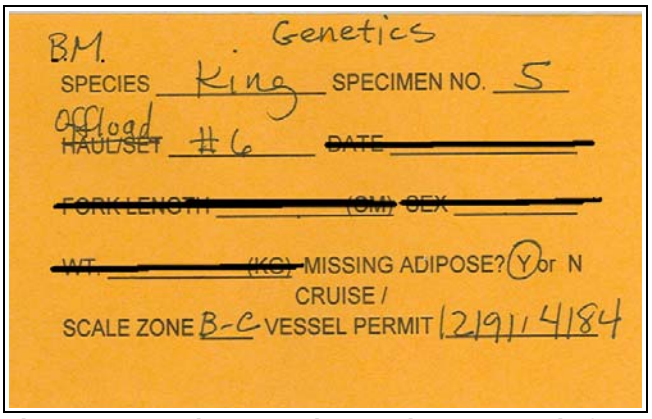


Figure 12-8: Salmon Scale Envelope Example for "Genetics"

FMA ID Scale Collection

The FMA ID salmon scales are used to verify species identifications during your debriefing. Scale collection protocols vary by fishing area, vessel type, and species. FMA ID scale samples are recorded under the cruise number of the observer reporting the data. Follow the directions below for your FMA ID salmon scale collection.

- **AFA Pollock CPs and motherships -** Collect a Chinook or chum FMA ID scale sample from only those salmon that are selected for genetic samples. Collect scale samples from all other salmon species encountered during the salmon retention collection and count. Scales must only be collected when fish are removed from the salmon bin and counted for the salmon retention data.
- **Plants receiving pollock deliveries -** Plant observers collect a Chinook or chum FMA ID scale sample from only those salmon selected for genetic samples. Collect scale samples from all other salmon species encountered in the census/salmon retention. Scales must only be collected when fish are removed from the salmon bin and counted for the salmon retention data.
- **Pollock catcher vessels** - Collect FMA ID salmon scales from ***all*** salmon species within your at-sea species composition sample.
- **All other vessel types** - Collect FMA ID salmon scales from ***all*** salmon species within your species composition sample.

TAGGED SALMON SCALE COLLECTION

A salmon with a missing adipose fin may have a coded wire tag embedded in its snout. See “Tagged Salmon” on page 15-2 for more information on tagged salmon collections. Use the scale collection protocol described in “Salmon Scale Collection Guidelines” on page 12-9.

SALMON GENETICS SAMPLING

Salmon genetics specimens are collected from all pollock catcher processor and motherships, and all pollock deliveries to observed shoreside/floating processors.

Genetic specimens (pelvic axillary processes plus 5 scales) are collected from both Chinook and chum salmon in the pollock fishery. Analysts will examine temporal (early, middle, and late season), geographical, and maturity differences in salmon stock composition.

Genetics Sampling: Random Systematic Collection Protocol

Genetic sampling from salmon bycatch must follow the random systematic sampling methods described in this manual and meet the following rules:

- Chinook salmon - The sampling rate is 1 of every 10 Chinook salmon encountered.
- Chum salmon - The sampling rate is 1 of every 30 chum salmon encountered.
- Genetic samples are not collected from coho, pink, and sockeye salmon.

Random Systematic Collection: Getting Started

Randomly select a number from 1-10 for Chinook and from 1-30 for chum at the beginning of your assignment. From this start number, select every 10th Chinook and every 30th chum encountered for the remainder of your contract.

- The systematic design is “owned” by the lead observer and follows them throughout their deployment to any plant or vessel as lead.
- The second observer coordinates their sampling efforts with the lead to maintain the systematic design.
- Bering Sea pollock CP and pollock mothership observers: Carry the systematic design haul to haul.
- Plant observers: Carry the systematic design from delivery to delivery.
- GOA plant observer: if you are assigned more than one plant you must maintain a singular systematic sample interval from plant to plant. It is not necessary to collect biological data from salmon following the order of deliveries. Rather, collect your biological data from salmon when the fish become available. Please see the example under Kodiak Plants: Salmon Genetics on page 11-6.
- Pollock catcher vessel observers: Do not collect genetic specimens unless you are assisting the plant observer during the salmon retention count.

Example: At the beginning of your Bering Sea pollock CP cruise you randomly select 3 as your start point for Chinook genetics sample collection. During your first haul you have 14 salmon in your retention data. For haul #1 you collect genetics samples from Chinook 3 and 13 that are removed from the salmon storage container.

- Since you counted 14 Chinook and collected a sample from the 13th fish, your next genetics sample will be collected from the ***9th*** Chinook encountered.
- Haul #2 has a total of 5 Chinook. Your second samples the haul and does not collect a genetics sample because it has not been 10 Chinook salmon since your last collection (during haul #1).
- For haul 3, you begin collecting samples from the ***4th*** Chinook, because you have had 6 Chinook in the retention data since your last genetics sample.

Always communicate the next fish to be sampled to your partner observer or the observer assisting you with the collection. The starting number for each haul's collection must be noted on the Deck Form. Be sure to initial the samples that you collected.

Collection Instructions

Follow the following guidelines for your salmon genetics sample collection. Collect both a salmon scale sample for FMA ID and a genetics scale sample from the same individual fish.

1. Remove the pelvic axillary process (PAP) by cutting it at the base. The PAPs are fleshy appendages at the base of the pelvic fin. For salmon <35cm in length, collect both PAPs.

2. Place the PAP(s) in a genetics scale envelope along with a scale sample of at least 5 scales (preferably from scale zone A) in the same envelope. Use the collection protocol described in "Salmon Scale Collection Guidelines" on page 12-9.

3. If no scales are present, collect only the PAP for your genetic sample (PAPs without scales are acceptable).

4. If you are unable to collect an accurate length or PAP from the salmon because it is damaged, use the next fish encountered and then resume your original sampling interval.

5. Record length, weight, sex, and specimen number on the Deck Form. If the fish is missing parts and a whole weight cannot be obtained enter "0.00" in the weight field.

6. Record the species name, specimen number, haul/offload number and sample number, scale zone, vessel permit, cruise number, and whether or not the salmon was missing the adipose fin on the scale envelope.

7. Number the genetic scale envelopes sequentially by species for each cruise number. The genetics specimen number is the same as the sex/length/weight specimen number from the same salmon.

8. Write "genetics" across the top of the envelope, and record data on the paper Length and Specimen Form or in ATLAS.

9. Lead and second observers:

   - The lead observer's cruise number and name must be recorded on all genetic scale envelopes and data forms.
   - Second observers must initial the genetic scale envelope for the specimens they collect.
   - See page 12-11 for an example.

10. All required data must be filled out on the genetics scale envelope.

11. Double-check that the genetics data were recorded on the Deck Form and entered into ATLAS or recorded on the paper Length and Specimen Form.

12. Once the form and scale envelope are completed, FREEZE the sample. ***It is important that the samples remain frozen until delivered to NMFS***.

13. Do not allow the genetics sample to dry! Genetics samples must be frozen.

14. The frozen samples must be turned in to an FMA office (Dutch Harbor, Kodiak, Anchorage or Seattle). ***Refer to "Specimen Drop Off and Initial Data Check Procedure/Frequently Asked Questions (1 of 2)" on page 12-24 for specimen drop off protocol.***

SALMON RETENTION DATA IN THE POLLOCK FISHERY

Salmon retention data is a full accounting of all salmon caught in a haul or delivery. Along with the normal species composition requirements of trawl vessels, observers in the directed pollock fishery in the Bering Sea and GOA have additional sampling requirements for salmon retention. ***Management of the Bering Sea Chinook salmon caps is dependant on NMFS observer salmon census data.***

Vessels that are directed fishing for pollock in the Bering Sea and GOA are required to deliver all salmon to the plant so that the plant observer may have the opportunity to collect salmon retention and biological data. Salmon bycatch reporting requirements in the pollock fishery are as follows:

- Observers assigned to pollock CPs, motherships, and to plants receiving pollock CV deliveries must report salmon retention data.
- Observers assigned to CVs fishing Bering Sea pollock do not complete the salmon retention form or an offload species composition.
- Observers assigned to CVs in the directed fishery for pollock in the GOA must report salmon offload census data on their offload species composition form. They do not report salmon retention data.

Salmon are managed by number, not weight. An accurate count of salmon caught is crucial for stock and inseason management!

AFA Pollock Catcher Processors, Motherships, and Plants

One of your highest priorities aboard an AFA pollock CP, mothership, or plant is to collect salmon retention data. Vessel personnel are responsible for sorting salmon from the catch and placing them in a storage container. All salmon from within the observer sample are placed in this salmon storage container once the observer has collected required composition data from the salmon. At the end of each haul all salmon will be removed from the container for the observer to identify and count. These raw data are recorded on the Deck Form. Refer to "Salmon Retention Recording and Reporting Requirements" on page 12-15 for instructions on recording salmon retention data.

The following points regarding salmon retention must be considered while working aboard an AFA pollock CP or mothership.

1. A crew member will be assigned to collect all salmon from each haul and the vessel is required to sort all salmon.

2. No salmon may pass the observer sample collection point (identified in the sample station inspection diagram).

3. The observer may complete other duties while the crew sorts salmon from the haul and need not be present in the factory for the entire haul.

4. The observer identifies to species and counts all salmon. The observer must notify the crew before beginning a count of salmon in the storage container.

5. Observers must be allowed to collect additional biological data from salmon. See "Salmon Data Collection" on page 12-8.

6. Once the observer has completed counting and sampling of salmon, the crew must remove the salmon from the sampling area in the presence of the observer.

7. The vessel must stop the sorting belt while the observer is collecting salmon retention data and biological data.

8. The observer must complete their salmon retention count and finish collecting biological data before the sorting of the next haul begins.

9. If at any point during the sorting of the haul the salmon become too numerous to be contained in the storage location the vessel must cease all sorting. The observer must be allowed to identify and count these salmon and to collect biological samples from them prior to the resumption of sorting.

10. The observer must be present at the beginning of each haul to verify that the storage container is empty before sorting starts for the next haul.

11. The observer must be present at the end of each haul to identify and count all the salmon and to collect biological samples.

You must arrange with the crew to be notified that the haul is nearing completion so you can be available to complete the final salmon retention count. It is useful to note the name of the vessel personnel present for the count and the time of count on the deck form.

Be sure to let the crew know where to find you. Collecting salmon retention data is one of your highest priorities!

Salmon Storage Container
All AFA pollock CP vessels have an approved storage location for salmon to be saved until the salmon retention count is completed by the observer, usually at the end of each haul.

1. The container must be adjacent to the observer sampling station (as outlined in the sample station diagram).

2. All salmon in the container must remain in view of the observer at the sampling station.

3. The container must be at least 1.5 cubic meters.

Video Requirement
All AFA pollock CPs are equipped with a factory video monitoring system (also known as electronic monitoring or EM) to track the sorting of salmon.

The observer may be fulfilling other duties and unable to observe the sorting of all salmon, therefore;

1. Video monitoring systems must be used to monitor the salmon storage container and all areas where sorting of salmon might occur.

2. Video monitoring systems consist of cameras, a monitor in the observer sampling station, and digital video recording system.

3. Observers are instructed to notify their inseason advisor if there is a failure of the video system. The observer must document this in the observer logbook Daily Notes section.

4. Observers are instructed to inform the captain if there is a failure of the video system. The observer must document this in the observer logbook Daily Notes section.

5. Video footage must be stored for 120 days.

6. Observers may not view archived video footage without prior authorization from NMFS staff. If the observer suspects a violation by the vessel, they are to notify NMFS staff immediately.

Collection of salmon retention data is a requirement for all CP and mothership hauls or plant deliveries in the directed fishery for Bering Sea pollock. If you miss species composition sampling for any reason, you still must collect salmon retention data.

SALMON RETENTION RECORDING AND REPORTING REQUIREMENTS

Vessels that are directed fishing for pollock in the Bering Sea and GOA are required to save all salmon on a haul by haul or delivery basis until these salmon are counted by a NMFS-certified observer and the observer has the opportunity to collect biological data. Salmon Retention data must be reported on daily via ATLAS.

Bering Sea Pollock

Catcher Processor Trawlers, Motherships, and Processing Plants
Observers on Bering Sea CPs and motherships directed fishing for pollock or at plants receiving Bering Sea pollock must:

- Collect salmon retention data and submit these data via ATLAS for their vessel or plant (see “Salmon Data Form” on page 18-14). For instructions on completing this form see. “Salmon Retention Form Instructions” on page 12-16.
- Enter salmon retention data from all Bering Sea pollock hauls or deliveries even when there were no salmon found!

All raw data must be documented on your Deck Form. See page 5-45 for an example of the expected level of documentation.

Bering Sea Catcher Vessels
Catcher vessel observers must give the plant observer where you deliver the numbers by species of any salmon discarded at sea. The plant observer accounts for all salmon from the vessel on the Salmon Retention Form so it is essential that you give this information to them. Notify NMFS of any salmon discards and document the discard in your Daily Notes, including any discards of large amounts of unsorted catch as this may have contained salmon.

Gulf of Alaska Pollock

Processing Plants
Observers assigned to plants receiving GOA pollock must collect and report Salmon Retention data via ATLAS. Document and report to your inseason advisor if salmon from a pollock delivery were not saved by the plant for you.

All plant observers must work closely with vessel observers to ensure the offloads from observed vessels are monitored in their entirety. See "GOA Pollock Deliveries to an AFA Plant (Full Coverage)" on page 11-5 and "Gulf of Alaska Protocols" on page 11-5. Once the retention data are complete compare the numbers you find at the plant to the numbers from the vessel observers and document any differences in your Daily Notes.

Gulf of Alaska Catcher Vessels
GOA catcher vessel observers must give the plant observer where you deliver the numbers by species of any salmon discarded at sea. The plant observer accounts for all salmon from the vessel on the Salmon Retention Form so it is essential that you give this information to them.

Notify NMFS of any salmon discards and document the discard in your Daily Notes, including any discards of large amounts of unsorted catch. See "GOA Vessel Observer Offload Salmon Census" on page 5-30.

Salmon Retention Form Instructions

Some of the fields in the ATLAS Salmon Data section will be automatically filled in by the computer. You will need to enter the following data:

Offload/Haul Number: Enter the offload or haul number from the Offload or Vessel Haul Form.

Temperature Scale: In the "Scale" field, enter the **Surface** temperature and/or **Fishing** temperature at the time of retrieval (if available). The codes are:

F – Fahrenheit
C – Centigrade
N – No data available

Salmon Numbers: The total numbers are the total of species counted and identified from the approved salmon storage containers. Crew members will be present to assist you with counting and verifying the identification of each salmon. ***Do not estimate which unidentified salmon would have been Chinook, chum, pink, sockeye, or coho based on your sample data.***

Any salmon that you cannot identify must be saved as a specimen and turned in to the NMFS field office for identification.

List the salmon to species on your Deck Form and enter the data into ATLAS.

Enter "0" for each species that was not encountered during the haul or delivery. Enter the number of salmon by species:

Chinook
Chum
Coho
Sockeye
Pink
Unidentified - Use for all salmon you do not personally identify

Salmon Census Source: ***This field is completed by Plant observers only.*** Enter one of the following codes below in response to the question "From where did the majority of salmon in the Salmon Numbers field above come from?" For these codes, "observed fish" refers to any salmon either directly sorted by an observer or under the direction of an observer***. Leave this field blank when no salmon are found during an offload***.

Code 6 =Observed Only- The salmon census derived from fish either directly sorted by the observer or sorted under the direction of the observer. Code 6 cannot be used if there are after-scale salmon or unidentified salmon discarded at sea.

Code 5 = Mixed Observed- The salmon census derived from both observed and unobserved fish, but primarily (>50%) observed.

Code 4 = Mixed Industry- The salmon census derived from both observed and unobserved fish, but primarily (<50%) observed.

Code 3 = Industry Only- The salmon census mostly derived from industry staff at times and from places unknown to the observer.

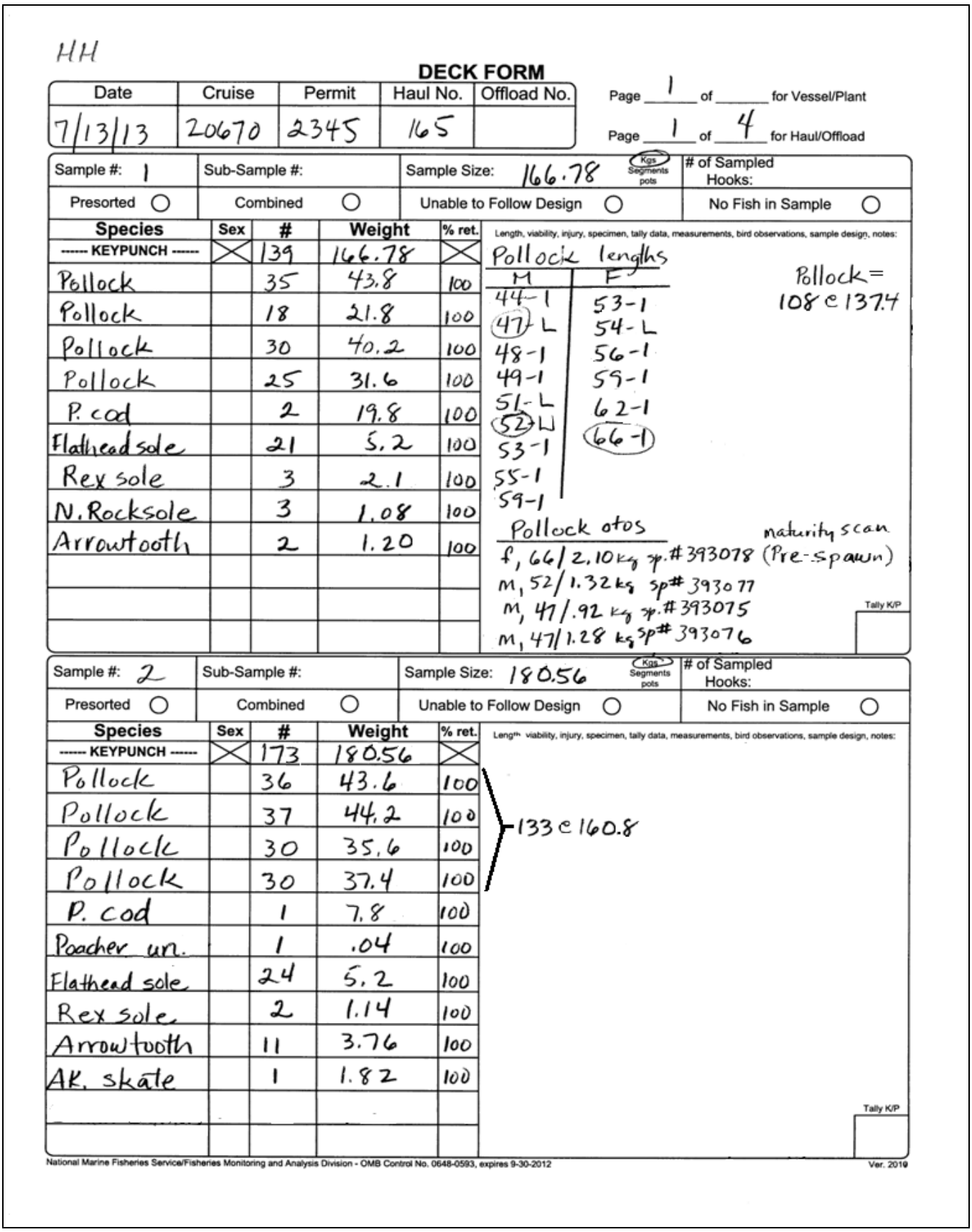
If you use code 5, 4, or 3, document the reasons some salmon were not observed!

Fish returned to the observer as after-scale, either during an offload or after the offload is complete, are considered unobserved fish. An offload with one or more after-scale salmon require a code of 5, 4 or 3. See Glossary page-i for a definition of after-scale.

Salmon discarded at sea without in-hand identification by the vessel observer should be reported to the plant observer (to add to the salmon retention information). Use code 5, 4, or 3 according to the most suitable of the definitions above.

Example: The vessel and plant observers sorted out a combined total of 6 salmon while monitoring the offload. During the offload a salmon passed unsorted into the factory and was brought to the observer by plant personnel as after-scale and placed in the salmon bin. After the offload, an additional salmon was brought to the plant observer's attention as another "after-scale" fish, bringing the total number of salmon from the offload to 8. The percent of observed salmon is (6/8)*100=75%. The Salmon Census Source is Code 5- (Mixed Observed) because >50% of salmon were observed fish.

CP and mothership observers DO NOT enter a salmon source code. CP and mothership observers leave this field blank when entering data into ATLAS.



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DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/13/13	20670	2345	165	

Page 1 of _____ for Vessel/Plant

Page 1 of 4 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 166.78 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	139	166.78	X
Pollock		35	43.8	100
Pollock		18	21.8	100
Pollock		30	40.2	100
Pollock		25	31.6	100
P. cod		2	19.8	100
Flathead sole		21	5.2	100
Rex sole		3	2.1	100
N. Rocksole		3	1.08	100
Arrowtooth		2	1.20	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Pollock lengths

M	F
44-1	53-1
(47) L	54-L
48-1	56-1
49-1	59-1
51-L	62-1
(52) L	(66-1)
53-1	
55-1	
59-1	

Pollock = 108 @ 137.4

Pollock otos

f, 66/2.10 kg sp.# 393078 (Pre-spawn maturity scan)

m, 52/1.32 kg sp# 393077

m, 47/.92 kg sp.# 393075

m, 47/1.28 kg sp# 393076

Tally K/P

Sample #: 2 | Sub-Sample #: | Sample Size: 180.56 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	173	180.56	X
Pollock		36	43.6	100
Pollock		37	44.2	100
Pollock		30	35.6	100
Pollock		30	37.4	100
P. cod		1	7.8	100
Poacher un.		1	.04	100
Flathead sole		24	5.2	100
Rex sole		2	1.14	100
Arrowtooth		11	3.76	100
AK. skate		1	1.82	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

133 @ 160.8

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2019

Figure 12-9: Example of Expected Documentation for Prohibited Species Biological Data Collections

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DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
07/13/13	20670	2345	165	

Page 2 of _____ for Vessel/Plant

Page 2 of 4 for Haul/Offload

Sample #: 3	Sub-Sample #:	Sample Size: 152.47 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	119	152.47	X
Pollock		30	36.6	100
Pollock		20	23.8	100
Pollock		30	35.8	100
Pollock		21	24.8	100
P. cod		2	17.2	100
Flathead sole		7	3.0	100
N. Rocksole		2	.72	100
Arrowtooth		4	1.06	100
Chinook	F	2	6.46	82
Halibut		1	3.03	99

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Chinook FMA ID sp# scale

69 f 3.8 kg # 1

52 f 2.3 kg # 2

101 @ 121.0

Halibut V.

64cm/U

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Biological specimens from prohibited species in the at sea sample are reported at the sample level. In addition to being reported in the at sea sample, the salmon species and their numbers are reported in the offload census sample, along with the salmon seen during the census.

Tally K/P

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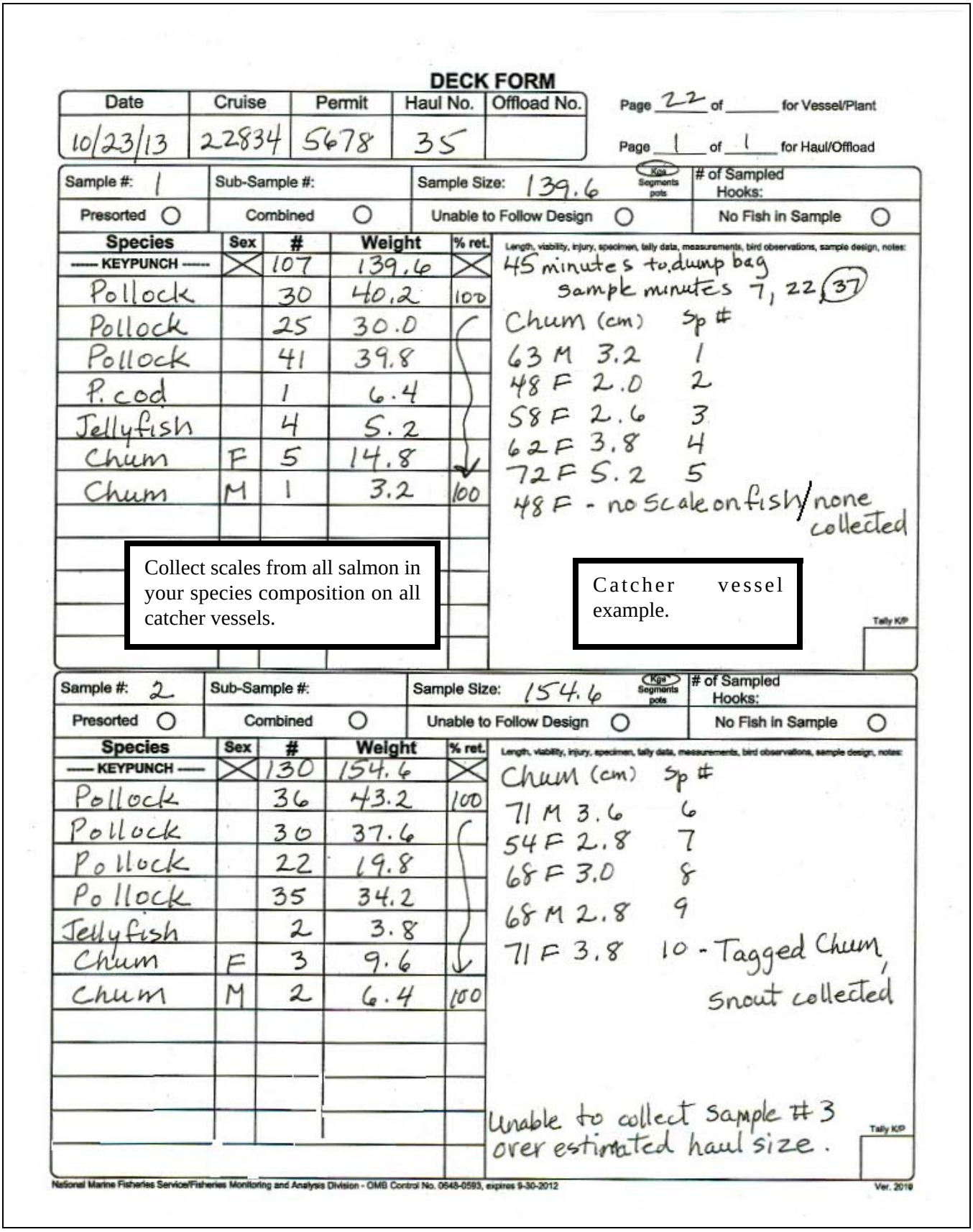
Figure 12-9: Example of Expected Documentation for Prohibited Species Biological Data Collections



DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
10/23/13	22834	5678	35	

Page 22 of _____ for Vessel/Plant

Page 1 of 1 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 139.6 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X	107	139.6	X
Pollock		30	40.2	100
Pollock		25	30.0	(
Pollock		41	39.8	
P. cod		1	6.4	
Jellyfish		4	5.2	
Chum	F	5	14.8	
Chum	M	1	3.2	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

45 minutes to dump bag
sample minutes 7, 22, (37)

Chum (cm) Sp #
63 M 3.2 1
48 F 2.0 2
58 F 2.6 3
62 F 3.8 4
72 F 5.2 5
48 F - no scale on fish / none collected

Tally K/P

Collect scales from all salmon in your species composition on all catcher vessels.

Catcher vessel example.

Sample #: 2 | Sub-Sample #: | Sample Size: 154.6 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
----- KEYPUNCH -----	X	130	154.6	X
Pollock		36	43.2	100
Pollock		30	37.6	(
Pollock		22	19.8	
Pollock		35	34.2	
Jellyfish		2	3.8	
Chum	F	3	9.6	
Chum	M	2	6.4	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Chum (cm) Sp #
71 M 3.6 6
54 F 2.8 7
68 F 3.0 8
68 M 2.8 9
71 F 3.8 10 - Tagged Chum, snout collected

Unable to collect sample # 3 over estimated haul size.

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2010

Figure 12-9: Example of Expected Documentation for Prohibited Species Biological Data Collections

Cruise	Permit
22834	5678

Length and Specimen Form

Page 7 of _____

Resubmission (Circle All Changes)

Observer Name Barry Crook Vessel/Plant Name Mr. Chris

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Chum	221	35		1	10	M			63	1	3	1	3.20	
											2	1	0.00	
Chum	221	35		1	10	F			48	2	3	2	2.00	
											2	2	0.00	
	221	35		1	10	F			58	1	3	3	2.60	
											2	3	0.00	
	221	35		1	10	F			62	1	3	4	3.80	
											2	4	0.00	
Chum	221	35		1	10	F			72	1	3	5	5.20	
											2	5	0.00	
													.	
Chum	221	35		2	10	M			68	1	3	9	2.80	
											2	9	0.00	
Chum	221	35		2	10	M			71	1	3	6	3.60	
											2	6	0.00	
													.	
Chum	221	35		2	10	F			54	1	3	7	2.80	
											2	7	0.00	

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Page _____ of _____ for Transmission

Ver. 2010

Cruise	Permit
22834	5678

Length and Specimen Form

Page 8 of _____

Resubmission (Circle All Changes)

Observer Name Barry Crook Vessel/Plant Name Mr. Chris

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Chum	221	35		2	10	F			68	1	3	8	3.00	
											2	8	0.00	
Chum	221	35		2	10	F			71	1	3	10	3.80	
											11	10	0.00	
											2	10	0.00	
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National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

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Ver. 2010

Figure 12-10: Examples of Prohibited Species Biological Data Reported at the Appropriate Level for CV

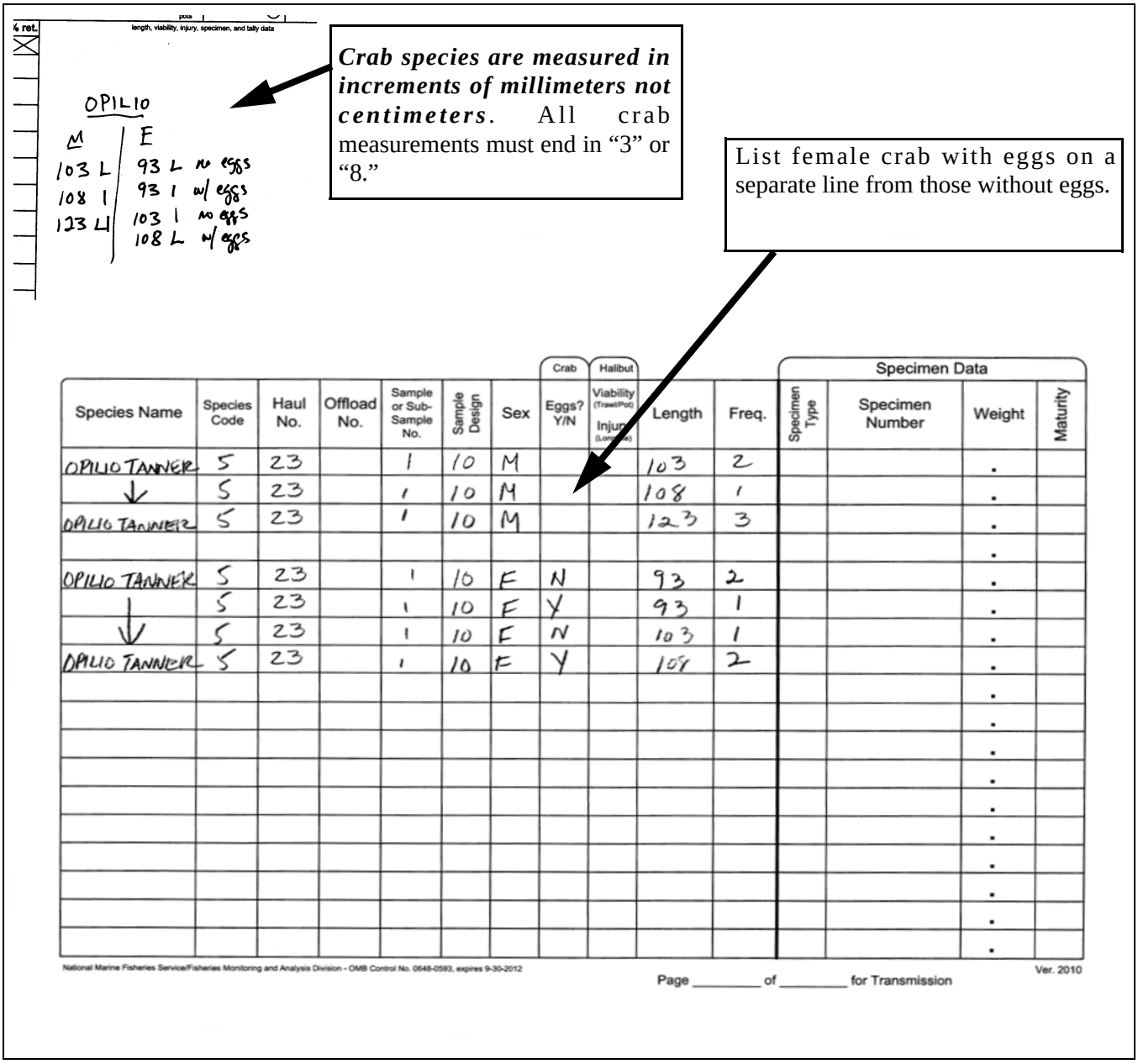
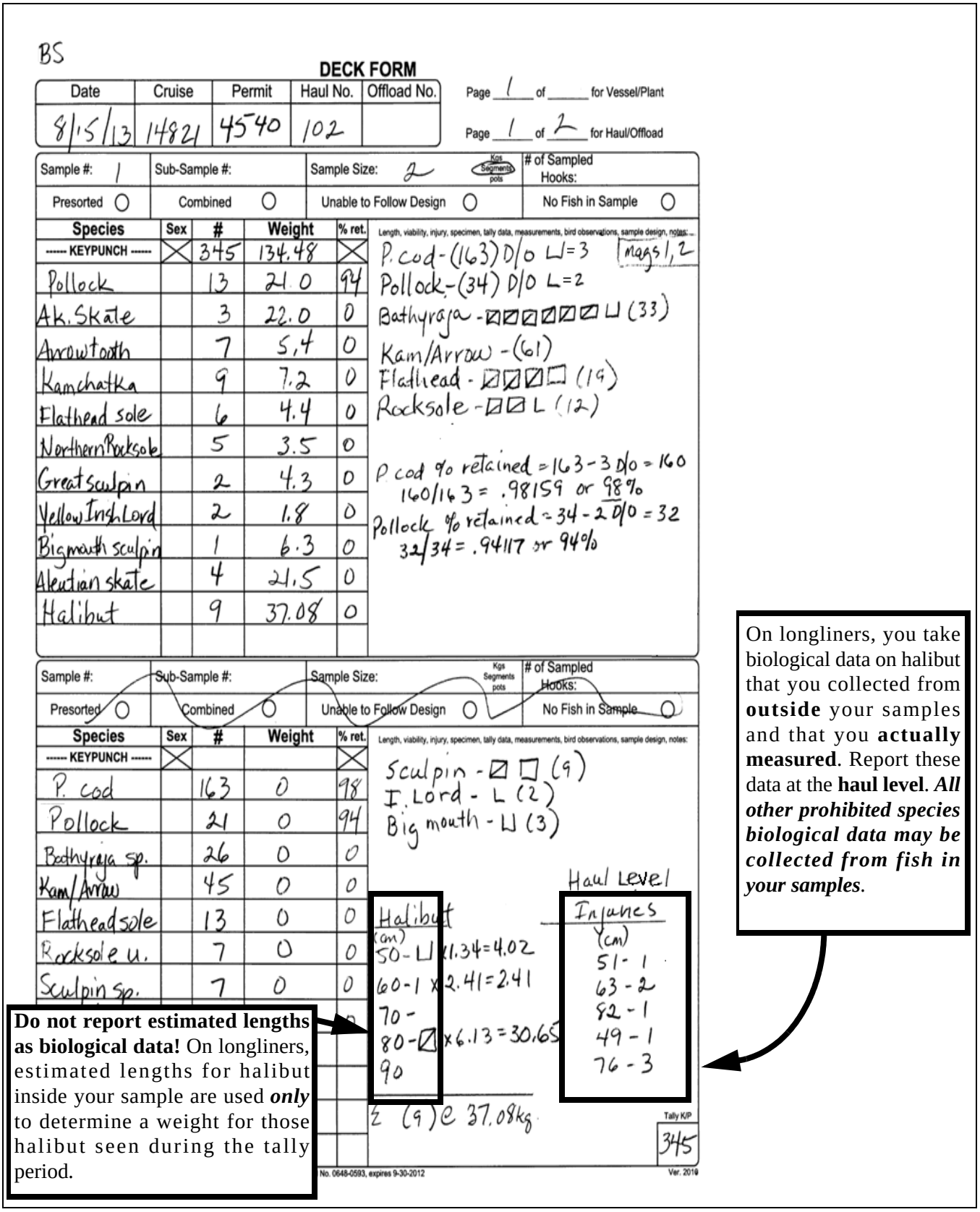


Figure 12-11: Example of proper documentation of crab measurement data



Do not report estimated lengths as biological data! On longliners, estimated lengths for halibut inside your sample are used ***only*** to determine a weight for those halibut seen during the tally period.

On longliners, you take biological data on halibut that you collected from **outside** your samples and that you **actually measured**. Report these data at the **haul level**. ***All other prohibited species biological data may be collected from fish in your samples.***

Figure 12-12: Example of Biological Data Collected for Halibut on a Longliner

Salmon Genetics Specimens

Specimen Drop Off and Initial Data Check Procedure

The following protocol **MUST** be followed when dropping off your salmon genetics specimens. These protocols are in place to ensure the data are in the database and the data provided to the data users are of the highest quality possible. This process will be checked during debriefing and if it has not been properly completed you may not "meet expectations" for your deployment. The time required to drop off specimens is dependent on the number of specimens, the quality of the raw data, and staff availability.

We recognize that many situations exist that may reduce your ability to complete the process as outlined. However, we do expect under all circumstances that you do your best to meet the following two goals:

- Keep the specimens frozen to preserve the tissue.
- Ensure all raw data are complete and correct.

Drop Off Procedure:

1. Keep specimens frozen!
2. Are FMA Observer Program offices open for specimen drop off?
   - Utilize your inseason advisor and/or observer provider to notify field office of your pending arrival to drop off specimens.
   - Request a "salmon genetics sample query" be printed for you. You will need your cruise number, vessel permit, range of specimen numbers, and the date range for the specimens you will be depositing.
3. Verify data:
   - Verify the data on each genetics sample envelope against the raw data on your deck forms. All raw data MUST be on the deck forms. (This step can be done in advance.)
   - Check the data on each genetics sample envelope against the "salmon genetics sample query" provided. Common areas where errors may be present are: specimen number, haul or offload number, and species name.
   - Verify all information matches the "salmon genetics sample query" printout.
   - All errors must be corrected on the raw data deck forms, the genetics sample envelopes, and noted on the "salmon genetics sample query" in red pencil.
   - If you are returning to the same vessel errors encountered during this check-in process can be corrected in ATLAS following the specimen drop off. If corrections are made to the data in the database via ATLAS you must obtain a new "salmon genetics sample query" to verify these corrections against the raw data. (This can be done during debriefing.)
4. Complete the "salmon genetics specimens deposit form" provided by the field staff.

Figure 12-13: Specimen Drop Off and Initial Data Check Procedure/Frequently Asked Questions (1 of 2)

5. Ensure your specimens are listed on the specimen check in sheet.

6. Wrap the specimens in the "salmon genetics specimens deposit form," bind the specimens with a rubber band, place the specimens in a ziplock bag, and put the specimens in the designated area in the freezer.

7. Bring your verified "salmon genetics sample query" with you to debriefing for final review and editing. This query is part of your final data!

8. Document the specimen drop off in the Specimen Drop Off Record in your logbook.

Frequently Asked Questions:

1. What do I do if my data are not in the database yet?

Find a place to store the specimens until your data are entered. Freezer space may be available in the field office, on your vessel, or in your bunkhouse. Once your data are available you may complete the process outlined above.

2. What do I do if the field office is not open when I am in port?

Find a place to store the specimens until the field office is open. Freezer space may be available on your vessel or in your bunkhouse. Contact your provider and inform them of your need to drop off your genetic specimens. Once the field office is open follow the steps outlined above.

3. What do I do if I disembark in a port without a field office?

Do your best to keep your specimens frozen. You can wrap them in paper or other insulating material to slow the thawing process. Once you arrive in a port with a NMFS office follow the steps outlined above.

4. What if I have to board another vessel immediately?

Be sure you have informed your provider that you have specimens needing to be dropped off from your previous assignment. Visit the field office and follow the steps outlined above at the next available opportunity.

5. What do I do with the "FMA ID" scales and/or snouts from salmon missing an adipose fin?

FMA ID scales are turned in during debriefing and should accompany you to your final debriefing. Salmon snouts can be dropped off at a field office or brought to debriefing. Ensure all associated raw data are correct and match the specimens when you drop off snout specimens.

6. Can my provider turn in my specimens for me?

In rare cases it is appropriate for your provider to drop off your specimens. You must verify all the raw data against the physical specimen before handing the specimens over to your provider. You are required to obtain a copy of the verified "salmon genetics sample query" from your provider as this information is part of your final data set.

Figure 12-14: Specimen Drop-Off and Initial Data Check Procedure/Frequently Asked Questions (2 of 2)

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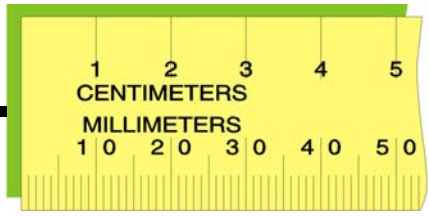

FISH MEASUREMENT AND SPECIMEN COLLECTION

Table of Contents

PRIORITIES

- Collect otoliths from randomly selected fish in your length frequency sample. If you are unable to collect both length frequencies and otoliths, the otolith sample takes precedence.
- Collect length frequencies from species according to the priority lists at the end of this chapter starting on page 13-32.
- Collect sex/length/weight information from skates and Bering Sea pollock.
- Collect other biological data according to the lists at the end of this chapter starting on page 13-32.
- Collect standard and research project data.

INTRODUCTION

Fish measurements, weights, sex, and otolith collections are used by NMFS fisheries biologists to determine the relative abundance of each year class of predominant and selected bycatch species. Fish measurement data provide information on the abundance of fish in each size category, while otolith and/or scales provide corresponding age information. The age/length relationship of a species may change from year to year and may be quite different for each sex of a species.

Uses of Biological Data

Researchers and resource managers use the length, weight, and sex data you collect for age-length relationships (growth rate), length-weight relationships, sex composition and differences in growth between sexes, abundance of year classes and occurrence of year classes in commercial fisheries, and verification of the length data collected during research cruises by NMFS surveys.

All observers are assigned otolith collections. Otoliths are read by agency staff to determine the age of the fish, then the data are combined with the fish length and weight to provide length-age ratios. Length measurements collected also provide a picture of the abundance of each year class in the catch.

Sexed length, weight, and otolith collections provide information on the sex composition and the differences in the sizes of each sex in the catch. All of these components are used in the determination of the health of the stock and are applied in setting levels of sustainable yield. Commercial fishery quotas will be set, in part, based on observer length data from this and previous years.

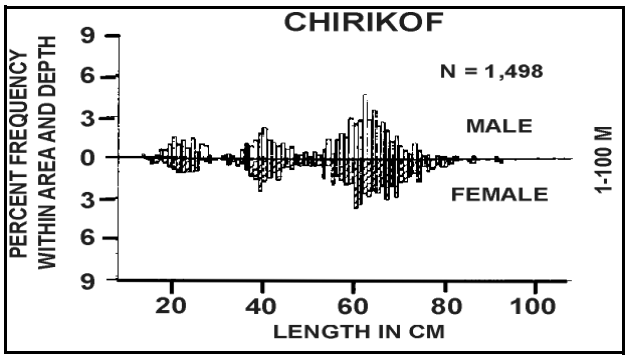

Figure 13-1: Length Frequencies at Depth (examples)

COLLECTING FISH FOR MEASUREMENT AND SPECIMEN DATA

Ensure that you do not introduce size or sex bias in your selection technique when collecting fish for measurement and specimen data. Watch how fish are sorted, dumped, and moved to ensure no vessel-caused bias exists. If you suspect that there is bias affecting your samples, contact NMFS staff immediately. Please get their assistance to modify and improve your sampling process before proceeding!

For each haul, determine the sex and record the length for approximately 20 fish of the ***most predominant species*** that is also listed on the Length and Specimen Priority Lists (lists begin on page 13-32). The Observer Program requests data from only those fish on the Priority List. If there is a species that is predominant in the catch, but is not listed on the list, do not collect length and specimen data for that species. Move to the next most predominant species in the catch and determine whether that species is on the list. If it is, collect specimen data from that species. If it is not, move to the next most predominant fish in the catch and so on.

Do not collect specimen data for species that are not listed on the Length and Specimen Priority List beginning on page 13-32!

Collect specimens from a subset of the measured fish (no more than 10 pairs of otoliths should be collected from any sampled haul). A variable number of "sexed lengths" and specimens will be collected per day depending upon the number of sampled hauls. The rate of specimen collection will vary depending on which fishery you are in; refer to the Length and Specimen Priority lists beginning on page 13-32.

It is important to collect lengths from each sampled haul. You may have to measure less than the requested amount per haul if your time is needed for higher priority tasks. If that is the case document the reasons in your logbook, and measure and sex as many fish as you can from each sampled haul. Do not measure additional fish from other hauls to compensate for shortages in a given haul.

Measurement and specimen data can be taken at the sample, subsample, haul, or offload level. These data are recorded at the level from which they were collected. For example, measurements taken from species within a sample are reported under that sample number, measurements taken from salmon during an offload are reported under the offload number, measurements collected during a haul from halibut outside the samples are reported under the haul number, and so on. While you will collect a majority of specimen information at the sample level, it is important to recognize that the data can be entered at these other levels as well.

Random Methods for Collecting Fish for Measurement and Specimen Data

Samples of selected species must be collected randomly. The easiest way to collect fish for measurement and specimen samples is to randomly select one or more containers of ***unsorted*** fish from one of your composition samples, then measure all of the fish in the container(s). If you are sampling large portions of catch, randomly collect a basket of unsorted catch. Use the selected species in this basket for your measurement and specimen samples, or, if there are too many of the selected species in the unsorted basket, use a random design to further reduce the population.

The basket dump method works well on most vessels and in most fisheries as a method to randomly reduce the population. Once you have randomly selected a basket of unsorted catch from your composition sample, split your selected basket by dumping this sample into two empty containers lined up next to each other. Randomly select one of these two containers and use the predominant species in the randomly selected basket for your measurement and specimen fish. You might end up with a few more or a few less fish than the number listed in the priority list. This is acceptable; the number of fish listed in the Length and Specimen Priority List is a guideline! Do not bias your collection by attempting to obtain the exact number listed in the priority list.

On vessels where limited space is an issue, it is likely that you will have to use alternate methods to collect your measurement and specimen samples. For example, if you are collecting species composition samples using checker bins, randomly select a checker bin with unsorted catch as your measurement and specimen sample. You can then divide this checker bin into sections (halves, quarters, *etc*.) and randomly select a section to collect your measurement and specimen fish. Collect all of the fish from your randomly selected section of the bin. If you have more fish than you need, use the basket dump method to reduce the number of fish.

Trawl Vessels

On trawl vessels, fish used for sample level measurement and specimen data may not be collected outside of your species composition sample!

Longline Vessels

On longliners, your measurement and specimen fish typically come from your predominant species weight subsamples. For the non-predominant secondary species collect fish from your tally sample. Halibut sex/lengths and assessments are collected at the haul level (outside your tally sample).

Pot Vessels

On pot vessels, your measurement and specimen fish will typically come from a randomly selected sample pot used for collecting predominant species weights. Halibut assessments are collected from within your species composition sample.

You will have to determine which method works best for each vessel you work on. Do the best you can and make sure you document in detail your sampling designs and methods and any problems you encountered.

Determine the sex of all the measured fish. If you cannot determine the sex of all the fish, determine the sex of a random subsample of the measured fish. Record the unsexed fish lengths with a "U" in the sex column on the Length and Specimen Form.

For each sampled haul, you may randomly choose one sample from which to take lengths. If you are taking lengths from two or more species, you may collect both species from within the same sample, or you may divide up the species over two or more samples. ***The only requirement is that the sample or samples be randomly chosen and the fish from within the sample(s) are randomly selected.***

Measurement and specimen data from prohibited species should be taken at the appropriate level. See "Sampling for Lengths and Specimens" on page 12-2 for instructions regarding the appropriate sampling level for each prohibited species.

If measurement and specimen data are collected from outside the at-sea species composition sample (as is often the case with halibut viabilities/injuries on CPs or salmon on GOA pollock catcher trawlers), those data must be recorded at the haul level.

Selection of Species for Specimen Samples

Select approximately 20 fish of the ***most predominant species*** for your sex/length and specimen collection. Select only species that are listed on the Length and

Specimen Priority Lists (lists begin on page 13-32). ***The most predominant species is determined by your visual estimate.*** You do not need specific weights or numbers of organisms to determine which species to measure.

To determine which species to select for length measurement samples and specimen collections refer to the following guidelines:

- When the predominant species is listed on the Length and Specimen Priority Lists for your region (BSAI or GOA), collect from this species. The Length and Specimen Priority Lists can be found at the end of this chapter starting on page 13-32.
- If there are predominant species of equal proportions, select the highest priority of these.
- If the predominant species occur relatively in the same proportions in the catch, and are listed at the same priority, alternate between these species from haul to haul.
- In the GOA, if the predominant species in the catch is arrowtooth, measure arrowtooth for the first through fourth sampled hauls. On every fifth sampled haul for which arrowtooth is predominant, measure another flatfish species in the ranking list (see Figure 13-28) and collect otoliths from that flatfish species.
- In the flatfish and rockfish fisheries select a second species using the Length and Specimen Priority Lists. If your sample contains more than one species listed in the Priority List, collect specimens from the most predominant of the second species. If the second species occur in equal proportions, select the species listed highest in the Priority List. The Length and Specimen Priority Lists can be found at the end of this chapter starting on page 13-32.

If rock soles are the predominant species, collect a subset sample for species identification and use the identified fish for the Length and Specimen Form (see "Subset Sampling" on page 2-23).

The species measured will change when species composition changes. For example, Pacific cod may be the predominant species for the first two sampled hauls of the day, but the third sampled haul may contain a large amount of sablefish. In this situation, the Priority List instructs you to measure approximately 20 Pacific cod, approximately 10 shortraker/rougheye, and approximately 5 skates of any species from each of the first two sampled hauls, and measure approximately 20 sablefish, approximately 10 shortraker/rougheye, and approximately 5 giant grenadier from the third sampled haul.

Before you begin collecting fish for length measurement samples, set up a work area to measure fish. You will need to have a space large enough to lay a fish on the plastic length strip. If there is no table set up, use the NMFS aluminum board or baskets for a table, or use deck bin boards or the deck. The size of your length station will be a determining factor in how many fish you can collect at one time.

If you use northern & southern rock sole from your species composition sample as your length sample, these species must be recorded on your Species Composition Form as well!

If you are aboard a catcher vessel delivering to a plant, collect lengths at sea for each haul rather than at the plant, where fish are mixed from several locations. The data users prefer to have the length data associated with a specific catch location.

It is important to measure fish collected from unsorted catch using a non-size selective method. Once you have devised an unbiased method to select the individuals to measure, look for ways that the layout of the vessel or factory, or the actions of the crew can aid you in carrying out your duties. If there is a diverter board or a belt that can be reversed into a basket, utilize those tools. You must never use a shovel, gaff or your hand to select the fish, but you may use these methods to collect the fish after they have been removed from the sample in an unbiased manner. Ask the crew for help in getting all the fish you selected. For example, if the individual fish selected falls back on an incline conveyor belt, ask a crewman to grab it or push it up, ask rollermen to gaff aboard those fish selected on longliners, or ask sorters not to pull out the large fish until you have your sample.

Collect sex/length/specimen fish from inside your composition sample *prior to* sorting it! Ensure your collection does not have a size bias.

MEASURING FISH

Fork length is the fish length measurement method used by NMFS. Fork length is the length from the tip of the snout or jaw (the most anterior) to the end of the middle rays of the caudal fin (see Figure 13-2).

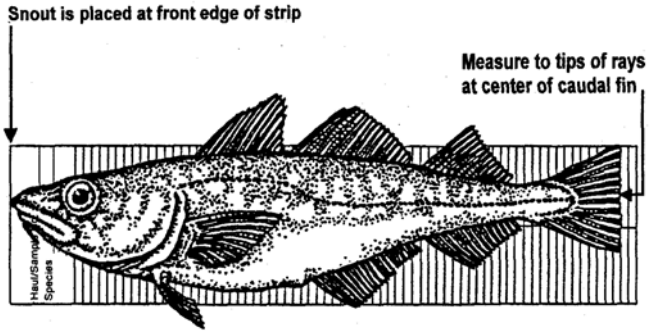

Figure 13-2: Measuring Fish

You will be given plastic measuring strips marked at centimeter increments. The first line printed on the strip is 4.5 cm, and the space between that line and the next line represents a measurement of 5 cm. Check your plastic strip, on both sides, to ensure that the first line is really 4.5 cm. Sometimes the manufacturer has cut the strip incorrectly. Notice that the 10 centimeter increments are not marked with a number. That is so that you can offset the strip by 10, 20, or 30 centimeters for larger fish. Figure 13-3 shows offsetting the plastic strip for measuring large fish. Position the plastic strip on the NMFS aluminum board, the labeled end should be toward the lip of the board so the snout of the fish may be nudged against it. Alternative materials to the aluminum board may be used for doing measurements, but you must be able to nudge the snout against something. The plastic strip can be held down with thumbtacks, tape, or fish slime (rub the back of the strip on the fish and it will "glue" temporarily to the board).

Steps to Measuring Fish

1. Sex the fish first, if possible.
2. Lay the fish flat on the plastic measuring strip parallel to the center line.
3. Close the jaws.
4. Nudge the fish snout against the end of the aluminum board.
5. Stretch out the caudal fin to find the middle rays see Figure 13-2.
6. Read the space where the fork length falls and record this length on a Deck Form.

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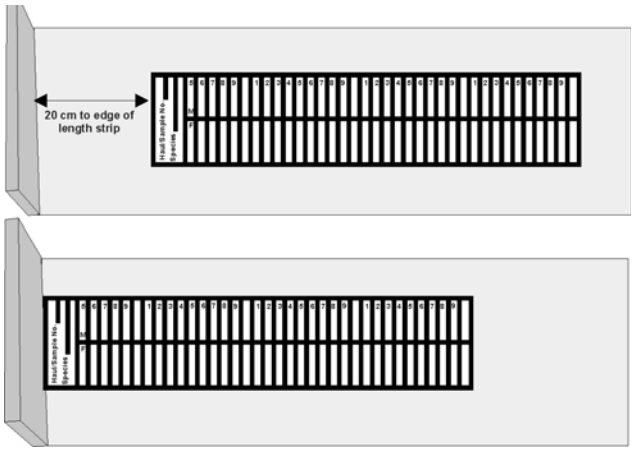


Figure 13-3: Measuring Strip Placement

If the fork length falls on a printed line on the strip, try re-measuring the fish. If the length falls on the line again, use the *lower* centimeter measurement.

It is preferred that you record the length directly onto the Deck Form to avoid transcription errors. Hand writing on the length strip can rub off and/or it may be made illegible by fish scales or slime. However, if you choose to write directly on the length strip, it should be cleaned with scouring powder to remove previous marks and make it ready for the next haul's lengths. Don't scrub too hard because you may scour off the centimeter lines! Be sure you have recorded your data before you clean the length strip. Double check your transcribed lengths on your deck form against the length strip before cleaning the strip to make sure you recorded all the lengths correctly!

Measuring Skates

Identification of skates to species may require that you compare the individual's disk length (called precaudal length) to tail length ratio.

- ***Precaudal length*** is measured from the tip of the snout to the posterior aspect of the anus.

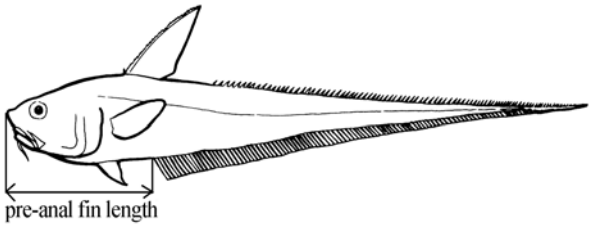
- ***Tail length*** is from the posterior aspect of the anus to the tip of the tail.

The value you must document on the length form is the ***total length***.

- The total length of a skate is defined as the length from the tip of the snout to the tip of the tail (with ventral surface of the skate down).

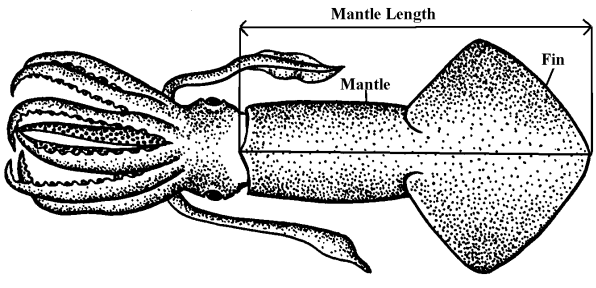
Measuring Giant Grenadier

The length measurements taken should be pre-anal fin length (PAFL) in cm. This is the measurement from the tip of the snout to the insertion of the first anal fin ray, immediately posterior to the anus. This is the standard because the long tapering tails of giant grenadiers are frequently broken off when they are caught.



Measuring Squid

Mantle lengths are collected on squid. It is a straight line measurement from the tip of the fin to the center edge of the mantle. Lay the ventral side of the squid on the length strip and align the tip of the fin to the edge of the strip.



Frequently Asked Questions
Q: Which observers on which vessels collect length-frequency measurements? **A:** ***ALL*** observers on ***ALL*** vessels and at ***ALL*** plants collect length-frequency samples.
Q: Which species should be sampled for length-frequency measurements? **A:** When there is a predominant species listed on the Length and Specimen Priority List, select that species. ***Only measure species on the list.*** If there are dominant species of equal proportions, select the highest priority of these. If there are several hauls in a row with dominant species in roughly equal proportions and with the same priority, alternate between these species.
Q: How many fish are to be selected for length-frequencies? **A**: Depends on the species, but on average you should measure approximately 20 fish per sampled haul.
Q: How should fish be selected for the length-frequency sample? **A:** One possible method would be to pre-select from which basket(s) to measure fish, then measure all of the fish in the basket(s). It is preferable to use the composition samples or subsamples for predominant species. When you do this, resource managers benefit from data reported at the sample level.
Q: Which fish should be sexed? **A:** Sex all of the fish measured. If you cannot sex all the fish, sex a random subsample of the measured fish.

Figure 13-4: Length Sampling FAQ

OTOLITHS

Otolith specimens should be collected from a subset of fish in the length sample. Depending on the number of otoliths needed for each species and the number of hauls you sample in a day, you may collect otoliths a few times per day, or only every few days. Use a random systematic sampling design to determine the sampled hauls from which to collect otoliths.

For example: to collect otoliths from every 10th sampled haul, you would pick a random number between 1 and 10. Let's call this number q. You would then collect otoliths from the q^{th} sampled haul, the $q+10^{th}$ sampled haul, the $q+20^{th}$ sampled haul, etc. If q = 4 then you would sample from the 4^{th}, 14^{th}, 24^{th}, etc. sampled hauls until the vessel changes fisheries or your cruise ends.

If you miss a sampled haul for some reason, collect otoliths from the next sampled haul, and then continue with your original sequence. Maintain this same sequence even if you change vessels. For example, if you randomly chose haul 3 to begin taking pollock otoliths, and the vessel only fishes two hauls, you would take otoliths from the next sampled tow on your next vessel, providing it was fishing pollock.

Otolith collections must come from length collections. Otoliths are a higher priority than lengths and there may be times when you can complete only an otolith collection. Record your otolith sample on your Length and Specimen Form.

Tracking Your Otolith Collection

It may be difficult to track what otoliths to collect, especially if the predominant species the vessel is catching changes often. One way to track when to collect otoliths is to use the Observer Sampling Record in your logbook. Enter the haul numbers, whether the haul was sampled or not, and the predominant species that you measured for each haul. Determine the hauls from which you will be collecting otoliths by reviewing this chart.

OBSERVER SAMPLING RECORD

(OPTIONAL)

VESSEL NAME: Aurora Borealis (Gulf of Alaska fishery)

Haul#	Sampled (Y/N)	Species	Otoliths Haul (Y/N)
1	***Yes, will sample all hauls***	***Pacific cod***	***N***
2	***Yes***	***Pacific cod***	***N***
3	***Yes, first otolith haul***	***Pacific cod***	***Y***
4	***Yes***	***Pacific cod(1)***	***N***
5	***Yes***	***N/S rocksole***	***N***
6	***Yes***	***POP***	***Y***
7	***Yes***	***Pacific cod (2)***	***N***
8	***Yes***	***Pacific cod (3)***	***N***
9	***Yes***	***Pacific cod (4)***	***N***
10	***Yes, second otolith haul***	***Pacific cod (5)***	***Y***

Figure 13-5: Example of Tracking Otolith Collections When Predominant Species Changes

Selecting Fish for Otolith Collections

Collect otoliths from the selected sampled haul using a random or random systematic method. Never use a haphazard method or hand pick your fish. For a random method, number your length sample fish from one to the total number, then randomly pick numbers within this range to identify fish from which to collect otoliths. For a random systematic method, divide the number of lengths you collect by the number of otoliths you need to collect. Let's call the resulting number or

quotient x. Randomly choose a number from 1 to x. Let's call this number k. Collect otoliths at k, k +x, k +2x, k+3x, etc. until you have run through all of your fish selected for sex/lengths.

Example: If you were to collect length measurements from 22 fish and needed to collect 5 otoliths, then x would = 4. Using a random number generator, pick a number between 1 and 4, let's say k = 2. So you would collect otoliths from the *2nd*, 2+4=*6th*, 2+8=*10th*, 2+12=*14th*, 2+16=*18th* and 2+20= *22nd* fish for a total of 6 fish from which to collect otoliths.

When you use a systematic selection method more than the minimum required number of otolith fish required on the priority lists may be selected. ***If your systematic selection results in more otolith fish than the minimum required, collect otolith specimens from all the fish selected.***

If you were to collect 2 fish from the length sample of 22, x = 11. Pick a random number k between 1 and 11, and put aside fish numbered k and k+11.

Every fish selected for your sex/length collection must have an equal opportunity of being selected as an otolith specimen. ***Do not, under any circumstances, select the fish for the otolith specimens according to your perception of the size distribution you "should" be getting.*** Use the techniques outlined above to avoid size bias.

You are fishing in the Gulf of Alaska, sampling all hauls, and have chosen the third haul to begin otolith sampling. The predominant species is arrowtooth flounder, so you measure arrowtooth for the first two hauls. Haul 3 is an otolith haul and otoliths are not collected from arrowtooth, so you must measure and collect otoliths from the second most predominant species. You assess your sample and it looks like rock soles and flathead occur in equal amounts. Since rock soles are higher in priority, you randomly collect approximately 20 rocksoles and key them to northern and southern rock sole while you measure and sex them. Additionally, you collect 5 pairs of otoliths and individual weights from randomly selected sex/length fish, regardless if they are northern or southern rock sole.

Figure 13-6: Measurement and Specimen Fish Selection Example

Otoliths From Tagged Fish

If the tagged fish was a randomly selected otolith specimen the otoliths should stay with the data set and not be included with the tag. ***Otoliths from tagged fish that are found outside of your sample do not get entered into ATLAS or recorded on the paper Length and Specimen Form.*** Otoliths from tagged fish outside your sample are attached to the tagged fish form and turned in at debriefing with the form.

Aleutian Islands Pollock Fishery

This fishery is conducted in waters west of 170 degrees longitude and South of 55 degrees Latitude in the Aleutian Islands Sub-Area. Only a small number of vessels participate in this fishery. Fishing in this region is noted in the vessel logbook. With the limited amount of coverage that occurs in such a small fishery you are asked to collect 75 sexed lengths and 10 otolith pairs per sampled haul.

Atka Mackerel Otolith Collection

Directed fishing for Atka mackerel occurs in Areas 542 and 541. When observing in the directed fishing for Atka mackerel collect 2 otolith pairs per sampled haul. In all other fisheries where Atka mackerel are predominant, you should be collecting 4 otolith pairs per sampled haul.

How to Collect Otoliths

After obtaining the length measurement, weigh the fish. Weigh fish for otolith collections on the brass 2 kg, 5 kg, or 12 kg scales, or your motion compensated platform scale. ***Do not use the 50 kg Salter scale for individual fish weights unless the fish is over 12 kg and you do not have access to a motion compensated platform scale!*** Record weight, sex, and length on your Deck Form next to the vial number in which the otoliths and/or scales are placed. ***It is important that the numbered vials match the data for that fish.*** The data cannot be used if there is an error in the number used to correlate the otolith specimen to associated biological data.

Lead and second observers collect otolith specimens as one collection. All otoliths from both observers should be listed under the lead observer's cruise number. The lead observer is responsible for returning all data and specimens to debriefing.

Otoliths are fragile and must be in good condition to be read. During a non-otolith haul, practice taking otoliths from different species and different size fish. Try a variety of cuts and knife sizes until you feel comfortable. Since these will only be practice fish, the otoliths should not be kept or recorded on any forms.

The otoliths are located ventrally, and to either side, of the brain tissue, just above where the pre-operculum is located. The common methods of cutting into a fish's head to remove the pair of otoliths are:

1. A vertical cut through the head above the pre-operculum, or
2. A horizontal cut through the head just above the eyes.

The easiest method to use for most fish is to make a vertical cut down through the top of the head to the location of the otolith pocket. This point is located by a simple rule of thumb: imagine the two points on either side of the fish's head at which, if the lateral lines were extended, they would meet the pre-opercular bones. Plan to cut down to these points. Species with tiny otoliths are best cut using the horizontal technique see Figure 13-8.

If you have cut to the correct point, the otolith cavities (one on each side of the brain) will break open and expose the white, calcareous otoliths. They can easily be picked out with forceps. The otoliths ***must*** be wiped clean before storage in the vials or they will rot and become useless!

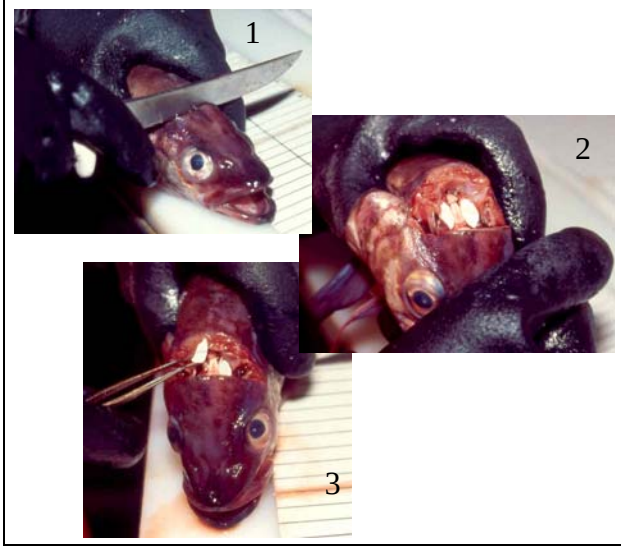


Figure 13-7: Location of Roundfish Otoliths

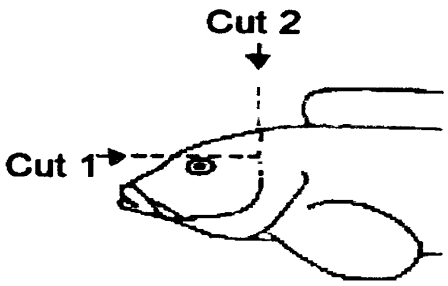
Firmly grasp the fish by putting thumb and forefinger into the eye sockets or grasp the fish just behind the head, holding it dorsal side up. Bear down on the knife with even pressure as you cut through the bone of the head. Pay attention to the amount of pressure you are required to apply to make this cut. As soon as the cutting gets easier, ease off pressure on the knife or you will slice through the otoliths. Break the head open with two hands.

Carefully clean the otoliths by rubbing them between your fingers in water, or on a wet sponge or cloth to remove slime and tissue. Dry them as much as possible and place one pair of otoliths in each vial. ***It is important to get the otoliths as clean and dry as possible before storing them to prevent them from rotting.*** At the end of the collection period, transfer the data from the Deck Form to the paper Length and Specimen Form or into the ATLAS database.

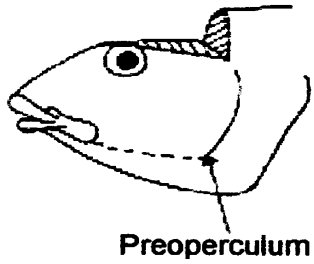
Otolith vials should not be filled with any solution prior to debriefing.

Collecting Otoliths from Atka Mackerel and Sablefish

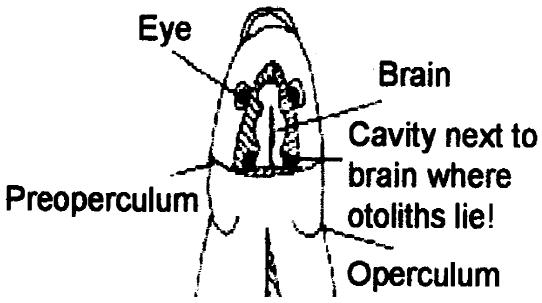
Sablefish and Atka mackerel have very tiny otoliths. Use a horizontal cut method when working with these species. To collect otoliths using the horizontal cut, hold the fish's head and make a horizontal slice into the snout just above the eye. Stop slicing when the knife is just before the preopercle. Make a second cut down into the head until you reach the level of the first cut. Remove the wedge of head see Figure 13-8. If you have made the cut correctly, there should be no blood flooding the cavity and you should see the brain tissue. The otoliths are just under and beside the brain. Grasp the brain tissue with forceps and pull it out or peel it back from the cavity. On either side of the brain cavity there is a fluid-filled pocket containing an otolith. The otoliths may not be visible yet, but if you insert forceps into the pockets, you will find the bony structures floating within the fluid. If blood fills the cavity, you have cut too deep, and the otoliths may be washed out. It's a good idea to practice this cut. When perfected, otolith collection is relatively easy.



Step 1: Make a horizontal cut passing above the eye and through to the preoperculum. Then slice downward above the preoperculum and until the cuts meet.



Step 2: Remove the top of the head. You should see the brain.



Step 3: The otoliths are in cavities under and to either side of the brain. Lift the brain tissue up and out of your way. The otoliths should lie right underneath.

Figure 13-8: The Horizontal Cut for Otolith Removal

Broken Otoliths

Some otoliths may break or be cut accidentally during your collection. Keep samples with otoliths that have a single break if you have both pieces. ***Discard samples with a shattered otolith or with only one otolith.*** Do not replace the sample by taking otoliths from another fish in that haul.

If three or more otolith specimens from one species are lost or discarded collect otoliths from the next sampled haul, and then continue with your original sequence. Document the circumstances in your logbook. If you find you are consistently breaking otoliths, contact an Observer Program office for advice.

If You Run Out of Otolith Vials

The following steps need to be followed if you run out of otolith vials while you are deployed:

1. Continue to collect otoliths.
2. Wrap each otolith pair in a small piece of foil or paper.
3. Number otoliths with distinct numbers (1, 2, 3, *etc*.).

Record all information on a Length and Specimen Form until you are able to get usable vials with numbers. Once you have vials, you will need to transfer the wrapped otoliths to these vials and revise the specimen numbers on the Length and Specimen Form or enter these data into ATLAS as appropriate.

SEXING FISH

After you collect fish according to protocols described in the section “Collecting Fish for Measurement and Specimen Data” on page 13-2, measure and sex them.The following pages contain descriptions for sexing several species and species groups. Specimens must be recorded together as a group by sex on the Deck Form, and on the paper Length and Specimen Form or in ATLAS. See the form examples starting on page 13-28.

Roundfish

Roundfish gonads are in the visceral cavity, ahead of the vent. Insert your knife or scalpel blade in or near the anus and cut forward toward the head. There will be only two organs attached directly to the anus - the intestine and the gonads. If you carefully move the other organs aside until you get a clear view of the tubes attached to the anus, you can then pull on the tubes and discern intestine (which is coiled and attached to the stomach) from gonads (which end as paired structures near the backbone).

Cod, Pollock, and Giant Grenadier

The gonads are directly above the vent and are attached to the vent. Slit the skin of the belly near the vent and look behind the stomach area for the paired organs.

Ovaries

Ovaries are paired sacs which are typically pink or orange (or clear when immature). When ovaries are mature, you should be able to see the eggs inside. The sacs should look granular. Pacific cod ovaries often have a black covering on each sac.

Testes

Testes look very different from ovaries. When mature, the testes are convoluted, opaque and smooth in texture. In a mature male, the testes are best described as “greasy-looking, white, twisted Ramen noodles.” Immature testes will be pink or cream colored, located near the backbone and have a ruffled look to the edges of the tubes.

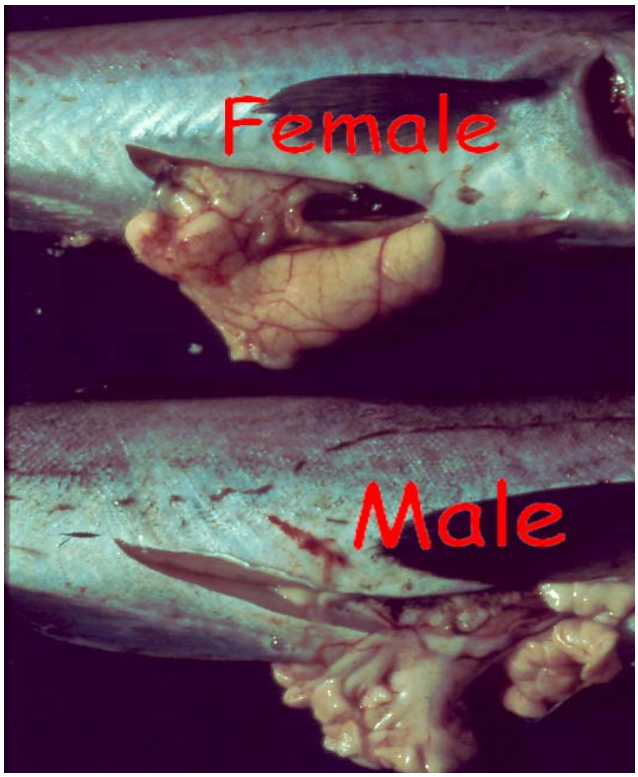


Figure 13-9: Female and Male Pollock Gonads

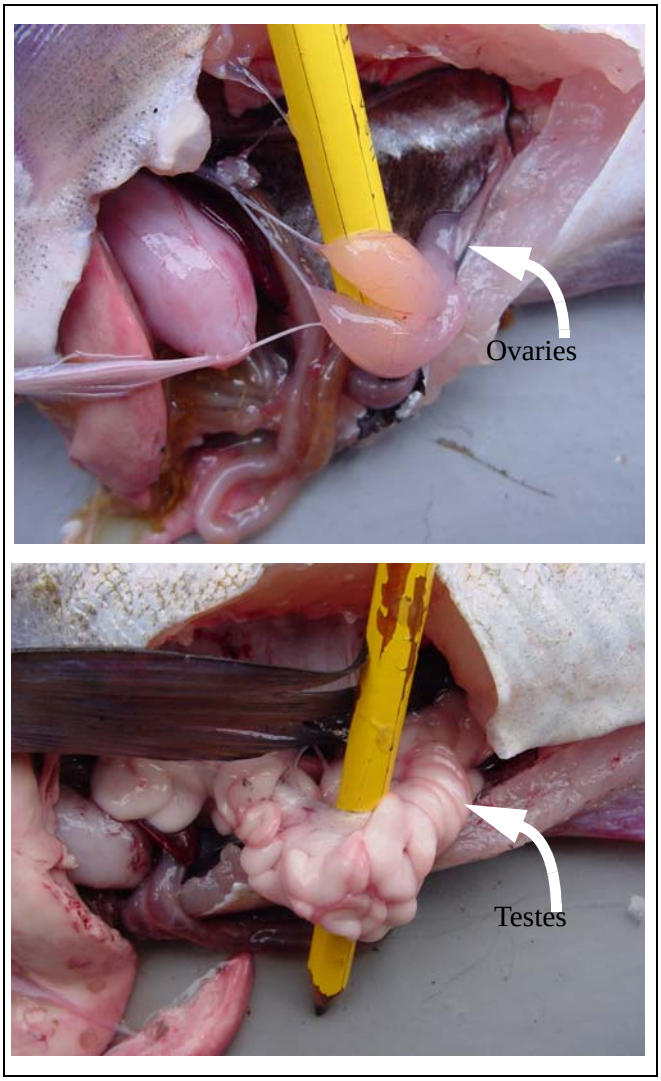


Figure 13-10: Female and Male Pollock Gonads

Rockfish

Rockfish gonads are found near the backbone in the visceral cavity. Trace the gonad strings from the vent upwards until you see the paired organs. There will always be two strings near the anus that have to be traced some ways before you can find the sacs. Sometimes there is another structure directly at the vent that appears to be a single gonad sac, but this is not the sex organ! You must follow the string-like tubes up to the ***paired*** gonads.Though you may notice external structures at the vent that seem sexually dimorphic, ***never sex rockfish using external characteristics.*** It is too easy to judge an immature male as a female or a huge female as a male when using external characteristics.

There can be a significant amount of fatty tissue in the visceral cavity of both male and female rockfish. Those observers accustomed to sexing pollock, Pacific cod and grenadier have mistaken this tissue for testes, because it is whitish and ribbon like. Rockfish gonads are smooth and discernible as paired structures: you must move any fatty tissue aside and look dorsally in the visceral cavity to see the gonads!

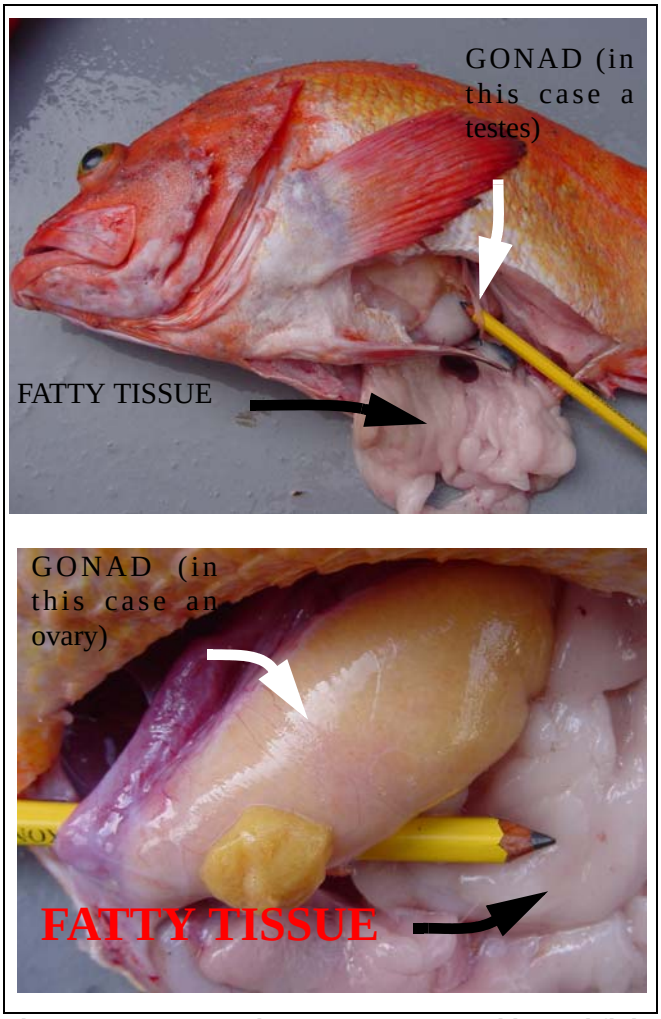


Figure 13-11: Fatty tissue versus gonad in rockfish

Ovaries

Ovaries will be elongate ovals with granular insides. They will be pink, orange, yellow, or white. The two sacs will have smoothly rounded sides, as opposed to the male testes which have a three-sided, triangular shape in cross-section. If immature, look closely or cut the gonad open to see the granular insides which identify it as female. Rockfishes are live spawners, so a spawning female will have larvae in the cavity.

Testes

Rockfish testes are cream colored or pink, elongate (5 times as long as they are wide) and smooth in texture. They have three “edges” to the tubes. Instead of a rounded oval tube, testes look triangular in cross section due to the distinct edges. Testes will look like flat tubes when immature, but when examined closely you will see the defined edges and the triangular shape.

Don’t mistake the fatty tissue found in the visceral cavity of some rockfish as testes! The testes of rockfish look nothing like those of pollock, Pacific cod and grenadier!

Figure 13-12: As with several other species, rockfish testes have discernible edges

Atka Mackerel

Like rockfish, Atka mackerel gonads are at the top of the visceral cavity, close to the backbone. Externally, mature males have a yellow tinge to the white stripes but external color differences cannot be used to sex these fish. The cut and gonad location is the same as with rockfish.

Figure 13-13: Male and Female Atka Gonads

Ovaries

Ovaries are two clear sacs filled with small round eggs that are olive green, tan or brown. Atka mackerel spawn in spurts, so eggs in the ovaries will be a mix of different sizes and stages of development.

Testes

Atka mackerel testes are similar to those in rockfish. The two tubes will be smooth in texture, cream colored and longer than wide. Be aware that males eat the eggs from other Atka mackerel nests. Don't confuse a stomach full of eggs, or eggs loose in the cavity as a female mackerel.

Sablefish

The gonads of sablefish are very different from all other roundfish; they lie directly on the backbone. Remove all the other organs from the visceral cavity and peer at the backbone area near the posterior of the visceral cavity for the gonad tubes. Immature fish will have nearly see-through ribbons, so you will need to probe them apart to count the correct number of lobes. ***It is important to count the lobes at the posterior portion of the gonad, since the lobes will be fused anteriorly and will always look like just two lobes***.

Both females and males have fleshy smooth tubes of a cream or pink color. Mature fish have liver colored gonad tubes. There are no reliable differences in color

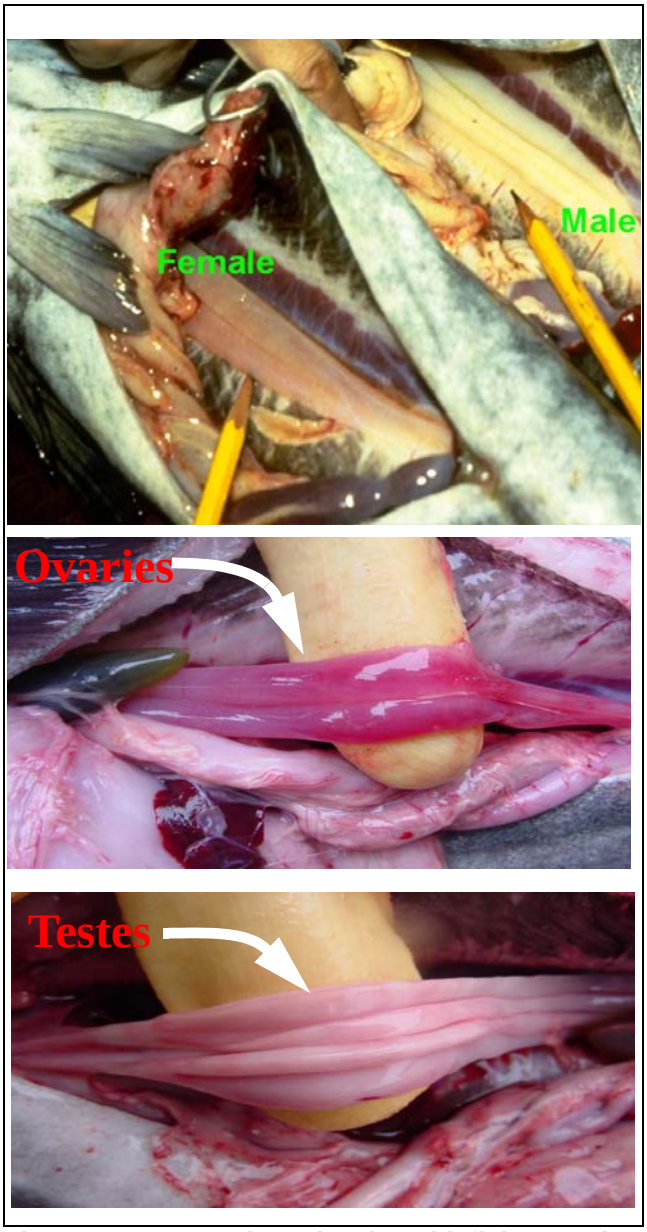


Figure 13-14: Female and Male Sablefish Gonads

or texture between non-ripe males and females. You can reliably tell the difference between males and females based on whether the gonads have two (females) or four (males) lobes. When mature, the ovaries may have a partial fold through each of the two lobes, giving a false impression of four lobes. Cut across the gonad strands and distinguish the true number of lobes.

Male sablefish gonad lobes are fused at the anterior point, making it easy to mistake a male as female. When checking the gonad lobes, look at the posterior portion!

Sculpins

The gonads are directly above the vent and are attached to the vent. Slit the skin lengthwise from the vent forward (anterior/towards the head) and look behind the stomach area for the paired organs. To avoid cutting the stomach first make a gentle cut just below the skin, allowing you to move the stomach to the either side, then make a larger cut to allow for identification. Cutting the stomach may make sexing more difficult because the stomach contents may fill the visceral cavity. For Yellow Irish Lord, this step is very important, as the stomach often protrudes outward right next to the cavity wall near the gonads and the skin can be very thin in this area.

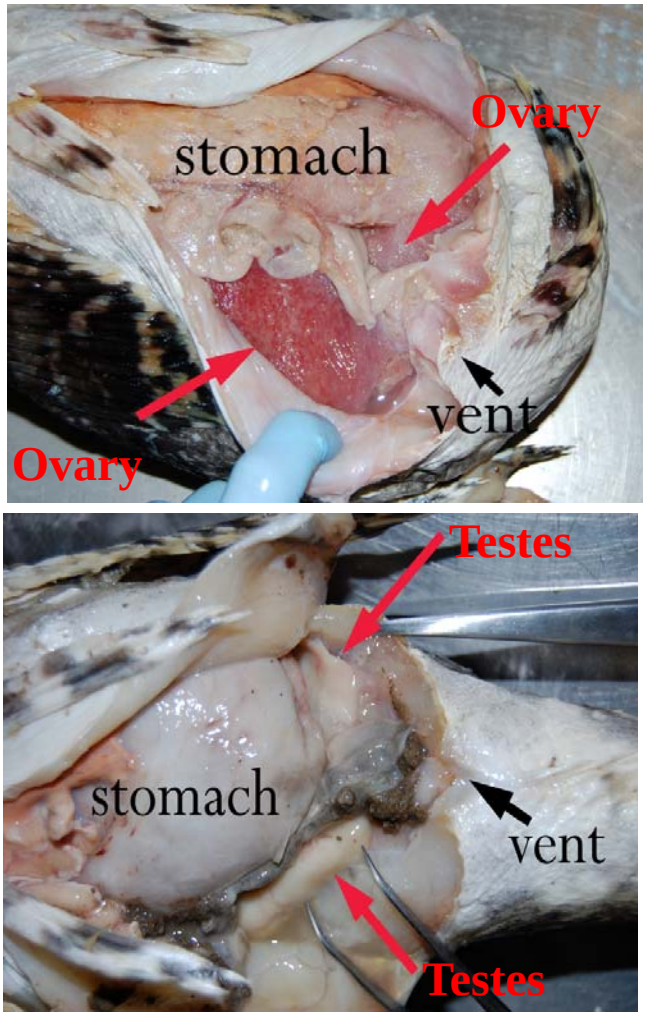


Figure 13-15: Female and Male Sculpin Gonads

Ovaries

Ovaries are paired sacs which will be typically pink or orange (or clear when immature). When the ovaries are mature, you should be able to see the eggs inside. The sacs should look granular. Sculpin ovaries often have a translucent covering on each sac, but sometimes may be dark. For immature specimens, look for small paired sacs (see Figure 13-15).

Ripe mature female great and plain sculpins are typically caught during the late fall and winter; their ovaries will be large (up to 20% of body weight) and eggs will be visible. Ripe mature yellow Irish Lord females are typically caught in summer and early fall. During the spawning season, some ovaries may be spent, and they are much smaller after having released the eggs.

Testes

Testes look very different from ovaries. Male gonads in all species will be flat, often with discernible edges. When mature, the testes will be opaque and smooth in texture. Immature testes will be pink or cream colored, long and thin, and located near the backbone (see Figure 13-15).

Flatfish

Flatfish gonads are also paired, but are located behind the visceral cavity. If the flatfish has an anal spine, the gonads will begin just behind it. Cut from the anal spine location back toward the tail of the fish. When you gain experience determining sexes using a larger cut, your cut can be made smaller, faster, and in the correct spot for seeing the sex difference.

Flatfish gonads are posterior to the visceral cavity (and the anal spine if present) and extend just under the flesh on both sides of the fish, although it is easier to cut on the blind side. Cut back toward the tail from the anus as if skinning the fish. Lift the skin flap and check for a triangular shaped gonad.

Ovaries

Female flatfishes have elongate triangle ovaries that extend from behind the anal spine area almost to the tail when mature. When immature, the ovaries will be almost equilateral triangles with one angle shaped like a smoothly rounded tube extending only slightly back toward the tail (the triangle looks like a funnel in shape). The color will be pink (spent, immature) or orange (ready to spawn). Ovaries always have rounded edges.

Testes

Male flatfishes have a white, equilateral triangle shaped gonad on each side. The triangle will not have a tail extending back toward the caudal fin. Immature males have a small crescent moon shaped, tan colored gonad laying right at or behind the anal spine location. All male flatfishes have “edges” to the triangle. If you lift the gonad with the knife or scalpel and examine the sides of the triangle, you can distinguish the sharp edges (male) or rounded sides (female), even on an immature flatfish.

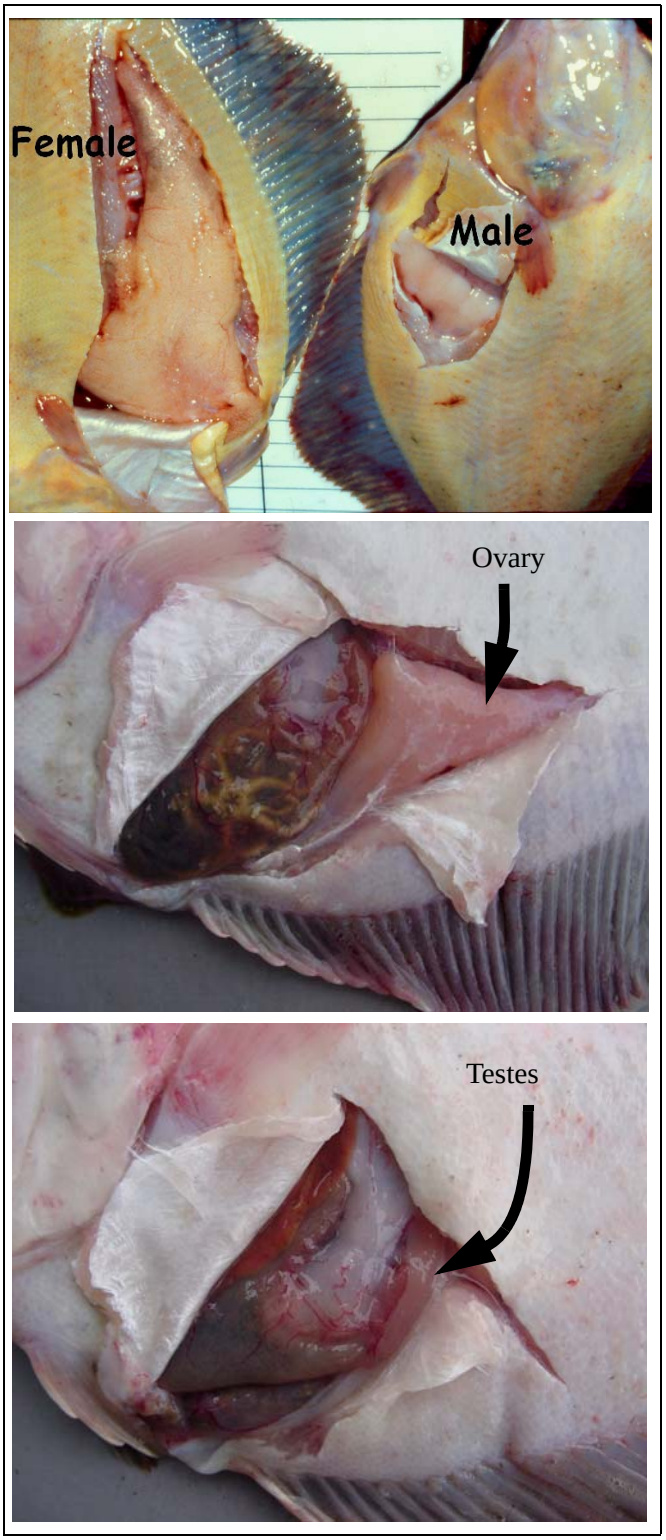


Figure 13-16: Female and Male Flatfish Gonads

Skates

Skates can easily be sexed externally by noting the presence or absence of claspers. The claspers are paired reproductive structures located between the pelvic fin and the base of the tail. In mature males the claspers are large (possibly half the length of the tail), rigid and are easily identified. In immature males the claspers are much smaller and flexible, and may be more difficult to distinguish from the pelvic fin.

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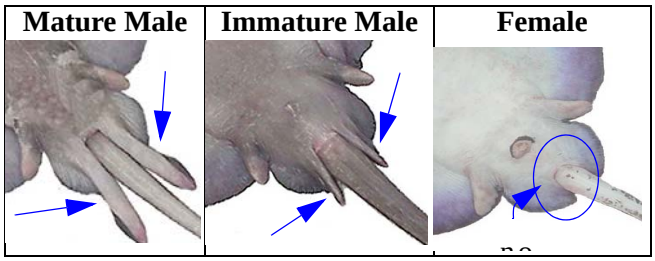


Figure 13-17: Determining Sex in Skates: the arrows point to claspers in males and absence of these structures in females.

REGULATORY SUPPORT FOR CUTTING FISH TO OBTAIN SEX DATA

The sexing of the target species provides essential data for managing the fishery. Because of its importance, regulations specifically support observers in cutting fish for sexed lengths. 50CFR 679.50(g)(1)(viii) states that the vessel must, "Provide all other reasonable assistance to enable observers to carry out their duties, including, but not limited to: (E) Allowing the observers to determine the sex of fish when this procedure will not decrease the value of a significant portion of the catch." If you encounter any resistance to these regulations you will be asked to complete a written statement on the matter in debriefing. Be prepared with detailed daily notes of the conversations you had with the crew regarding this matter.

The crew may not want you to cut the fish because the cut will destroy or reduce the value of the product. The only alternatives to cutting all of the measured fish are as follows:

- If the fish are spawning, you can squeeze the fish to see milt or eggs, but you must cut the ones in your length sample that are not yet spawning to discern sex.
- If the target species is yellowfin sole, you can sex the mature yellowfin by "candling" them without cutting the flesh. Hold the fish up to a strong light and look through the blind side to see the gonad. Immature fish must be cut to discern sex. ***This method can be used for yellowfin only!***
- Ask if a "pectoral cut" would be acceptable on the product (slicing the throat area just under the pectorals across the body, the same way as the crew heads the fish by hand or machine). The gonads can be seen in the opened cavity or pulled out to examine. If this method is used for sablefish, you must carefully examine the gonads to ensure you correctly sex the fish.
- If the target is a flatfish, make a very small cut, parallel to the anal spine, about an inch behind the anal spine and check the gonad (make sure you try this technique in the training or briefing session to see how it is used). The small cut may not be a problem for the product.
- If there is no other way to sex the fish without cutting them, work with the captain to determine a number that you can cut, and list the rest as unsexed.
- If the vessel refuses to allow you to cut any of the fish because it would destroy a major percentage of the target species product or if product is whole or live fish, leave all measured fish as unsexed. Notify NMFS and document the reasons in your logbook.

Pacific Cod and Pollock Maturity Scan Data

Observers collecting otoliths from Pacific cod or pollock also collect visual maturity stage data from female specimens. Visual maturity keys for each species are provided to assist you in assigning fish to one of six maturity stages based on visual examination of the ovaries. The keys are designed to track the visual changes in three characteristics of the ovaries that occur with reproductive development: size, coloration, and consistency (or texture). Researchers recognize that there is subjectivity in assigning categories based on visual examination but find the data to be accurate when observers consider these three characteristics.

Methods:

1. Sex the fish (take care not to damage the internal organs).
2. If the fish is female, evaluate the maturity stage by comparing the visual characteristics of the ovary and oocytes to the species appropriate key provided in the Species Identification Manual. Ensure that you use the correct key.
3. Collect the otoliths.

Recording Data:

1. Record the otolith data on the Length and Specimen Form.
2. The specimen number is the otolith vial number.
3. The maturity stage data are recorded as a second line of entry to the otolith data with the same specimen number.
4. For maturity scan data record 0.00 kg as the weight on the Length and Specimen Form.

Please see Figure 13-26 on page 13-31 for an example of recording P. cod and pollock maturity scan data on the Length and Specimen Form.

GOA Skate Age and Maturity Collection

Information on the age, growth, and maturity of two of the most common species of skate in the Gulf of Alaska, big skate (*Raja binoculata*) and longnose skate (*Raja rhina*), is imperative for fisheries managers to understand aspects of skate reproductive biology and development for stock assessment.

General Instructions:

Collect total length, weight, sex, maturity stage, and small sections of vertebrae specimens. ***The desired sampling level is no more than 5 specimens per each of big and longnose skate per GOA vessel observer to be collected from skates selected for sex/lengths according to the Length and Specimen Priority List.*** Collect specimens from the first 5 per each of big and longnose skates encountered for your cruise, although collection at any time during the cruise is acceptable. Plant observers do not collect skate age and maturity data.

Collection Procedures:

1. Identify each skate to species.

2. Determine the sex of the skate. Males have two claspers along the medial edges of the pelvic fins. These are very small in immature specimens, and become long and calcified as the animals mature. Females have no such structures. See page 13-16 for more information for sexing skates.

3. Record the total length in centimeters from the tip of the snout to the end of the tail with the skate laying flat. If the tail is damaged such that total length can't be measured, do not collect a specimen – choose another skate. See "Measuring Skates" on page 13-5 for more information for measuring skates.

4. Weigh the skate and record the weight to the nearest 1/10 kg. If the skate is too large to weigh use the appropriate "Skate Length to Weight Table" on page A-39.

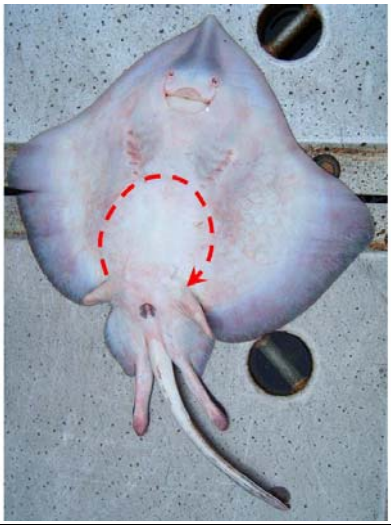


Figure 13-18: Skate Dissection for Maturity

5. Dissect the skate to determine the skate's maturity stage:

- Lay the skate on its back with the tail closest to you and cut the skin around the body cavity. It is easiest to start by cutting above one of the pelvic fins and make an upside-down "U" up toward the mouth and back down toward the other pelvic fin.

- The liver and gastro-intestinal tract will most likely be the first things you see. You will have to cut these organs out to get to the gonads and vertebral column. The liver is a large, brownish organ with several lobes. The stomach and intestine can be traced by following the esophagus to the cloaca.
- Take care when removing the gut, as sometimes the gonads are attached to it by connective tissue. The gonads are attached to the dorsal body wall and occur as paired organs in both males and females.

6. Assign a maturity stage of 1, 2, or 3 based on the information below: See the Skate Maturity Stages images handout in your Species ID Manual to assist with maturity determination.

Male maturity stage is determined by examination of the claspers and vas Deferens. The vas Deferens is a tube or duct that stores seminal products and is located to the right of the skate's vertebral column (from a ventral view). It looks like a thin tube in the immature stage and enlarges and becomes convoluted upon sexual maturity.

- Stage 1- Claspers are very small and do not extend past the posterior edge of the pelvic fins. Testes are small and there is no coiling of the vas Deferens. ***Juvenile*** (maturity scan code - 1).
- Stage 2 - Claspers do extend past the pelvic fin edge but are still flexible. Testes are developing and there is some coiling of the vas Deferens. ***Adolescent*** (maturity scan code - 2).
- Stage 3 - Claspers are completely calcified (rigid) which allows them to mate successfully. Testes are large and differentiated with small lobes present over surface. The vas Deferens is highly coiled. ***Adult*** (maturity scan code - 3).

Female maturity stages requires examination of internal structures:

- Stage 1 - The ovaries are small, homogeneous, and undifferentiated. ***Juvenile*** (maturity scan code - 1).
- Stage 2 - Eggs are visible but are small and white. ***Adolescent*** (maturity scan code - 2).
- Stage 3 - The ovaries contain large eggs with yellow yolks. Egg cases may be present. ***Adult*** (maturity scan code - 3).
- You can also look at the shell glands to determine female maturity stage. These paired organs are located at the top of the oviduct and are the site of both fertilization and secretion of the egg cases. They are just small swellings of the oviduct in juvenile skates and become wider but are still translucent in adolescents. In adults, they are large lima bean-shaped organs which are opaque and well-differentiated.

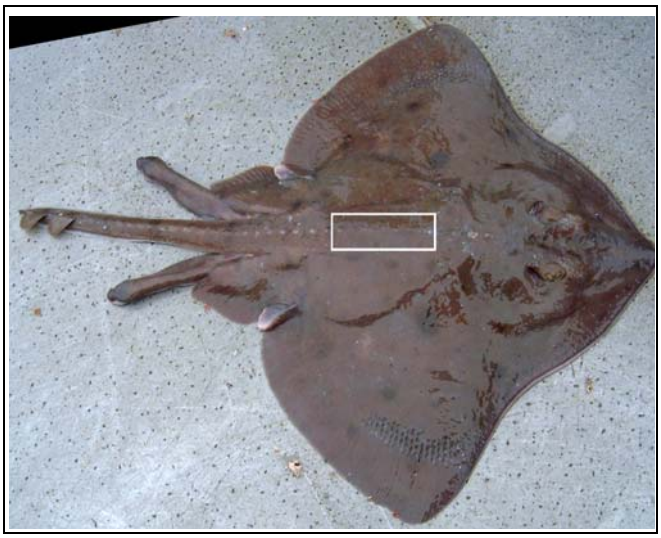


Figure 13-19: Skate Vertebrae Collection

7. Remove a section of vertebrae:

- Remove the internal organs. You should be able to see the outline of the vertebral column along the back of the skate.
- In the middle of the body cavity, make parallel incisions on either side of the vertebral column.
- Cut transversely through the vertebral column to remove a rectangular piece of vertebral column containing at least 5 vertebrae.
- Place the vertebrae sample in a plastic bag, with a completed Bag and Tag Specimen Collection Label, making sure the label can be read from the outside of the bag.

8. Preservation- Heavily salt the vertebrae samples to preserve them. (You should be able to obtain non-iodized table salt from the crew.) If salt is not available, please freeze the samples. Frozen samples that thaw are still good to keep and should not be disposed of, simply

refreeze as soon as possible to reduce the odor. ***NOTE:*** Very small specimens (<30 cm TL) can be collected whole.

Recording Skate Vertebrae Data

1. Record the sex, length, weight, and maturity information on the Deck Form.

2. Complete the Bag and Tag Specimen Collection Label. Mark "Other" under "Reason for Collection" and write "Vertebrae" in the comments field.

3. The specimen number is assigned following protocols outlined on page 13-22 under "Specimen Numbers."

4. The maturity stage data are recorded as a third line of entry to the sex/length/weight and vertebrae data with the same specimen number.

5. For maturity scan data record 0.00 kg as the weight on the Length and Specimen Form.

6. The design code used to select the skate for sex/lengths must be listed on the Length and Specimen Form.

Skate Maturity Scan Codes

For the Length and Specimen form use the existing maturity codes 1- 3 (1 = Immature, 2 = Developing, 3 = Pre-spawn) as follows:

- Juvenile Code (Stage 1): Record using the current maturity scan code of 1 (Immature). The data user understands that the code listed as 1 corresponds to Juvenile.
- Adolescent Code (Stage 2): Record using the current maturity scan code of 2 (Developing).
- Adult Code (Stage 3): Record using the current maturity scan code of 3 (Pre-spawn).

The data users understand that when associated with a skate vertebrae (specimen code 5) maturity scan codes 1-3 are interpreted as juvenile, adolescent, and adult as described above.

Turning in Your Vertebrae Specimens

Bring salted or frozen samples to either the Kodiak or Dutch Harbor Field Office or to your debriefing. If you put bags of samples into a larger bag, please place a completed Bag and Tag Specimen Collection Label inside the larger bag to identify the collection and make sure the label is readable from the outside of the bag. Please refer to "Dropping Off Specimens" on page 2-10.

If you leave your samples behind on the vessel, they will likely be tossed and all your work will be lost.

Bag and Tag Specimen Collection Label

Cruise	Permit	Haul No.	Offload No.	Sample No.	S-Sample No.
199802	7891	216		1	

○ Lead ○ Second ● Sole — Lead Cruise No. If Second Observer:

Species Code: 94 — Species Name: Big Skate

Reason for Collection

● Other (Please Comment) ○ ID Verification ○ Out of Range ○ Training Specimen ○ Salmon Snout

Comments: Vertebrae specimen collected

Specimen No. 1000001 (Required for Salmon Snouts)

Figure 13-20: Skate Vertebrae Label

Green Sturgeon

If you encounter a green sturgeon at any point during your cruise, you are expected to collect length, weight, sex, fin clip, a photograph of the fish, specimen number, and tags (if any). If possible, please take photos of the gonads. Record the sex/length information on the paper Length and Specimen Form or in ATLAS. Sex/length data are recorded following the form rules.

Collect the fish as a specimen if possible!

The instructions for the green sturgeon fin clip are as follows:

1. Separate the leading pectoral-fin ray from the pectoral fin with a knife or scalpel (see the example in your species identification guide).

2. Cut the fin ray off near the base.

3. Place the fin ray in a scale envelope labeled with the information listed above.

4. Store the envelope in a warm, dry place to prevent decomposition.

See your species identification guide for information on how to identify green sturgeon.

Salmon Genetics

Observers assigned to AFA pollock catcher processors, AFA motherships, and ***all*** plants receiving Bering Sea and/or Gulf of Alaska pollock deliveries must complete Salmon Genetics Collections. These data are recorded on the Length and Specimen Form in ATLAS. See "Salmon Genetics Sampling" on page 12-12 for more information.

STANDARD AND RESEARCH PROJECTS

Several vessels are equipped with the stomach and isotope collection standard project. Observers on these vessels must complete the project if they are on board during months the project is active. All observers on catcher only trawlers operated from Dutch Harbor or Kodiak are expected to complete the stomach and isotope collection standard project. See "STOMACH AND ISOTOPE COLLECTION" on page 17-1 for details on completing this project.

Some observers will be required to collect additional research project data. Research project kits come with a separate project instruction packet. Refer to this for information on how to proceed with the project and what types of data to collect. If the specimen type collected for the project is listed in the specimen type list on page 13-23, you must enter any collected data on a paper Length and Specimen Form or in ATLAS.

LENGTH AND SPECIMEN FORM INSTRUCTIONS

The Length and Specimen Form is used for recording lengths and specimen data collected as described in this manual. It is also used to record data taken for research projects. ***Do not record estimated lengths on this form.*** Observers using the ATLAS software do not need to complete the paper form; they transfer data directly from the Deck Form to the ATLAS program. ***Observers aboard vessels that do not have ATLAS are required to fax their Length and Specimen Form data to Seattle.***

The Length and Specimen paper form was structured to mimic the way in which data is entered into the ATLAS program. After a length has been entered for a species, immediately enter specimen data associated with that length. You do not have to create a stand alone record for the specimen (*i.e.*, you do not have to re-enter length data for the specimen). You cannot have two line entries with the same length value for any given sample. If you have more than one individual at the same length, indicate this by documenting the number of fish collected at that length. This number is referred to as the length frequency for that length. For example, if you measured 21 pollock and 4 of these were females at 45 centimeters, you would document these data as length 45 cm, with a length frequency of 4.

In ATLAS and in the Observer Program database, specimens are child records of lengths (*i.e.*, specimen data are dependent on length data). In order to relay this relationship on paper, you must document specimen data in the spaces to the right of the length for the fish providing the specimen. Because you may have multiple specimens from the same fish, or multiple specimens for fish of the same length, you may have several specimen entries associated with one length entry.

Length specimens must be grouped by species, sex, sample design, the presence of crab eggs (Y/N), or by injury/viability for halibut. ***Skip a line between each new species, sample design, sex or halibut injury/viability groupings.*** Skip a line between specimens from one sample and those of another. Refer to Figure 13-25 and Figure 13-24 for examples of how to document length and specimen data on the Length and Specimen Form.

Completing the Length and Specimen Form

Cruise, Permit, Observer Name, Vessel/Plant Name: Enter your name, cruise number, the vessel/plant name, and vessel/plant permit. A list of these permits can be found on page A-27.

Resubmission: Circle "Resubmission" if you are sending changes to data previously faxed. ***Circle the items that have changed since your last transmission of the data. This will aid keypunchers in making the appropriate modifications to your data.***

Page Numbers: Number the pages "Page ___ of ___" starting with page one for each vessel or plant and ending with the total number of pages in the Length and Specimen Form set. Keep separate sets of forms for each vessel or plant.

Species Name: Record the common name of the fish or crab. Skip lines between species. You may use arrows to indicate a repeated species name. You must record the species name for the first and last entry of each new grouping (by haul, sample, sex, sample

design, injury, etc). Refer to Figure 13-25 and Figure 13-24 for examples.

Species Code: Enter the species code for the measured species (a list of codes starts on page page A-1).

Haul Number and Offload Number: List the haul or offload number from which the lengths and specimens were collected. Haul or offload information must be grouped together and recorded in ascending order.

Sample/Subsample Number: List the sample or subsample number of the sample or subsample from which the specimens or lengths were taken. ***If the lengths were collected at the haul level and came from outside a sample, leave this column blank.*** For example, halibut viabilities taken outside your sample on a trawler, or for injuries taken outside of longline samples, are entered at the haul level and do not have a sample/subsample number. ***If the lengths were collected at the offload level, enter "1" in this field.*** Skip lines between sample/subsamples.

Sample Design

The sample design code captures the method that was used to select the sex/length fish from the composition sample, haul, or offload. The sample design code does not indicate how you selected specimen fish from your sex/length fish collection; this is defined by the specimen type. Enter the sample design code appropriate for your sex/length sample collection.The sample design codes for prohibited species must be assigned specifically to the sex of that prohibited crab or salmon species.

Ensure that your sex/length fish are collected randomly. Do not hand select fish or introduce any other size bias

Specimens from sex/length fish must have the same sample design code as the sex/length fish they were collected from and they must be listed with the sex/length fish from which they were selected (i.e., otolith fish and sex/length/weight fish).

Please read all choices to determine which is the most appropriate design for your sample collection method. For examples of using the sample design codes see page 13-26 and page 13-27. The following sample design codes apply specifically to length data.

- **1-Stratified Opportunistic:** Stratified sample collections are those taken to accomplish a specific collection of a certain length and/or at a specific time. For example, if you were asked to collect lengths from 1200-1800 hours and from a species measuring between 40 and 50 cm, your collection would be a stratified opportunistic collection.
- **4-Size Selected:** Use for research project data when only certain size fish are needed. Use for stomach specimens collected from outside your randomly selected sex/length fish. For example, use for sex/length data recorded for arrowtooth stomachs collected in the BSAI.
- **5-Opportunistic:** Samples taken without randomly preselecting when or where you are going to sample, or samples collected from the only accessible portion of the catch. For example, use this for lengths of presorted halibut.
- **6-Simple Random:** Used for a basic simple random sample collection of fish. This is the default for sex/length/specimen fish in ATLAS. For example, use this code when a random basket dump and the RNT are used to obtain sex/length fish.
- **7-Systematic Random:** Fish collected from a larger population using a systematic random design use this code. For example, if fish are selected from your composition sample for sex/length using the *n+x* method. Used for salmon genetics data collected on a CP, mothership, or at a shoreside/floating processor.
- **8-Stratified Random:** Not in use after 2009.
- **9-Other Random:** Samples collected using a random sample scheme not described by the other random methods use this code. Use this code when you used more than one sample design to select your length fish (*e.g.*, you used a simple random method to select a basket from your sample, and then used the systematic method to select fish from the chosen basket). ***Use this code for sex/lengths taken from a longline subsample.*** If a research project requires a design that falls under this code, it will be noted in the instructions.

- **10-Census:** When your length or specimen is collected from ***all of a species/sex in the sample population.*** May be used for a particular species or several species when your sample is the entire haul, offload, or composition sample. Examples: (1) Use for sex/lengths when all individuals of the same sex crab or salmon species are collected from a species composition sample. (2) Use in the Bering Sea flatfish fishery where the secondary lengths come from the only 3 Alaska Plaice present in your selected composition sample. ***This code cannot be used for a species when the species group exists in the species composition sample.***
- **11-Other:** Used for other sample designs that do not conform to the other codes listed here.
- **12-Unknown:** Use when you are not sure of the sample design you are using. If you use this code be sure to document the situation in your logbook so a determination of your sample methods can be made during debriefing. If you find that you are routinely using this code, contact FMA staff for assistance.

Sex: In the Sex column, record the fish or crab sex as "F" (female), "M" (male), or "U" (unsexed or uncertain). This information must be grouped by sex.

Eggs?: This column is filled out only for ***female prohibited species crab.*** Enter "Y" in this column when eggs are present and follow with lengths for those carrying eggs. Use another line for female crabs without eggs and enter "N" in the column. Use another line for female crabs where the presence of eggs is unknown and enter "U" in the column. Leave the column blank for male crabs and all fish.

Viability and Injury

For all ***trawl and pot*** caught halibut viability measurements, list viability codes in this column. Use condition codes "E" (excellent), "P" (poor), "D" (dead), or "U" (condition not assessed). See page A-41 for more information. Skip a line between different viability codes.

For all ***longline*** caught halibut injury assessments, list the injury codes in this column. For more information, see page A-47. Skip a line between different injury codes. Use one of the following injury codes:

1 - Minor	4 - Dead/Sand Fleas/Bleeding
2 - Moderate	9 - Unknown
3 - Severe	

Length: List the lengths you recorded on the Deck Form. ***The list must be in ascending order***. List only size groups that have a frequency of one or more. ***Lengths that contribute to specimen data must be circled on the Deck Form.*** This allows you and others to easily verify that your data is entered completely.

Freq: Frequency represents the number of animals in the particular length group. Length groups must be separated by species, haul or offload, sample or subsample number, sample design, sex, eggs yes/no, or viability/injury code. Do not enter leading zeros in this field.

"Specimen Data" Tab

Specimen Type: Record the specimen type code from this list:

1 - Otoliths
2 - Salmon Scales
3 - Sex/Length/Weight
4 - Fin Clips
5 - Vertebrae
6 - Spines
7 - Maturity Scan
8 - Maturity
9 - Stomach
10 - Isotopes
11 - Other Tissue

For specific information on specimen types refer to "Specimen Types" on page 13-23.

Keep your otolith collections separate for each species and vessel! This will save you from trying to sort them out during debriefing!

Specimen Number: For most specimens, specimen numbers must be unique for the vessel/species and specimen type. Unless otherwise directed, number the first specimen for each specimen type as "1." Number subsequent specimens of the species/specimen type in consecutive ascending order.

- ***Specimen numbers for skate vertebrae specimen collections must start with 100001.***

- ***Multiple specimens collected from the same fish are recorded using the same specimen number. For example, a vertebrae specimen collected from a skate has a sex/length/weight specimen (code 3), a vertebrae specimen (code 5), and a maturity scan specimen (code 7) all entered with the same specimen number.***
- ***The pollock and Pacific cod maturity scan collection requires that the number on the otolith vial be used for both the otolith and corresponding maturity scan specimen number.***
- ***The stomach collection project requires that the specimen number you assign to the stomach collection must also be used for the corresponding maturity scan and isotope specimen collected from that fish. See "Length and Specimen Form Instructions" on page 17-6 for isotope-only specimen numbering rules.***

Weight: Enter the weight for the specimen when needed. ***Weights must be listed to two decimal places for clarity of the faxed data.*** The only standard specimen collections that require a weight are sex/length/weights, stomachs, and otoliths. ***The salmon scale, maturity scan, isotope, fin clip, snout, vertebrae, and other tissue specimen do not require a specimen weight, but they do require an entry of 0.00 kg in the weight column.*** The weight for these specimens is recorded with their required corresponding specimens as a sex/length/weight. Refer to specimen collection protocols or your research project packets for the exact requirements for other specimen types.

Maturity Scan codes: Record the maturity code from this list:

1- Immature
2 - Developing
3 - Pre-spawn*
4 - Spawning*
5 - Spent
6 - Resting (Pacific cod only)

****The stomach collection maturity scan uses only codes 3 (Pre-spawn) and 4 (Spawning).***

Currently, only the maturity scan specimen type requires a maturity scan code. This is used for the Pacific cod and pollock maturity scan data and for stomach data collection only. Unless otherwise noted in your standard project instructions or research project packet, this column should be left blank.

Specimen Types

Otoliths (code 1): Copy the bar coded specimen number on the otolith vial for each pair of otoliths taken for that haul. Each vial number is unique and cannot be altered! Vial numbers do not have to be sequential, although the ATLAS program will auto fill with the next vial number. Be careful of this if using non-sequential vials!

FMA ID Salmon Scales (code 2): Use for FMA ID salmon scale samples. The FMA ID salmon scale specimen is specimen type code 2 and is ***entered with a weight of 0.00 kg*** after its corresponding sex/length/weight entry (code 3). The FMA ID salmon scale specimen is given the same specimen number used for that corresponding length/weight entry.Salmon scale envelopes (see "Scale Sample Protocols" on page 12-9) must be labeled with a specimen number and "FMA ID." FMA ID scales are recorded under the cruise number of the observer reporting the data.

- In the pollock fishery, follow the numbering sequence of the lead observer if you are the second assigned to a CP. Follow the numbering sequence of the plant observer if you are a vessel observer collecting specimens for the plant observer at the pollock offload.

Sex/Length/Weight (code 3): For each sex/length/weight specimen, record a specimen number. Observers typically start numbering sex/length/weights for a species with 1. Number your sex/length/weight specimen consecutively from the starting number. Except for skate vertebrae specimen collections, sex/length/weight specimen numbers must be 9999 or less.

- The skate vertebrae maturity scan, fin clip, snout, vertebrae, and other tissue specimen collections all require a corresponding sex/length/weight specimen be entered. Only one sex/length/weight entry needs to be made for multiple specimens collected from the same fish.

- Pollock - On every otolith haul, weigh and measure a subsample of the pollock from your length-frequency sample not used for otolith samples when collecting Bering Sea pollock sex/length/weight samples and otoliths. Record the data on the Length and Specimen Form with a Specimen Type code 3 (Length/Weight). Do not use the same pollock for an otolith sample and a sex/length/weight sample.
- Salmon - Sex/length/weight specimens are recorded for every FMA ID scale collected, genetics sample collected (fin clip) and every tagged salmon snout collected (other tissue). All specimens collected from the same fish must have the same specimen number. Only one sex/length/weight entry needs to be made for genetics, snouts, and FMA ID scales collected from the same salmon.

Sex/Length/Weight Salmon Specimen Numbers:

- Number scale specimens sequentially beginning with the number 1.
- On a pollock CP and at an AFA plant, the second observer always follows the numbering sequence of the lead observer. Follow the numbering sequence of the plant observer if you are a vessel observer collecting specimens for the plant observer at the pollock offload.
- If you are assigned to two plants you will follow the same sex/length/weight numbering sequence from sampled delivery to sampled delivery, regardless of which plant it is from.
- If you are the sole observer or lead observer, continue your numbering sequence through your entire cruise, regardless of which vessel you are deployed to. If the lead observer changes, then a new numbering sequence is expected.
- Record the salmon scale specimens in ascending order by size on the Length and Specimen Form. As a result the specimen numbers may not be in order. Salmon scale specimen numbers must be 9999 or less.

Fin Clip (code 4): This code is used for salmon genetics samples and for the green sturgeon collection. The fin clip is Specimen Type code 4 and is ***entered with a weight of 0.00 kg after its corresponding length/weight entry.*** The fin clip is given the same specimen number used for that corresponding sex/length/weight entry.

Vertebrae (code 5): This code is used for skate vertebrae samples. The vertebrae is Specimen Type code 5 and is ***entered with a weight of 0.00 kg after the corresponding sex/length/weight entry*** for the skate. The vertebrae is given the same specimen number used for that corresponding sex/length/weight entry and maturity scan.

Maturity Scan (code 7):

- Cod and Pollock - Record the maturity stage data as a second line of entry to the female otolith data using the otolith vial number as the specimen number. Maturity stages are discussed in the Pacific cod and pollock maturity code keys. Maturity Scan stages Pre-Spawn (code 3) and Spawning (code 4) are also used for the standard stomach collection project. Maturity scan specimens are ***entered with a weight of 0.00 kg***.
- Skate Vertebrae - Record the maturity stage data as a third line of entry to the skate vertebrae specimen data using the corresponding sex/length/weight as the specimen number. Maturity stages are discussed in the skate maturity code keys and on page 13-18. Maturity Scan stages Immature (code 1), Developing (code 2) and Pre-Spawn (code 3) are also used for the skate vertebrae collection project; see page 13-19. Maturity scan specimens are ***entered with a weight of 0.00 kg***.
- Stomachs - Maturity Scan stages Pre-Spawn (code 3) and Spawning (code 4) are also used for the standard stomach collection project. Maturity scan specimens are ***entered with a weight of 0.00 kg***. Record the maturity stage data as the second line of entry to the stomach collection, using the same specimen number. See “Length and Specimen Form Instructions” on page 17-6 for specific instructions regarding stomach maturity data.

Maturity (code 8): Currently used only for assigned research projects.

Stomach Specimen (code 9) and Isotopes (code 10): Stomach specimens and their related isotope specimen data are recorded as raw data on the Deck Form, then entered into ATLAS or onto the Length and Specimen Form. See “Collection Procedures” on page 17-3 for

instructions on completing this duty and "Length and Specimen Form Instructions" on page 17-6 for stomach and isotope specific form instructions.

Other Tissue (code 11): Used for tagged salmon snouts. Specimen data are recorded as raw data on the Deck Form, then entered into ATLAS or onto the Length and Specimen Form. Refer to "Tagged Salmon" on page 15-2 for instructions on completing this specimen collection. The "Other Tissue" is given the same specimen number used for the corresponding length/weight entry. Code 11 is ***entered with a weight of 0.00 kg***.

Research Project Specimens: The Specimen Types of spines and maturity are currently only used for research projects. If completing a research project, refer to the project instructions accompanying the project kit for information on how to proceed with the project, what data to collect, and how/where to record it. Some projects will have project specific data forms and others will utilize the Length and Specimen Form or will be entered into ATLAS.

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise, not just at the last minute before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your length and specimen data for errors.

Check Length and Specimen Form For:

- All header information is completed.
- Species codes match species names.
- Length information are grouped by haul or offload number in ascending order.
- Length information are grouped by species and sex.
- No decimal places exist for lengths or frequencies.
- No size groups have been transposed with the frequency.
- Lengths are recorded in ascending order.
- Skip lines between different species, sex, different viabilities/injury assessment, hauls and samples.
- There are no lengths with a frequency of zero.
- There are no duplicate length entries for specimens of the same species, sex, eggs code within the same haul.
- All crab unit measurements end in "3" or an "8."
- Sex codes are recorded for each species on every line.
- Halibut have condition codes of "E," "P," "D," or "U" for trawl or pot vessels, and injury codes of "1," "2," "3," "4," or "9" for longline vessels.
- Halibut have sex codes of "U."
- For lengths with associated specimen data, specimen type is entered and these lengths are circled on the Deck Form.
- There are no duplicate specimen numbers for the same species and specimen type.

..

EXAMPLES OF USING SAMPLE DESIGN CODES (PART 1)

The following are examples of some common methods frequently used by observers to collect and select sex/length fish. There are many other collection methods not listed below. Refer to "Sample Design" on page 13-21 for detailed sample design code explanations. If you have questions about which code to use, contact your inseason advisor or FMA field staff. If you cannot determine which design code applies to your method, use Code 12 - Unknown and contact your inseason advisor or FMA field staff.

Opportunistic (Code 5):

1. Use this code for lengths of presorted halibut.
2. On a ***longliner***, the observer tallies six tanner crabs in their samples and five were landed (one dropped off). The observer identifies the crabs in the bycatch baskets as opilios, and sex/lengths them all. The design code is opportunistic because one of the crabs dropped off, therefore all of the crabs could not be measured.
3. On a ***longliner***, the observer decides to collect the first 5 skates from their tally sample for sex/lengths and tallies the rest that come up on the line. The sample design code is opportunistic because only the first 5 had the opportunity to be chosen for sex/lengths.
4. On a ***catcher vessel***, the observer collects all the flathead sole in a species composition sample for sex/lengths and is unable to measure one because the caudal fin was torn. The sample design code is opportunistic since a random method was not employed to exclude that fish and not all of the flathead sole were measured.

Simple Random (Code 6):

1. On a ***CP trawler,*** the observer employs a Simple Random method to select 1 ton from their 10 ton sample as a point to collect a basket of fish for sex/lengths. The observer used the basket dump method to reduce the number of fish in the baskets to about 20 fish.
2. On a ***trawler***, the observer randomly chooses a portion of the checker bin and collects ***all*** the fish for sex/lengths in that area.
3. On a ***longliner***, the observer randomly chooses a non tally segment to collect halibut for sex/lengths and injury assessments. All the halibut are collected within the entire segment and used for injury assessments.
4. On a ***trawler***, the observer employs a Simple Random method to choose a corner of the checker bin to collect fish for sex/lengths. All fish in that area whose snout points towards the corner are chosen for sex/lengths.

Systematic Random (Code 7):

1. This code is used for salmon genetics data collected on a ***CP, mothership, or at a shoreside/floating processor***. Code 7 is used for genetic samples collected from your GOA offload census.
2. Fish are selected from your species composition sample using the n+x method.

Figure 13-21: Examples of Using Sample Design Codes (Part 1 of 2)

EXAMPLES OF USING SAMPLE DESIGN CODES (PART 2)

Other Random (Code 9):

1. The observer uses a simple random method to select a basket from their sample, and then uses a systematic method to select fish from the chosen basket.
2. Use this code for sex/lengths taken from a ***longline*** subsample.
3. On a ***longliner***, an observer randomly chooses a non tally segment of gear for his subsample and halibut sex/lengths and injury assessments. When he completes collecting predominant species for the subsample, he assesses any halibut that subsequently come up during the same segment. The halibut injury assessments are coded as Other Random because not all halibut within the segment are collected and the halibut are collected in the same manner as the predominant species.

Census (Code 10):

1. On a ***CP trawler*** targeting pollock, the observer collects all the crab in a sample, identifies them to species, and collects sex/lengths on all of them.
2. On a ***longliner,*** the observer tallies a total of 5 skates in their sample, collects them all, identifies them to species and collects sex/lengths on all of them.
3. On a ***flatfish vessel,*** the observer needs to collect Alaska Plaice for his secondary lengths. He collects all the Alaska Plaice from his randomly chosen sample and collects sex/lengths on all of them.

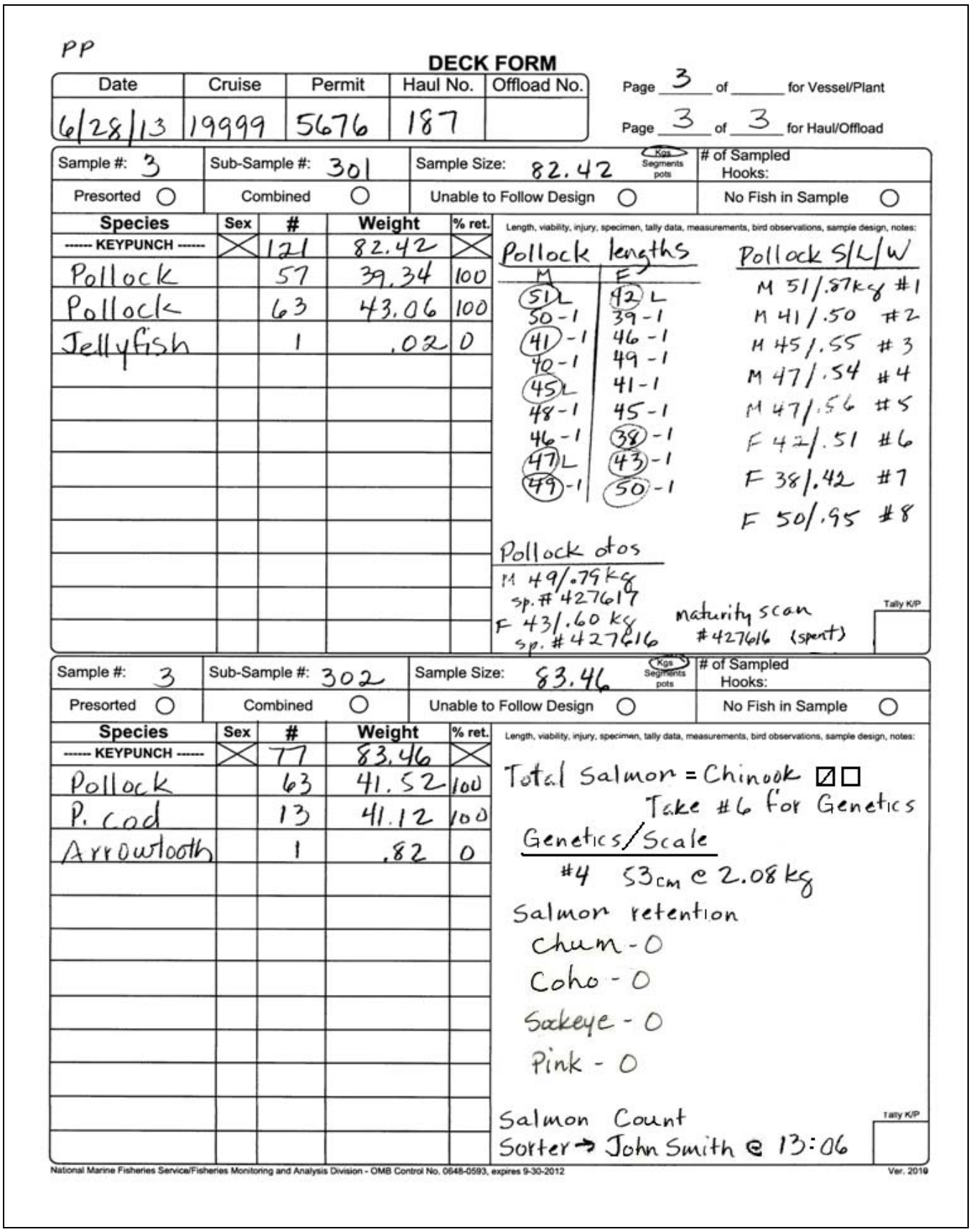
Other (Code 11):

- Use code 11 for other sample designs that do not conform to the other codes listed here. If you use this code be sure to document the circumstances in your logbook so a determination of your sample methods can be made during debriefing. If you routinely use this code, contact FMA staff for assistance.

Unknown (Code 12):

- Use code 12 when you are not sure of the sample design you are using. If you use this code be sure to document the circumstances in your logbook so a determination of your sample methods can be made during debriefing. If you routinely use this code, contact FMA staff for assistance.

Figure 13-22: Examples of Using Sample Design Codes (Part 2 of 2)



PP

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
6/28/13	19999	5676	187	

Page 3 of _____ for Vessel/Plant

Page 3 of 3 for Haul/Offload

Sample #: 3 | Sub-Sample #: 301 | Sample Size: 82.42 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	121	82.42	X
Pollock		57	39.34	100
Pollock		63	43.06	100
Jellyfish		1	.02	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Pollock lengths

M	F
(51) L	(42) L
50 - 1	39 - 1
(41) - 1	46 - 1
40 - 1	49 - 1
(45) L	41 - 1
48 - 1	45 - 1
46 - 1	(38) - 1
(47) L	(43) - 1
(49) - 1	(50) - 1

Pollock S/L/W

M 51/.87kg #1
M 41/.50 #2
M 45/.55 #3
M 47/.54 #4
M 47/.56 #5
F 42/.51 #6
F 38/.42 #7
F 50/.95 #8

Pollock otos
M 49/.79kg sp.# 427617
F 43/.60 kg sp.# 427616

maturity scan #427616 (spent)

Tally K/P

Sample #: 3 | Sub-Sample #: 302 | Sample Size: 83.46 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	77	83.46	X
Pollock		63	41.52	100
P. cod		13	41.12	100
Arrowtooth		1	.82	0

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Total Salmon = Chinook ☑☐
Take #6 for Genetics

Genetics/Scale
#4 53cm @ 2.08 kg

Salmon retention
chum - 0
Coho - 0
Sockeye - 0
Pink - 0

Salmon Count
Sorter → John Smith @ 13:06

Tally K/P

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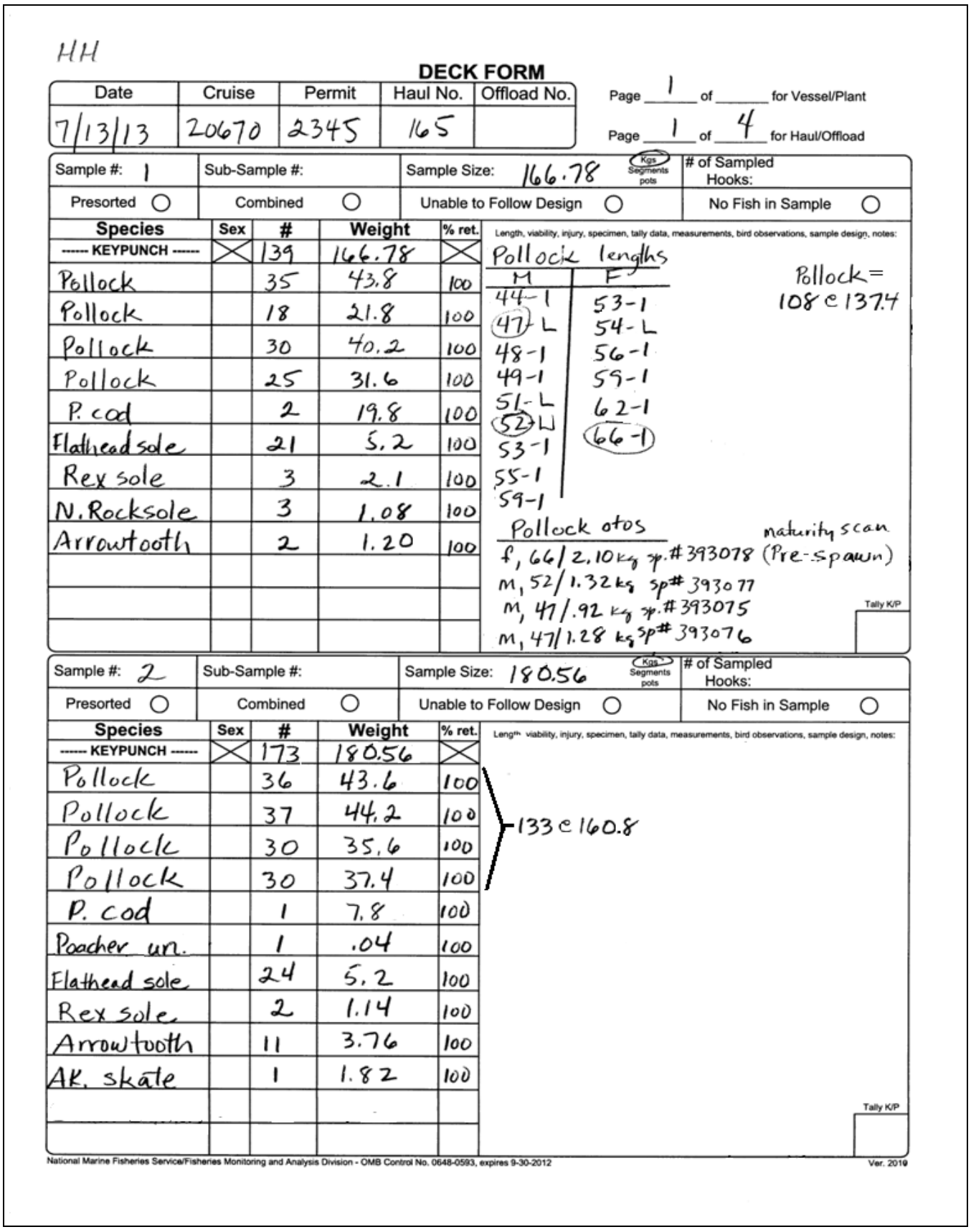
Figure 13-23: Deck Form Example Showing Length Weight Specimens on a BS Pollock CP



HH

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
7/13/13	20670	2345	165	

Page 1 of _____ for Vessel/Plant

Page 1 of 4 for Haul/Offload

Sample #: 1 | Sub-Sample #: | Sample Size: 166.78 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	139	166.78	X
Pollock		35	43.8	100
Pollock		18	21.8	100
Pollock		30	40.2	100
Pollock		25	31.6	100
P. cod		2	19.8	100
Flathead sole		21	5.2	100
Rex sole		3	2.1	100
N. Rocksole		3	1.08	100
Arrowtooth		2	1.20	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Pollock lengths

M	F
44-1	53-1
(47) L	54-L
48-1	56-1
49-1	59-1
51-L	62-1
(52) L	(66-1)
53-1	
55-1	
59-1	

Pollock = 108 @ 137.4

Pollock otos — maturity scan (Pre-spawn)

f, 66/2.10 kg sp.# 393078
m, 52/1.32 kg sp# 393077
m, 47/.92 kg sp.# 393075
m, 47/1.28 kg sp# 393076

Tally K/P

Sample #: 2 | Sub-Sample #: | Sample Size: 180.56 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	173	180.56	X
Pollock		36	43.6	100
Pollock		37	44.2	100
Pollock		30	35.6	100
Pollock		30	37.4	100
P. cod		1	7.8	100
Poacher un.		1	.04	100
Flathead sole		24	5.2	100
Rex sole		2	1.14	100
Arrowtooth		11	3.76	100
AK. skate		1	1.82	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

133 @ 160.8

Tally K/P

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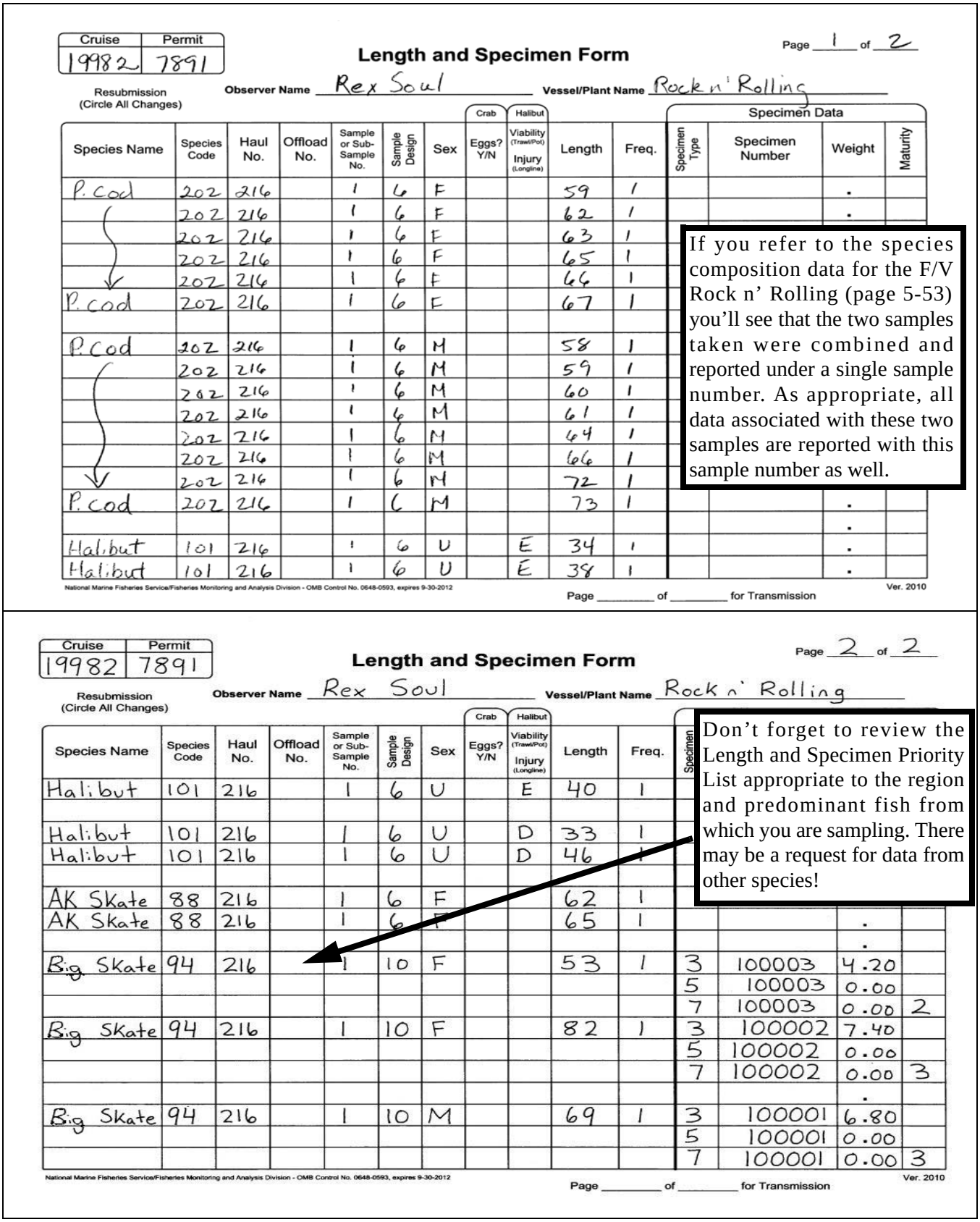
Figure 13-24: Deck Form Example Showing Circling of Length Specimens That Are Also Age Specimens



Cruise: 19982 | Permit: 7891

Length and Specimen Form

Page 1 of 2

Resubmission (Circle All Changes)

Observer Name: Rex Soul

Vessel/Plant Name: Rock n' Rolling

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
P. Cod	202	216		1	6	F			59	1			.	
	202	216		1	6	F			62	1			.	
	202	216		1	6	F			63	1				
	202	216		1	6	F			65	1				
	202	216		1	6	F			66	1				
P. cod	202	216		1	6	F			67	1				
P. Cod	202	216		1	6	M			58	1				
	202	216		1	6	M			59	1				
	202	216		1	6	M			60	1				
	202	216		1	6	M			61	1				
	202	216		1	6	M			64	1				
	202	216		1	6	M			66	1				
	202	216		1	6	M			72	1				
P. cod	202	216		1	6	M			73	1			.	
													.	
Halibut	101	216		1	6	U		E	34	1			.	
Halibut	101	216		1	6	U		E	38	1			.	

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If you refer to the species composition data for the F/V Rock n' Rolling (page 5-53) you'll see that the two samples taken were combined and reported under a single sample number. As appropriate, all data associated with these two samples are reported with this sample number as well.

Cruise: 19982 | Permit: 7891

Length and Specimen Form

Page 2 of 2

Resubmission (Circle All Changes)

Observer Name: Rex Soul

Vessel/Plant Name: Rock n' Rolling

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen			
Halibut	101	216		1	6	U		E	40	1				
Halibut	101	216		1	6	U		D	33	1				
Halibut	101	216		1	6	U		D	46	1				
AK Skate	88	216		1	6	F			62	1				
AK Skate	88	216		1	6	F			65	1			.	
													.	
Big Skate	94	216		1	10	F			53	1	3	100003	4.20	
											5	100003	0.00	
											7	100003	0.00	2
Big Skate	94	216		1	10	F			82	1	3	100002	7.40	
											5	100002	0.00	
											7	100002	0.00	3
													.	
Big Skate	94	216		1	10	M			69	1	3	100001	6.80	
											5	100001	0.00	
											7	100001	0.00	3

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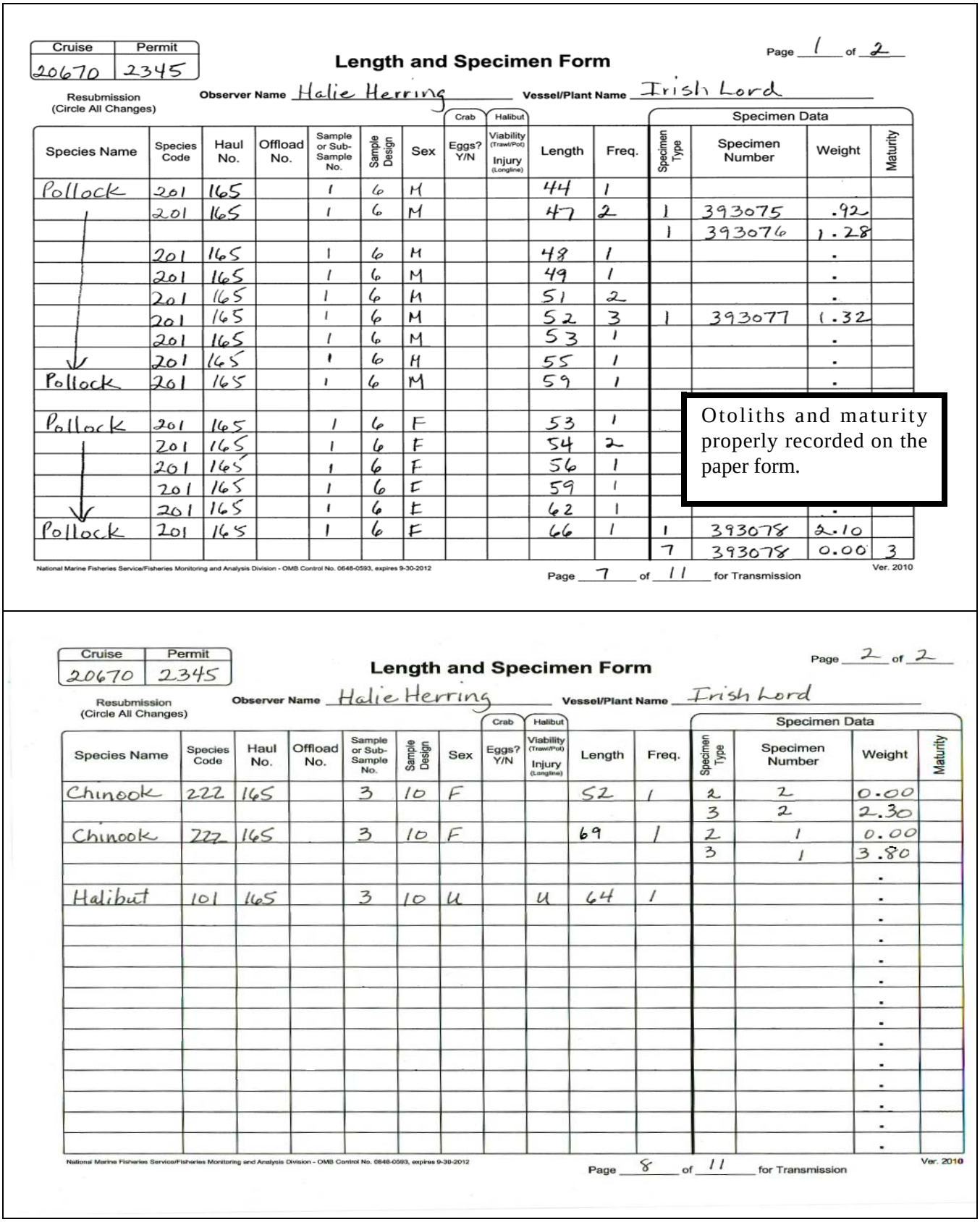
Ver. 2010

Don't forget to review the Length and Specimen Priority List appropriate to the region and predominant fish from which you are sampling. There may be a request for data from other species!

Figure 13-25: Examples of Length and Specimen Data Documentation From a Flatfish Catcher Vessel



Cruise: 20670 | Permit: 2345

Length and Specimen Form

Page 1 of 2

Resubmission (Circle All Changes)

Observer Name: Halie Herring Vessel/Plant Name: Irish Lord

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot)	Halibut Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Pollock	201	165		1	6	M				44	1				
	201	165		1	6	M				47	2	1	393075	.92	
												1	393076	1.28	
	201	165		1	6	M				48	1			.	
	201	165		1	6	M				49	1			.	
	201	165		1	6	M				51	2			.	
	201	165		1	6	M				52	3	1	393077	1.32	
	201	165		1	6	M				53	1			.	
	201	165		1	6	M				55	1			.	
Pollock	201	165		1	6	M				59	1			.	
Pollock	201	165		1	6	F				53	1				
	201	165		1	6	F				54	2				
	201	165		1	6	F				56	1				
	201	165		1	6	F				59	1				
	201	165		1	6	F				62	1			.	
Pollock	201	165		1	6	F				66	1	1	393078	2.10	
												7	393078	0.00	3

Otoliths and maturity properly recorded on the paper form.

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Cruise: 20670 | Permit: 2345

Length and Specimen Form

Page 2 of 2

Resubmission (Circle All Changes)

Observer Name: Halie Herring Vessel/Plant Name: Irish Lord

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot)	Halibut Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Chinook	222	165		3	10	F				52	1	2	2	0.00	
												3	2	2.30	
Chinook	222	165		3	10	F				69	1	2	1	0.00	
												3	1	3.80	
														.	
Halibut	101	165		3	10	U		U		64	1			.	

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Figure 13-26: Examples of Length and Specimen Data Documentation From a Pollock Catcher Vessel

Length and Specimen Priority List for **Bering Sea/Aleutian Islands**

Determine the predominant species in your sample, then consult the block for that species. ***If the predominant species in your sample is not in this 2 page chart, sample from the next most predominant species that is in this chart.***

		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
If the predominant is **Aleutian Islands Pollock…**	**Then Take:** →	~ 75 pollock	10 pairs	→ assess maturity of all female pollock otolith fish
	Any From Another Species? →	none	none	none
	How Often?	**Every Sampled Haul**	**Every Sampled Haul**	**Every Sampled Haul**
If the predominant is **Bering Sea Pollock…**		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 pollock	2 pairs	→ 8 sex/length/weight specimens (must not be from otolith fish) → assess maturity of all female pollock otolith fish
	Any From Another Species? →	up to 20 from UNSEXED squid	none	none
	How Often?	**Every Sampled Haul**	**Every 5th Sampled Haul**	**Every 5th Sampled Haul**
If the predominant is **Pacific Cod…**		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 Pacific cod	3 pairs	assess maturity of all female Pacific Cod otolith fish
	Any From Another Species? →	~ 10 from Shortraker/Rougheye	2 Shortraker/Rougheye otolith pairs	none
	→	5 from skates of any species	none	none
	How Often?	**Every Sampled Haul**	**Every 5th Sampled Haul**	**Every 5th Sampled Haul**
If the predominant is **Sablefish** (aka Black Cod)…		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 Sablefish	3 pairs	none
	→	~ 10 from Shortraker/Rougheye	2 Shortraker/Rougheye otolith pairs	none
	Any From Another Species? →	~ 5 from Giant Grenadier (grenadier are measured from tip of snout to insertion of first anal fin ray!)	none	none
	How Often?	**Every Sampled Haul**	**Every Sampled Haul**	N/A

Figure 13-27: Length and Specimen Priority List for Bering Sea/Aleutian Islands Vessels

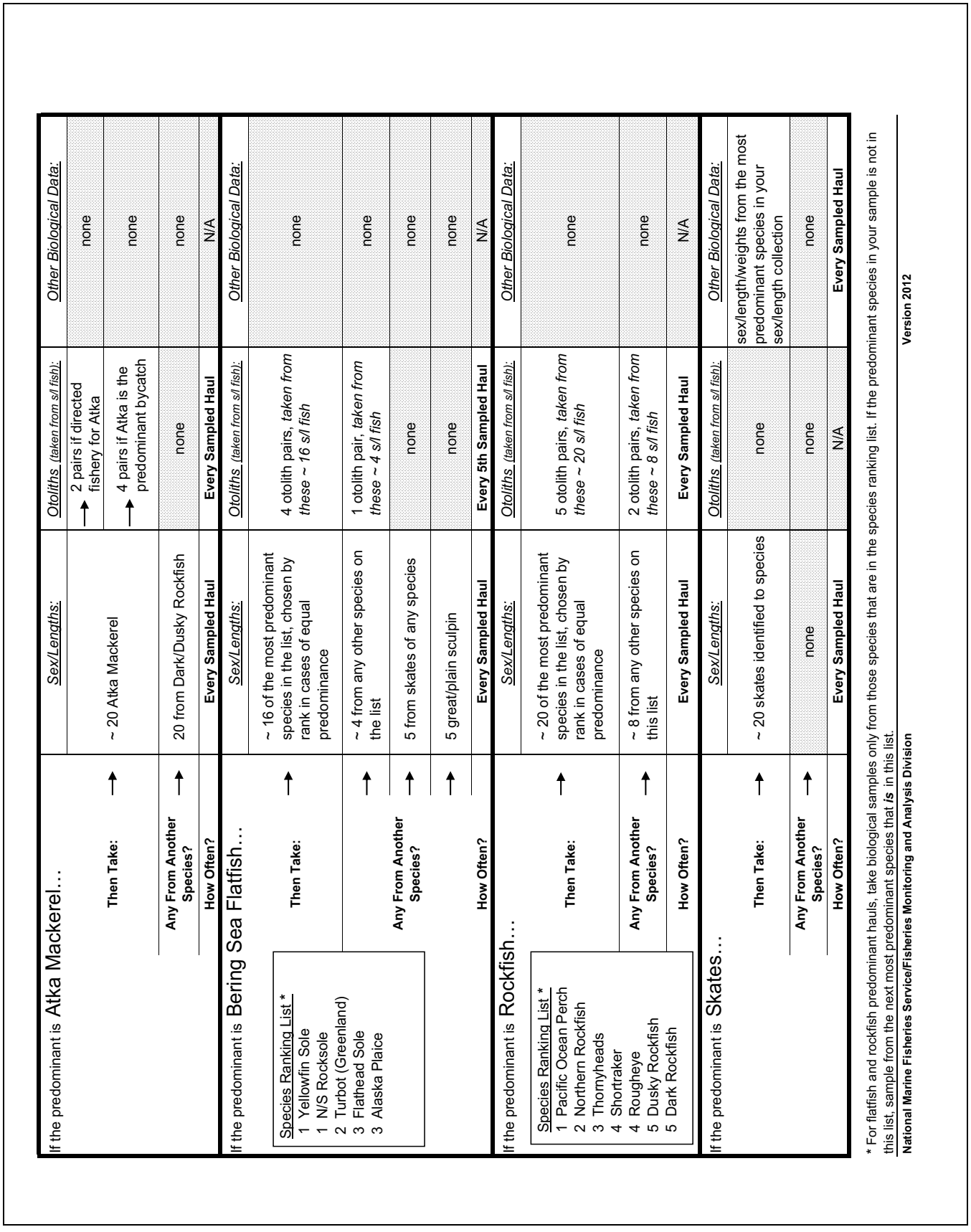

Figure 13-27: Length and Specimen Priority List for Bering Sea/Aleutian Islands Vessels

Length and Specimen Priority List for **Gulf of Alaska**

Determine the predominant species in your sample, then consult the block for that species. ***If the predominant species in your sample is not in this 2 page chart, sample from the next most predominant species that is in this chart.***

		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
If the predominant is **Gulf of Alaska Pollock…**				
	Then Take: →	~ 20 pollock	4 pairs	assess maturity of all female pollock otolith fish
	Any From Another Species? →	none	none	none
	How Often?	**Every Sampled Haul**	**Every Sampled Haul**	**Every Sampled Haul**
If the predominant is **Pacific Cod…**		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 Pacific cod	3 pairs	assess maturity of all female Pacific cod otolith fish; every 5th sampled haul
	Any From Another Species? →	~ 10 from Shortraker/Rougheye	2 Shortraker/Rougheye otolith pairs	none
	Any From Another Species? →	5 from skates of any species	none	up to 5 vertebrae specimens from each of big and longnose skates from those selected for lengths**
	How Often?	**Every Sampled Haul**	**Every 5th Sampled Haul**	**See Above**
If the predominant is **Sablefish** (aka Black Cod)…		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 Sablefish	3 pairs	none
	Any From Another Species? →	~ 10 from Shortraker/Rougheye	2 Shortraker/Rougheye otolith pairs	none
	Any From Another Species? →	~ 5 from Giant Grenadier (grenadier are measured from tip of snout to insertion of first anal fin ray!)	none	none
	How Often?	**Every Sampled Haul**	**Every Sampled Haul**	N/A
If the predominant is **Atka Mackerel…**		Sex/Lengths:	Otoliths (taken from s/l fish):	Other Biological Data:
	Then Take: →	~ 20 Atka Mackerel	4 pairs	none
	Any From Another Species? →	~ 20 from Dark/Dusky Rockfish	none	none
	How Often?	**Every Sampled Haul**	**Every Sampled Haul**	N/A

Figure 13-28: Length and Specimen Priority List for Gulf of Alaska Vessels

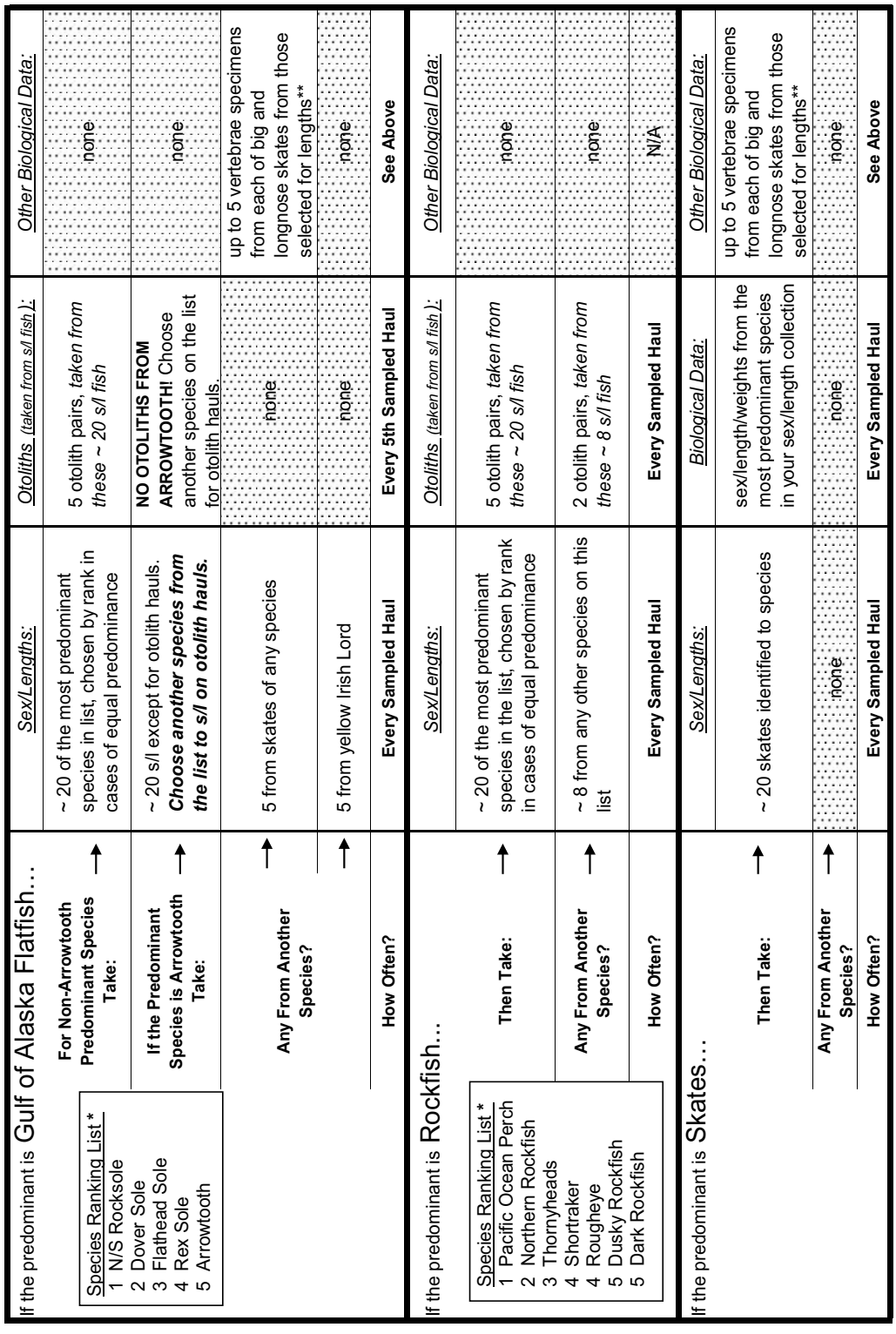

Figure 13-28: Length and Specimen Priority List for Gulf of Alaska Vessels

Length and Specimen Priority List for **Plants and Floating Processors**

Collect only from unobserved vessels (*sablefish deliveries are an exception: if an observed vessel delivers live sablefish, collect lengths and ages if the vessel observer was unable to do so)! For each sampled delivery, consult the appropriate ranking list below: if the predominant species in your sample ***is not*** in the species lists (by region), ***sample from the next most predominant species that is in the list.***
**Unobserved GOA pollock deliveries to AFA plants only.

Bering Sea or Gulf of Alaska Roundfish…

Species List
- Sablefish *
- Rockfish (all species)
- Pollock **
- Pacific cod (non-trawl)

Bering Sea Flatfish…

Species List
- Yellowfin Sole
- N/S Rocksole
- Turbot (Greenland)
- Flathead Sole
- Alaska Plaice

Gulf of Alaska Flatfish…

Species List
- N/S Rocksole
- Flathead Sole
- Rex Sole
- Dover Sole
- Arrowtooth Founder

	Sex/Lengths:	*Otoliths (taken from s/l fish):*	*Other Biological Data:*
How Often Do You Collect Data?	At least 4 deliveries per day, no more than 150 - 200 s/l per day	At least 4 deliveries per day, maximum of 25 pair per day	Maturity scans *if pollock or cod* are measured
How Many?			
If only one of the species in the list is predominant then:	collect ~ 20 from the species in the list that is most predominant	collect 5 otolith pairs, *taken from these ~ 20 s/l fish*	If measuring pollock or P. cod collect maturity scan data from all female otolith specimens
If more than one of the species in the list is predominant then:	collect ~ 20 from each species in the list that are predominant, up to 3 species	collect 2 pairs from each s/l species, up to 3 species	If measuring pollock or P. cod collect maturity scan data from all female otolith specimens
What if it's a Gulf flatfish delivery and the predominant species is arrowtooth?			
If arrowtooth is the only predominant then: →	collect ~ 20 from arrowtooth	**DO NOT collect otoliths from arrowtooth**	none
Any from another species? →	~ 20 from another species on the list	collect 5 otolith pairs from the s/l fish of the other species	none
If arrowtooth is one of several predominant species then: →	collect ~ 20 from arrowtooth	**DO NOT collect otoliths from arrowtooth**	none
Any from another species? →	~20 from other predominant species on the list, up to 2 species	collect 2 pair from each of the other s/l species	none

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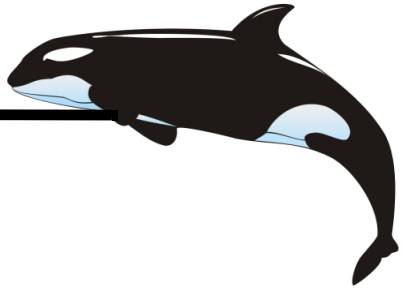
Figure 13-29: Length and Specimen Priority List for Plants and Floating Processors



MARINE MAMMAL INTERACTIONS AND SIGHTINGS

Table of Contents

LIST OF PRIORITIES

- Record marine mammal interaction data.
- Record marine mammal specimen data.
- Record marine mammal sightings.

INTRODUCTION

Alaskan waters support one of the largest fisheries in the world and are home to a vast number of marine mammals. Interactions between fishing operations and marine mammals are unavoidable. Observers provide estimates of marine mammal mortality and other interactions due to fishing operations. Vessel owners and operators are required to submit reports of marine mammal injury and mortality that occur as a result of fishing operations. The Observer Program's independent data help determine the reliability of these reports. Observer data are also used to identify changes in fishing methods or technology that may increase or decrease incidental injury or mortality of marine mammals.

Marine mammal sighting data collected for the National Marine Mammal Laboratory (NMML) by observers provide important information on the distribution and behavior of marine mammals in Alaskan waters. There are several species in the Gulf of Alaska and Bering Sea which are threatened or endangered, and information on these animals is of great interest.

MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act of 1972 (MMPA) was most recently reauthorized in 1994. In passing the MMPA in 1972, Congress found that:

- certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of human activities

- such marine mammal species and population stocks should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part, and, consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population level
- measures should be taken immediately to replenish any species or population stock which has diminished below its optimum sustainable level
- marine mammals have proven themselves to be resources of great international significance, aesthetic and recreational as well as economic

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas, and on the importing of marine mammals and marine mammal products into the United States. As a NMFS certified observer you are authorized, under provision 50 CFR 229.7 of the Federal Code of Regulations, to take and possess marine mammal specimens (see page 20-17). The only specimen samples you should ever have in your possession are pinniped snouts or skulls and/or tissue samples from cetaceans. ***Do not collect other bones, or parts as specimens.*** They are not needed and will be discarded. Walrus and sea otters are under the jurisdiction of the U. S. Fish and Wildlife Service and you are not allowed to possess any specimen material from them. Possession of any part of a walrus or sea otter is a federal offense.

Sea otters are listed as "threatened" and both NMFS (Sustainable Fisheries) and USFWS should be notified of any incidental takes.

MARINE MAMMAL MONITORING

The role of observers under the MMPA is to conduct statistically reliable monitoring of fishing operations and to record information on all interactions between fishing operations and marine mammals. Observers are asked to determine sex and measure the length of any marine mammal found dead in the catch. If possible, observers should take photographs of any marine mammal involved in an interaction. If Steller sea lions, northern fur seals or elephant seals are found dead in the catch, observers are required to collect the upper snout including the upper canine teeth, which are used for age and stock determinations. If possible, the entire skull of small seals should be collected to aid in identification. Observers are also asked to collect tissue samples from any large cetaceans captured and killed in fishing operations. Interaction and specimen data are recorded on the Marine Mammal Interaction and Specimen (MMIS) Form.

Random Sampling

To provide statistically reliable information you must randomly select which hauls are to be monitored for incidental take of marine mammals. ***If there is any doubt in your mind that you will not be able to monitor all of the hauls during a trip, you must use a method to randomly select the hauls to be monitored.*** To select which hauls to monitor use the Random Sample Table and monitor the same hauls you sample for composition. For information on using the RST see page 2-14. Indicate which hauls or sets you have monitored for marine mammals in the appropriate column on the Observer Haul Form. ***You may monitor additional sets but if there are any marine mammal interactions, you must indicate in the Comments section of the MMIS Form that they are not from randomly selected hauls or sets.*** In the trawl fishery, where you are unable to watch the entire dumping of a haul, it is acceptable to spot check the dumping and still mark the haul as being monitored 100% for marine mammals. ***If you use the spot checking option, you must be certain that you would have seen the discard of a marine mammal had it occurred.***

In the trawl fishery, it is acceptable to spot check haul dumping and mark the haul as 100% monitored for marine mammals.

MARINE MAMMAL INTERACTIONS

The Marine Mammal Interaction and Specimen Form is used to document interactions between fishing operations and marine mammals. This may include marine mammals feeding on fish from longline gear, deterrence from feeding, or catches of marine mammals (whole or parts) in fishing gear. When you record mammal interaction data on the MMIS Form, the Marine Mammal Sighting Form is not needed. A new interaction must be recorded with the appropriate

haul/trip/offload number for each haul/trip/offload that shows evidence of an interaction. Complete a paper MMIS form on vessels not equipped with ATLAS. If you are on a vessel equipped with ATLAS, report information through the electronic ATLAS Form and do not complete a paper form. Interactions include the following:

- **Deterrence Used:** marine mammals are subjected to deliberate actions intended to frighten, harm, or discourage them in order to limit or avoid interaction with fishing operations. The animal may be in direct contact with gear or in very close proximity. Authorized deterrence methods include yelling at the animal, and banging pots or other objects. Whatever method is used, it should not result in the serious injury or mortality of the marine mammal. Log deterrence interactions on the MMIS form even if the deterrence had no affect.

Feeding On Catch or Discards: marine mammal feeding on fish from the fishing gear prior to landing, or feeding on discards. Marine mammals such as killer whales, sperm whales, and sea lions are often seen pulling fish from nets or more commonly from longline gear. On a longline vessel signs of marine mammals feeding on catch include fish heads, lips or fish that have been bitten or raked by teeth. A sudden drop in catch numbers in the presence of marine mammals may also indicate feeding on catch. Use your best judgment to determine if the sudden drop in catch rates may be attributed to them. If you are unsure, record the event as a sighting and document the details so it can be reviewed with your inseason advisor or during debriefing. For information on how to tally predated items see “Method for Tallying Predated Items” on page 8-12. Do not record intentional feeding of marine mammals by humans on the MMIS Form unless this occurs in conjunction with other interactions. See “Intentional Feedings” on page 14-10. ***A new interaction must be recorded with the corresponding haul number for each haul that shows evidence of whale predation or whales feeding on catch*** (*e.g.,* if longline hauls 122, 123, 124 all show evidence of predation three separate interactions are recorded with one interaction for each haul)**.** Considerable predation by mammals should be recorded using the appropriate gear performance code on the Vessel Haul Form. See “Gear Performance” on page 7-15.

- **Entangled in Gear:** marine mammals are entrapped or entangled in fishing gear but escape or are released alive by vessel personnel.
- **Killed by Gear:** marine mammals are killed by entanglement or entrapment in fishing gear during a particular haul or set. The animal is not decomposed and did not show any evidence of death by something other than the fishing gear. Evidence of a fresh kill include free flowing blood or other body fluids and bright red blood or meat. Freshly dead animals can be warm or cold, depending on the length of the tow or set, and the time of death. Rigor mortis is not a good indicator, as the period of time an animal is in rigor can vary greatly depending on its physical condition and the environment.
- **Previously Dead:** an animal was already dead before coming in contact with fishing gear. There may be a putrid, rotted smell; bloating; discoloration of the flesh; or loss of the skin/fur. Vessels often catch bones and/or masses of decomposed flesh; these are also considered previously dead. Look for signs of trauma which may have been caused by something other than the fishing gear (i.e., gunshot wounds, decapitation, skinning.) If you believe that the same dead animal has been caught in the gear more than once, record it each time and indicate in your Comments why you believe it to be the same individual.
- **Lethal Removal:** marine mammals are killed by vessel personnel to prevent serious damage to or loss of gear, catch, or human life. The death of these animals is caused directly by the actions of vessel personnel and not solely through contact with the fishing gear.
- **Killed by Propeller:** marine mammals are struck by the propeller of the fishing vessel and die. This has been observed with killer whales and sea lions feeding on vessel discards.
- **Marine Mammal Boarded Vessel:** marine mammals board the fishing vessel and then escape. Sea lions and seals will infrequently board vessels to look for food or to escape predators.

Entering Interaction Data on the MMIS Form

Report the MMIS data as completely as possible.If you are on a vessel equipped with ATLAS, you report information via ATLAS only and you do not complete a paper form. Complete a paper MMIS form on vessels without ATLAS.If you are unsure about any aspect of the data, write your concerns in the Comments section of the form. Keep a separate set of forms for each vessel to which you are assigned.

Cruise, Vessel Permit - Enter the cruise number, vessel permit, and the last two digits of the year in the fields at the top left hand corner of the form. Start a new sheet for each vessel to which you are assigned.

Trip/Haul/Offload - Mammal data can be entered at the trip, haul or offload level. Enter the trip, haul or offload number associated with the interaction and/or specimen data. Circle Trip, Haul or Offload as appropriate.

Interaction Date - If the interaction is not associated with a haul, record the date with leading zeros where appropriate (*i.e.*, 01/09 for January 9).

Species Common Name - Write the common name of the marine mammal species involved. Be as specific as possible. If you are unsure of the identification use a broader classification, such as unidentified pinniped or unidentified dolphin/porpoise. Do not enter different species in the same record. If more than one species of marine mammal are involved in an interaction, repeat the date and trip/haul/offload number in another data block and enter the second species.

Mammal Code - Record the species code. A list can be found on page A-15. Entries must be two characters.

Total number of animals observed- Enter your best estimate of the number of individual animals in the area when the interaction occurred. If there are more than one species involved in the interaction, each species must have a separate record on the MMIS Form. The number must be an exact number. Do not enter a number range. If you are unsure about how many individuals there are, enter your best estimate and include the number range in the Comments field.

Number of Animals in Interaction - Enter your best estimate of the number of individual animals involved in the interaction. If there were more than one species involved in the interaction, each species must have a separate record on the MMIS Form. The number must be an exact number. Do not enter a number range. If you are unsure about how many individuals there are, enter your best estimate and include the number range in the Comments field.

Did you observe mammal? - Record "Y" if you actually saw the animal, and "N" if you did not.

Interaction Code - Enter the appropriate interaction code from the following Marine Mammal Interaction Codes list. If an animal is involved with more than one interaction during one trip/haul/offload, list them as separate records.

Marine Mammal Interaction Codes

- ***1 - Deterrence Used*** - Marine mammal was deterred or a deterrence was attempted. Log this interaction using this code even if the deterrence was not successful.
- ***2 - Entangled in Gear (Not Trailing Gear)*** - A marine mammal was captured by the fishing gear and the animal was released/escaped without fishing gear attached.
- ***3 - Entangled in Gear (Trailing Gear)*** - A marine mammal was captured by the fishing gear and the animal was released/escaped alive with some fishing gear attached.
- ***4 - Killed By Gear*** - A marine mammal was captured and died due to interactions with the fishing gear.
- ***5 - Killed By Propeller*** - A marine mammal hit the propeller and died.
- ***6 - Previously dead*** - A marine mammal was captured by the fishing gear and was dead prior to coming into contact with the vessel or fishing gear.
- ***7 - Lethal removal (Trailing Gear)*** - Vessel personnel killed a marine mammal entangled in fishing gear, but death was not due entirely to the entanglement. Gear was observed attached to the animal after the animal was removed from the gear.
- ***8 - Lethal removal (Not Trailing Gear)*** - Vessel personnel killed a marine mammal entangled in fishing gear, but death was not due entirely to that entanglement. No gear was observed trailing from the animal after the animal was removed from the gear.

9 - Boarded Vessel - A marine mammal boarded the vessel on its own volition.

10 - Feeding on Catch (Not Yet Landed) - A marine mammal was observed feeding on catch not yet landed.

12 - Other - Interaction occurred that is not included in the list of interaction codes.

13 - Unknown - The vessel or vessel personnel had some interaction with a marine mammal, but the observer did not directly view the interaction and/or ascertain what the interaction was.

14 - Feeding on Discarded Catch - A marine mammal was observed feeding on discarded catch.

Condition Code - Record the condition of the mammal based on the outcome of the interaction. For example, a live animal that has been lethally removed is to be considered a carcass and an injured animal released alive is considered alive even if you believe it may eventually die.

1 - Carcass, dead animal
2 - Bones other than skull
3 - Live animal
4 - Skull
5 - Skull and bones
6 - Tusk/teeth (no skull)
7 - Baleen only
9 - Fur, flesh or skin

Deterrence Code - Fill in this field only for interactions involving marine mammal deterrence, interaction code 1. Refer to the following list for the code that is most appropriate. If the interaction was not one of deterrence, leave this field blank.

Marine Mammal Deterrence Codes:

1 - Seal Bombs - Any explosive device used to frighten marine mammals from the catch.

2 - Pole Gaff - Using the long pole (typically used by crewman to gaff drop-off catch) to scare off marine mammals either by direct contact or by hitting the water.

3 - Skiff - Any use of a skiff to attempt to frighten off marine mammals.

4 - Acoustical device - Any electronic acoustical device designed to frighten or annoy marine mammals.

5 - Yelling - Crew yelling at marine mammals in order to frighten them from the catch.

6 - Making noise by any other method - Any method, other than yelling, of making noise to annoy or frighten marine mammals from the catch.

7 - Other - Any other means, not listed above, of deterring marine mammals. Include instances when the vessel changed fishing behavior, such as "bagging off" gear on a longliner. Document the method or occurrence in your logbook.

8 - Unknown - If a deterrence method was used but its exact nature is unknown.

If the vessel personnel employed more than one method of deterrence, document this in the Comments field. Also describe in the Comments field how the deterrence was conducted.

Deterrence Successful? Fill in this field only for interactions involving marine mammal deterrence, interaction code 1. Otherwise leave this field blank. If you observed that the deterrence worked to deter marine mammals from the catch enter a "Y". Enter "N" if you observed that the deterrence was unsuccessful. Enter "U" if you are unsure as to the success of the deterrence method.

Food Species - Fill in this field only if you have a marine mammal feeding on catch, interaction code 10. Otherwise leave this field blank. Enter the species code of the species upon which the marine mammals are feeding using the codes starting on page A-1. If the marine mammals are feeding upon more than one species, record the predominant species in the Food Species field and list the other species in the Comments field.

Location During Trip - Enter the latitude and longitude where the interaction occurred. If you do not have an exact location, make a best estimate for the vessel's position when the interaction occurred**.** Do not enter a position if the interaction occurred at the haul level.

MARINE MAMMAL SPECIMENS

The MMIS Form is also used to record specimen data from marine mammals (whole or part) caught in fishing gear. Specimen data can include measurements of the animal or part and/or photographs of the animal.

Safe Environment to Collect Marine Mammal Specimens

If a marine mammal is taken and a specimen must be collected ***check with the vessel or plant personnel to determine a safe location to collect specimens.*** A safe location is one that provides you a safe place away from gear and other hazards as well as minimizing possible exposure to food products produced by the vessel or plant.

Before touching a marine mammal remember that there are many diseases that are transferable from marine mammals to humans. Always wear gloves when handling a marine mammal.

Photos

NMFS issued flash pocket cameras are supplied only for taking photos of marine mammal interactions and related data points such as tissue samples from dead cetaceans and evidence of groundfish catch feeding interactions by sperm and killer whales. These cameras are the property of NMFS and must be returned at the time of debriefing, even if they have not been used!

Any photos or videos taken by an observer while assigned to a vessel or plant are the property of the National Marine Fisheries Service as defined by the Magnuson-Stevens Fishery Conservation and Management Act. See"Photos and Videos" on page 2-5 for more information regarding the confidentiality of photos and videos.

Try to include distinguishing marks of the individuals in your photos; scars, scratches, and the saddle patches on orcas are useful. Whenever possible take photos offish damaged by predation. (See "Method for Tallying Predated Items" on page 8-12 for more information on predation.)

Record photos of marine mammal interactions with a fishing vessel or vessel personnel on the MMIS Form.

The camera issued with your gear should be used only for photos of marine mammals or fish that have been damaged by marine mammals.

Collection of Pinniped Specimens

Snout Specimens (Except Walrus)

Do not collect snouts, tusks, or skulls from walrus. They are managed by the US Fish and Wildlife Service and are therefore not covered under our MMPA collection permit.

When Steller sea lions, northern fur seals or elephant seals are caught and killed or found dead in the fishing gear you must collect upper snout of these animals, including the canine teeth (see Figure 14-1). Canine teeth of these animals are relatively easy to identify and are used to determine the animal's age. Steller sea lions in the Bering Sea, Aleutian Islands and the western Gulf of Alaska have been listed as endangered species. Data on these animals are greatly needed to assist in determining the causes of this species' decline. Combined with the length data you collect, teeth can help determine the general health of the sea lion population. ***Snouts are reported as specimen code 2.***

Collecting the snout of pinnipeds, including complete canine teeth, requires a hacksaw (which you should be able to obtain from the vessel). Cut across the snout, slightly in front of the eyes, in a line that passes between the second and third post-canine teeth. Do not remove the skin as coloration of fur and whiskers aid in species verification back at the lab.

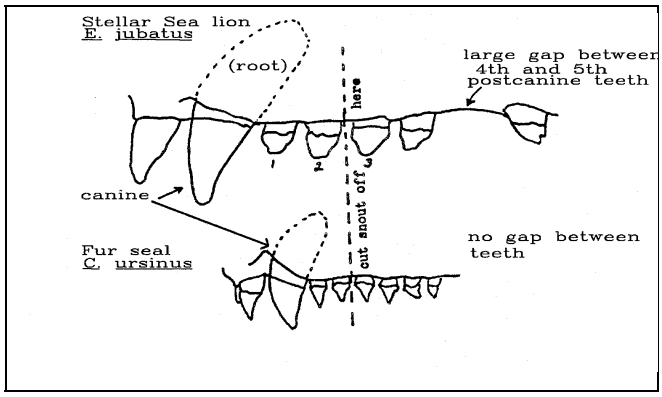


Figure 14-1: Canine Teeth of Sea Lions

Preserve the snout by placing it in three of the plastic bags provided by NMFS and freeze it. Place a Bag and Tag label (see page 2-10) inside the outer bag and another label on the outside. Write the species and length of pinniped in the comments sections of the label. ***Never preserve the snout in formaldehyde***. This will destroy the area of the tooth needed for age determination.

Skull Specimens (Except Walrus)

Do not collect snouts, tusks, or skulls from walrus. They are managed by the US Fish and Wildlife Service and are therefore not covered under our MMPA collection permit.

Collecting the skull of smaller mammals is often easier than collection of the snout. Determine where the base of the skull is by pressing your fingers along the top of the head until you feel where it ends, or slopes down to its point of attachment with the first vertebra of the neck. Using a sharp knife, cut through the neck muscle about two inches posterior to the base of the skull until you hit neck bone. Using a hacksaw, you can now saw easily through the neck bones. Excess tissue (tongue, trachea, muscle tissue etc.) can be removed from the throat area to reduce weight.

If harbor, spotted, bearded, ribbon, or ringed seals are found dead, you should try to collect the entire head. Canine teeth of these smaller animals are difficult to differentiate between species, while the complete skull allows for positive identification. ***Entire heads are reported as specimen code 7.*** If you cannot collect the entire head, collect the snout, including upper canines. Follow the directions for preserving snout specimens on page 14-6.

Measurements of Dead Marine Mammals

All dead marine mammals captured during fishing operations must be measured.There are two acceptable methods for measuring marine mammals:.

Standard length - This is the preferred method of measurement. It is the length of the animal in a straight line from the tip of the snout or rostrum to the tip of the tail flesh or tail notch on the unskinned body, belly up, ideally with the head and vertebral column on a straight line (Figure 14-2). Record to the nearest centimeter. Do not record an estimate of length; this field is for actual measurements only. Include length estimates in the Comments section.

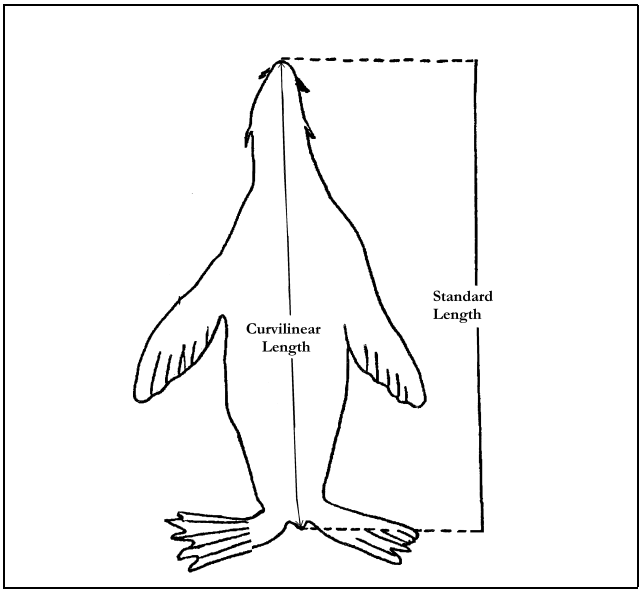


Figure 14-2: Sea Lion and Seal Measurements

Curvilinear length - The shortest surface distance from the tip of the snout or rostrum to the tip of the tail or tail notch along the back, belly, or side. This method is used if rigor has set in or the animal is too large or deteriorated to maneuver. Take the measurements with the flexible measuring tape provided by NMF (see Figure 14-2). Record to the nearest centimeter. Do not record an estimate of length; this field is for actual measurements only. Include length estimates in the Comments section

Tissue Collection from Dead Cetaceans

Currently, commercial fishing vessels in the Gulf of Alaska and the Bering Sea take several cetaceans per year. Observers have access to cetacean carcasses and can easily collect tissue samples. The National Marine Mammal Laboratory has asked that observers take ***two tissue samples.*** A small skin sample and a deeper skin, blubber, and muscle tissue sample. Tissue samples should be taken from all cetacean carcasses regardless of their condition. Specific instructions for each follow.

Cetacean Skin Samples

You have been supplied with a sterile scalpel, a pair of nitrile gloves, and three vials of the preservative Dimethyl Sulfoxide (DMSO). It is preferred that the skin samples be preserved in the vials of DMSO. However, in the event that DMSO vials are unavailable, the skin samples can also be preserved in one of the following ways.

1. The sample can be frozen

2. The sample can be placed in an otolith vial filled with a saturated salt solution

3. The sample can be placed in a plastic bag and covered with table salt.

Skin samples not stored in DMSO are of lesser value but still extremely useful to NMML. Samples collected in this manner will undergo genetic analysis to identify cetacean stock structure.

Warnings about DMSO!
Dimethyl Sulfoxide has exceptional solvent properties for organic and inorganic chemicals and is widely used as an industrial solvent. It has also been used to administer drugs topologically. DMSO is able to penetrate intact skin and will carry anything dissolved into it directly to the blood stream. Side affects from DMSO include nausea, headache, and skin rash. Further, since DMSO is a "carrier" chemical, it could deliver harmful substances into the bloodstream if they are present in impure DMSO or on the skin. Great care should be taken when handling DMSO and you should never allow it to come into contact with your skin. Always wear the nitrile gloves provided when handling DMSO.

To collect a sample:
1. After recording length data for the MMIS Form, exchange your fishing gloves for the non-latex (nitrile) gloves provided by NMML. This is to protect you from possible disease and to protect the sample from you. Any DNA contamination from any mammal may compromise the sample. Do not use latex gloves while handling DMSO.

2. Lightly scrape the sample area on the cetacean clean with a knife to remove fish slime and reduce contamination of the sample. The sample collection area can be anywhere on the animal, but preferably from the back just posterior to the dorsal fin.

3. Using a sterile scalpel cut out a strip of skin approximately 2 cm by 1 cm. Remove any excess blubber from the strip before placing it in the vial of DMSO. Place the skin sample in the vial of DMSO provided. Try not to take a large sample, the skin sample must fit in the DMSO vial and be completely covered by solution.

4. Label each specimen vial with the specimen number, cruise number, vessel permit, haul number, and species name. There should be no more than one specimen to a vial. If there is more than one animal in a haul the skin samples should all be listed as separate specimens, placed in separate vials, and labeled accordingly. Record interaction and specimen information on the MMIS Form. Include in the Comments section how you obtained the specimen.

Do not freeze DMSO samples, store them at room temperature. More vials of DMSO, gloves, and sterile scalpels can be obtained at the field offices in Dutch Harbor and Kodiak.

Cetacean Deep Tissue Sample
The deeper tissue samples will be analyzed for contaminant, fatty acid, and stable isotope profiles. The resultant chemical profiles will give us information not only about the animal itself but also about their prey.

1. To collect the deep tissue sample: Cut a 2 inch square of tissue from the dead carcass just below and behind the dorsal fin. The depth of the sample should be from the outer skin layer into the muscle layer, including the entire blubber layer, and include at least 1-inch depth of red muscle tissue.

2. To store this second tissue sample, wrap it in aluminum foil if some is available, or seal it in a ziploc bag (aluminum foil is preferred). Place this sealed bag or foil package inside another ziploc bag with a label (list your cruise #, vessel permit number, date, and haul number). ***This sample should be frozen and kept frozen to the best of your abilities during transit.***

Entering Specimen Data on the MMIS Form

The columns under the 'Specimen Data' heading must be filled out in those instances that you collected a specimen. Each specimen taken from an animal is entered separately, with its own unique specimen number. If specimens were taken from more than one animal, the data is entered in a separate data block for each animal. This is the case even if the animals were involved in the same interaction. There are five specimen types that can be recorded on the MMIS Form: length, sex, snout or skull collection, tissue collection, and photos taken.

Animal Number - Animal number is not the same as specimen number! Animal number is used to designate the animal from which a specimen was collected.

When there are multiple animals involved in a single interaction, and multiple specimens taken, you use animal number to indicate which animal supplied the specimen. For each interaction, number animals beginning with 1. See Figure 14-7 for an example.

Specimen Number - Enter the specimen number for the specimen taken. Number specimens consecutively starting with the number one. Specimen numbers must be unique within each interaction! Do not repeat specimen numbers within an interaction.

Specimen Type - Enter the appropriate code for the specimen type taken from the animal. Codes are as follows:

1 - Photo
2 - Snout
3 - Non-DMSO Tissue
4 - Standard Length
5 - Curvilinear Length
6 - DMSO Tissue
7 - Skull

Sex - Record the sex of the individual for which a specimen was collected. In cetaceans, the distance between the anus and the genitals is greater in males. Otherwise, the sexes appear similar because both have external teats, and females have an enlarged clitoris. In pinnipeds, sex can easily be determined by spreading the hind flippers and lifting the tail. Females have two holes (the anus and vaginal opening) between their flippers and males have only one.

Sexing of marine mammals is not difficult. See diagrams in Figure 14-3 to view the morphological differences between male and female pinnipeds and cetaceans.

Value - Photo, standard length, and curvilinear length specimen codes must have a corresponding Value entry.

If Specimen code is:		The Value code is:
1- Photo	=>	# of photos taken
4- Standard Length	=>	standard length of mammal in centimeters
5- Curvilinear Length	=>	curvilinear length of mammal in centimeters

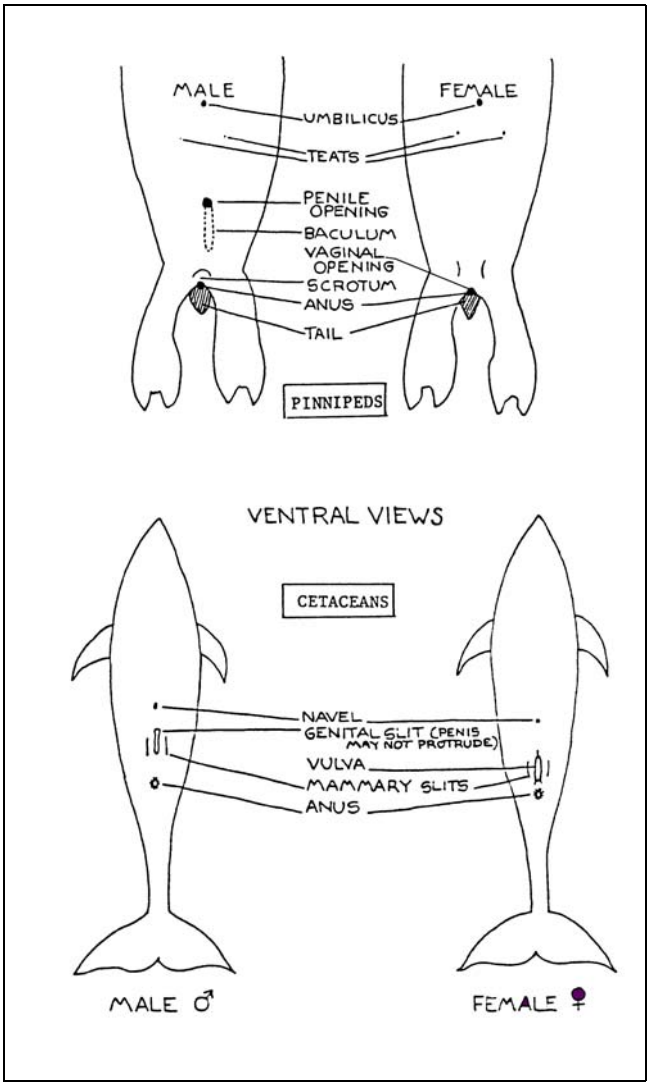


Figure 14-3: Diagram of Pinnipeds and Cetacean Sex Differentiation

COMMENT ENTRIES ON THE MMIS FORM

Enter comments describing the interaction. If you did not observe the animal, briefly explain why not and mention where you received your information. Each remark must include the following:

- **Species Identification** - Write a description of the animal and what features led you to believe it was this species. Document any distinguishing characteristics of the individual animal that would help differentiate it from others of its species (i.e., saddle patches in killer whales, spots and scars on other marine mammals).
- **Description of Interaction** - Write a description of the interaction you observed between the vessel and the marine mammal. Be as descriptive as possible. Include names of crew members involved and their actions. In the logbook or on the paper MMIS Form, draw pictures of rare or unusual marine mammal species involved in interactions. Note if there was evidence of any marine mammals following the vessel from a previous set or staying with the vessel during the soak time. For feeding interactions, describe the evidence of feeding and proximity of the marine mammals to the vessel. If there was evidence of gear depredation please list the following:
    - Type of bait being used
    - Target species
    - Species of the depredated fish
    - How many hooks had heads only remaining
    - The size of gashes (in cm) found on the fish
    - Total # of fish with evidence of predation
- How sex was determined
- Uncertainties you have concerning the data, if any
- If a snout, skull or tissue specimen was collected, a description of the specimen, your collection method, and your method of storage
- **Condition of the Animal** - Write a description of the general welfare of the animal (*e.g.*, did it look healthy, injured, rotting?).
- **Injured?** - If the condition code of the mammal was code 3, for 'live animal', check whether or not the animal appeared injured. This field is only filled in if the interaction involves a live animal, otherwise, the field is left blank. If there is an interaction with a live animal, record "Y" if you actually observed the animal to be injured, enter "N" if you observed the animal to be uninjured, or "U" if you are unsure as to the condition of the animal. When entering this data into ATLAS, indicate via the written comments if the animal was injured.

Any comments not directly related to the specimen data, such as cooperation or hindrance by the crew, should be recorded in your logbook. Reference the trip/offload or haul number to which the comments pertain.

TAGGED AND BRANDED MARINE MAMMALS

The National Marine Mammal Laboratory and several other state and federal programs have on-going projects tracking marine mammals. To do this, they place a tag or brand on the marine mammal. Radio and/or satellite tags have been affixed to Steller sea lions, northern fur seals and elephant seals as well as several species of cetaceans. Flipper tags are also placed on several species of pinnipeds. Commonly brands are found on the side or back of pinnipeds.

If you observe one of these animals, record the tag or brand numbers, color of the tag or marking, and the location of the marking/tag in the daily notes section of your logbook. Also include behavior and the latitude and longitude of where it was observed. A Marine Mammal Sighting Form (see page 14-15) should also be filled in with all pertinent information.

If the animal is killed in the catch, retrieve the tag, and/or record the numbers, color, and location of the marking, and retrieve any research instrumentation/attachments affixed to the animal to return to the NMML. Record length and sex information from the animal. If it is a pinniped, collect the snout or skull, if it is a cetacean, collect a tissue sample. These animals are being tracked for population assessments so any extra information you can provide will greatly help researchers at NMML.

INTENTIONAL FEEDINGS

Under the Marine Mammal Protection act, it is illegal to intentionally feed any marine mammal in the wild. Intentional feeding is considered a form of harassment. If you observe anyone intentionally feeding a marine mammal, you should document the incident fully in

your logbook. Please include the name(s) of the person/ people involved in the incident, a description of the marine mammal, and a summary of where and how the violation occurred.

MARINE MAMMAL SIGHTINGS

The Marine Mammal Sighting Form helps NMML determine the distribution and behaviors of marine mammals. Data from these forms are integrated into the NMML Platforms of Opportunity database, which has information on marine mammals from throughout the North Pacific Ocean. The Marine Mammal Sighting Form is not only used by the Observer Program but is also given to the U.S. Coast Guard, research ships, and marine mammal enthusiasts on commercial and private vessels. Marine mammal sighting is the lowest priority observer responsibility. These forms should be completed only if it does not interfere with any of your other observer duties.

If you have time, NMML is interested in every species of marine mammal that you encounter. We have provided a marine mammal identification manual to assist you in making identifications. If you are unable to positively identify an animal, then please indicate so on the form. Records of unidentified animals tend to lend credence to those records that include identification. Give a complete description with comprehensive notes and sketches, to fully describe any species you encounter for the first time each cruise.

For more common species (*e.g*., Dall's porpoise), you do not need to give detailed descriptions of subsequent sightings within one cruise. If sighting involves unusual behaviors or warrants some extra description (e.g., humpback whales mating), give a detailed account. ***If you see, or suspect that you see, a North Pacific right whale, please fax a Marine Mammal Sighting Form or send a message via ATLAS as soon as possible. Other than a sighting of a a North Pacific right whale, marine mammal sighting data are submitted during debriefing only.***

Marine Mammal Sighting Instructions

Fill out the Marine Mammal Sighting Form as completely as possible. The more information you provide, the more useful the data is to NMML in determining species ranges. If you are the second observer, record this form under your name and cruise number.

Observer(s), Vessel - Write your name and your vessel's name in these blanks.

Date - Enter year (*e.g.*, 13), month, and day, in that order.

Time - Log the time that the animal was first seen. Use Alaska Local Time (ALT).

Latitude - Record the latitude to tenths of minutes, if possible.

Longitude - Record longitude to tenths of minutes, if possible. Place E or W in box 26.

Sighting conditions - Give a qualitative evaluation of the overall sighting conditions. Excellent: unlimited visibility, flat seas. Good: sighting conditions affected somewhat by glare, sea state, weather, or distance. Fair: Sighting conditions affected by a combination of problems, *e.g.*, heavy seas, poor weather, or distance. Poor: Severely limited visibility due to high seas, poor weather, or distance.

Beaufort Scale- Use the scale of sea and wind conditions (listed on the back of the form) to choose the Beaufort scale number that best describes the conditions during your sighting.

Surface water temperature - Record water temperature in degrees centigrade, rounded off to the nearest whole degree. If below freezing, place a "-" in box 28. If above freezing, place "+" in box 28. The surface water temperature often can be obtained from the skipper or fish master. Many new sonars, plotters, and net detectors will also record the surface water temperature. You could also ask the engineer, surface water temperature is taken at the engine inlet thermometer. The conversion from Fahrenheit to Centigrade is: $C° = (5/9)(F° - 32)$

Species - Write in either the common or scientific name of the marine mammal. Make sure you indicate your level of confidence in your species identification by checking the boxes to the right of the species section. If more than one species are sighted at the same time, note any association in the comments section and fill out a separate sighting form for each species. If you cannot determine species, enter the most

accurate description possible, (*e.g.*, large whale unidentified, porpoise unidentified, pinniped unidentified, etc.). Remember that an inaccurate or erroneous identification is worse than none at all.

Sighting cue - Note what first attracted your attention to the presence of the marine mammal.

Closest approach - Note the distance in meters of the closest approach of the marine mammal. See "Abbreviations, Conversions, and Formulas" on page A-17 for conversion factors.

Number sighted - Give the best estimate of the number of individuals observed. If you are unable to count all the animals with certainty, estimate the number seen in terms of range (*e.g.*, Best estimate: 15, minimum present: 12, Maximum present: 20) For Dall's porpoise, note if you see splashes from more animals than you can clearly observe.

Body Length Estimate - Check the box that best represents the length of the animal(s) you observed.

Some common behaviors - Circle all of the behaviors observed during this sighting. For a list of behaviors, (see Figure 14-4 on page 14-14).

Narrative and Sketches - These sections are the most important sections of the form and should be completed with as much detail as possible. Everything that you observed about the animal should be entered. There are several important points that you should address to verify the species and individual marine mammal:

- ***Shape and size of dorsal fin and its position on the body*** - This is useful in identifying cetaceans. Also note the size and shape of the tail and flippers.
- ***Length of animal*** - Size is difficult to estimate at sea, so compare unfamiliar species with a species with which you are familiar. You may also compare an animal to a known length on the ship.
- ***General shape of the body*** - Slender or robust?
- ***Shape and size of snout*** - Is it long or short? Estimate the length. Is there a definite beak? Is the forehead markedly bulbous?
- ***Color patterns on the fins and body*** - Look for spots, stripes, patches, or mottling. With orca sightings, make sure to note the exact shape and shade of the saddle spot on dorsal side directly posterior to the dorsal fin. If possible, try to take a photo of this area. Researchers are able to identify individual Orcas by the saddle patches.
- ***Shape, location, and direction of blow*** - In cetaceans, note whether the blow is single or double. Note where the blowhole is located on the head and whether it goes forward or goes straight up. Note the general shape of the blow, is it bushy or tall?
- ***Scars and scratch marks*** - Look for scars or scratch marks that will help identify the individual mammal or help determine its past behaviors. Some seals will have hook scars on their snouts and a number of orcas may have bullet wounds on the dorsal fins. This will help NMML determine migratory patterns and determine behaviors of individual marine mammals.

Behaviors of animals - Describe in detail the behaviors of the animals observed. If there are several animals, describe how they interact with each other. Describe their diving behavior, and whether the animals were attracted to the vessel because of fishing operations. Were they feeding on discarded fish and fish parts? If so, this should be recorded as a marine mammal interaction.

Silhouettes - On the back of the Marine Mammal Sighting Form are a number of silhouettes of the common marine mammals found in the North Pacific Ocean and Bering Sea. For each sighting, circle the silhouettes that best represent the mammal you observed.

Cruise number and Vessel Permit - At the bottom of the page, enter the cruise number and vessel Permit.

MARINE MAMMAL SIGHTINGS AND INTERACTIONS AT A PROCESSING PLANT

Marine mammals are often present by shoreside plants and floating processors. Marine Mammal Sighting Forms can be filled out by both vessel and plant observers, but this is a low priority duty and must not interfere with any of your other observer responsibilities. Marine mammal interactions can also

occur and this information should be recorded on the MMIS Form. Any interactions that occur on an assigned vessel must be documented by the vessel observer (*e.g.*, a Steller sea lion goes up the vessel's stern ramp and feeds off fish stuck in the net). If the interaction directly involves the plant (*e.g.*, a Steller sea lion feeds off cod in totes on the dock), then the plant observer is responsible for documenting this information on the MMIS Form.

REVIEWING FORMS FOR ERRORS

To facilitate the debriefing process you ***must*** check forms throughout your cruise rather than at the last minute just before your debriefing interview. Observers who regularly review their data at sea generally benefit by having shorter, smoother debriefings. Observers who do not review their data throughout their cruise generally find themselves in lengthy debriefings and with time consuming corrections. It is much easier to check a couple of pages each day over the course of three months than to check a couple hundred pages of data all at once! Follow the guidelines below when reviewing your data for errors.

Check Marine Mammal Interaction and Specimen Forms For:

- The "Comments" block includes: features used in identifications; details of the incident; for specimen data, methods of measuring or sexing; for an animal or specimen, its condition.
- All codes used are correct.
- All specimens have a specimen number and all specimen numbers are unique for the interaction.

Check Marine Mammal Sighting Form For:

- Make sure all the non-shaded boxes are complete, including cruise # and vessel permit.
- Identifying characteristics are described in detail.
- For repeated sightings on the same day, you have at least one sighting form per day.

Small Cetaceans	Large Cetaceans	Pinnipeds
Bow riding-- Animals swim beside the bow or in the bow wave of a moving vessel. **Leaping entirely out of the water**-- Animal jumps fully clear of the surface of the water (as opposed to merely breaking the surface of the water), not for forward locomotion but for other reasons (known only to them). **Porpoising**-- Animal raises its body to be nearly or fully out of the water while traveling forward at a fast rate of speed, usually in a fluid, arching motion. **Rooster-tailing**--Animal surfaces at high speed creating a spray of water in front and over the top of the animal which looks like a rooster's tail. Usually seen only in Dall's porpoise. **Slow rolling**-- Animal comes to the surface to breathe, with the blowhole and dorsal area usually showing, and then rolls back underwater.	**Blow visible from a distance**-- Blow can be seen from more than 500 meters away. Usually only seen in certain large cetaceans. **Breaching**-- Used for larger cetaceans (orca sized and larger). The whale accelerates forward underwater and then jumps free of the water, sometimes fully clearing the water's surface, and then lands on the surface of the water, creating a large splash. **Flipper slapping**-- Whale floats or swims at the surface, turns on its side and slaps one pectoral fin against the water, either once or several times in quick succession. **Group feeding**-- Seen primarily in humpback whales, when they coordinate feeding by lunging out of the water with their mouths open, engulfing fish and water. **Lob-tailing**-- Whale raises its tail flukes up out of the water and slaps them down against the surface with great force. This may occur once or be repeated many times. **Spy-hopping**-- Whale is vertical or upright in the water and raises its head up out of the water, usually with its eye showing. **Tail raised on dive**-- When diving, the whale's entire tail lifts completely above the water before going underwater.  **Side and stern wake riding**-- Whale is riding in the wake created midships along the side of the vessel, or the wake created by the stern.	**Jug handle**-- Seal or sea lion floats on its side with one front flipper and one rear flipper above the water, creating what looks like a handle. **Porpoising**-- Pinniped is swimming fast, jumping at least partially out of the water in fluid, arching motions. This swimming pattern resembles that of dolphins or porpoises seen at a distance. **Rafting**-- A group of pinnipeds resting at the surface together. **Spooked from haulout**-- Pinnipeds which had been resting on beach, rocks or ice, dove into the water due to your vessel's interaction with them. **Vocalizing**-- Pinniped making directed noises at you or at another pinniped.

Figure 14-4: Marine Mammal Behavioral Descriptions

Form 11US

MARINE MAMMAL SIGHTING

NOAA/NMFS/AFSC/NMML
Platforms of Opportunity
7600 Sand Point Way NE
Seattle, WA 98115

Observer(s) JACKSON OBSERVER Vessel FISHNESS IV

year 13 month 05 day 06 local time (24 hr. clock) 12:40

latitude 55° 43.1' N/S N

longitude 171° 26.2' E/W W sighting conditions: [X] faint [ ] good [ ] fair [ ] poor Beaufort 1 +/- water temp. +5.0.3 °C

species (common and/or scientific name) **Please fill out a form for each species** HUMPBACK WHALE confidence: [X] sure [ ] likely [ ] unsure

sighting cue: Saw flipper slap water about 50 m off port

closest approach 50 meters number sighted (best) 1 number (minimum) 1 number (maximum) 1

For Office Use Only

observer

platform vis. species conf.

sighting cue photos roll frames

behaviors, cues and interactions

behaviors, cues and interactions length multi

Narrative

Make identifications only on specific features seen. Mention them here. Include body features, markings and coloration, associated organisms, elaborate on behaviors, etc. The most valuable sightings contain a good amount of detailed information.

Estimated size about 40 ft, dark coloration except for undersides of flukes and flippers. Saw dorsal fin at same time as blow and blow was tall and broad. Whale dove twice in 10 minutes, and on last dive, flukes were visible. At one point, whale slapped water with flipper. Photos taken.

Body Length Estimate

- [ ] < 3 m (< 10')
- [ ] 3–8 m (10–25')
- [ ] 8–16 m (25–50')
- [ ] 16–26 m (50–80')
- [ ] >26 m (>80')

Some common behaviors
(circle these or add your own in narrative section)

Small cetaceans
Bow riding
Leaping entirely out of water
Porpoising (swimming fast, body out of the water)
Rooster-tailing (usually a Dall's porpoise cue)
Slow rolling

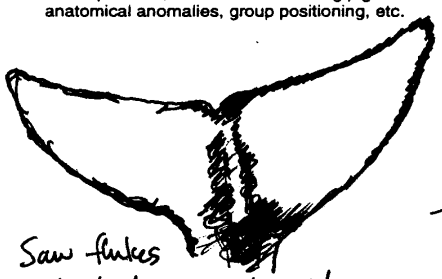
Large cetaceans
Blow visible from a distance
Breaching
Flipper slapping
Group feeding
Lob-tailing
Spy-hopping
Tail raised on dive
Side wake riding
Stern wake riding

Pinnipeds
Jug handle (flippers in air)
Porpoising (swimming fast, at least partially out of the wat
Rafting
Spooked from haulout
Vocalizing

Fishing Interactions ?
Use form 10US

Sketches

When possible, make a sketch noting pigmentation, anatomical features, scarring, posture, anatomical anomalies, group positioning, etc.



Saw flukes on last dive: underside mostly white with black edging.

Relatively small dorsal fin, dark body color.

Photos/Video (optional)
- [X] photographs
- [ ] video

roll/tape # Personal Camera
frame(s) 1-16

- [ ] **Check here if there was more than one species of marine mammal present at this sighting.**

cruise number and vessel code 9263 3120

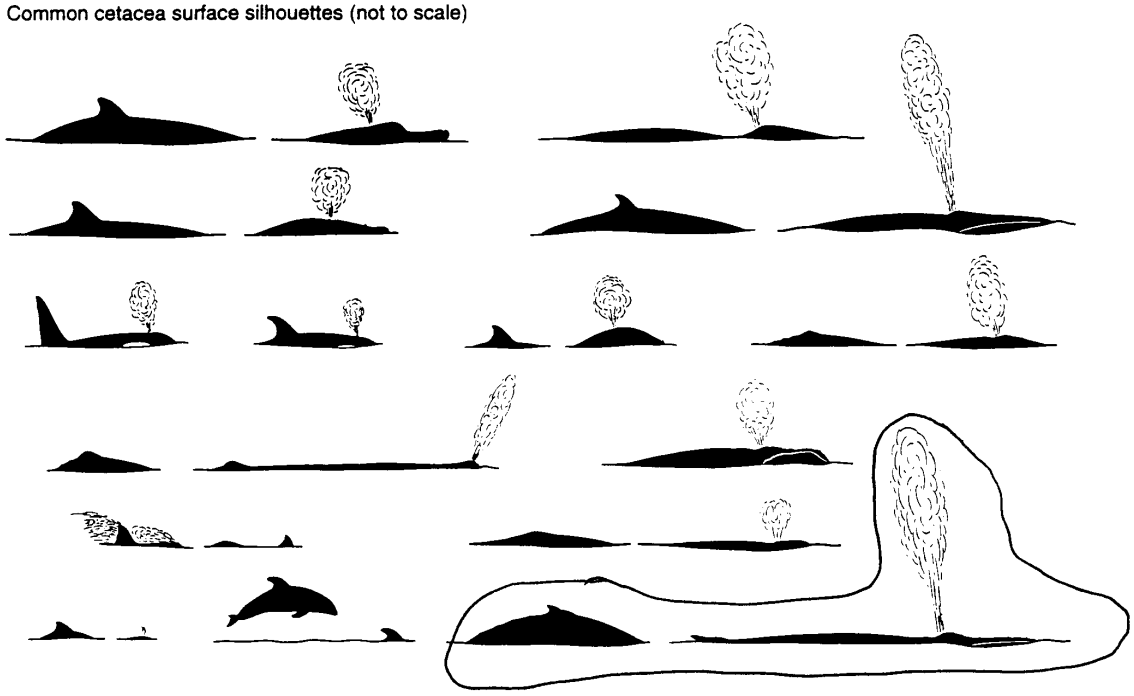
Form 11US: ver. IX.98: Balla, Harkness, Hill, Folkens, Lowell, Mizroch

See silhouettes on other side

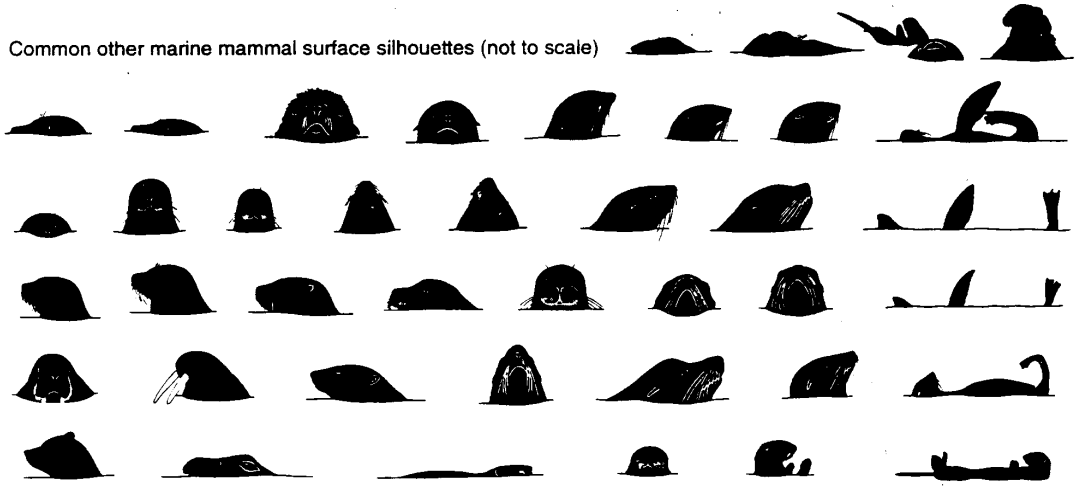
Figure 14-5: Form 11US - Marine Mammal Sighting Form Example (front side)

These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification. **Please circle appropriate silhouette(s).**

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



BEAUFORT SCALE (Sea Condition)		*wind*	*wave height*	
0	glassy, calm	0 , 1 kts	calm	
1	light ripple	1 < 4 kts	light air	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

Figure 14-6: Form 11US - Marine Mammal Sighting Form Example (back side)

Cruise	Permit
17092	4567

Marine Mammal Interaction and Specimen Form

Resubmission (Circle All Changes)

Page 1 of 1

Observer name Paul Glengary Vessel name Oracle

Trip / Haul Offload (circle one)	Interaction Date Month	Interaction Date Day	Species Common Name	Mammal code	Total number of animals observed	Number of animals in interaction	Did you observe mammal?	Interaction code	Condition Code	Deterrence code	Deterrence successful?	Food species	Location during Trip Latitude (N) Deg	Latitude (N) min	Latitude (N) sec	Longitude Deg	Longitude min	Longitude sec	E/W	Specimen Data: Specimen number	Animal number	Specimen type	Sex	Value
13			Dall's Porpoise	PX	5	1	Y	4	1											1	1	1	M	5
																				2	1	6	M	
																				3	1	3	M	
																				4	1	4	M	201
																				5	1	5	M	241

Comments: (see manual for list of required information)

During the retrieval of haul 13, I saw 4-5 Dall's porpoise swimming around the vessel as the net came up. A freshly dead porpoise was caught in the intermediate portion of the pelagic trawl net. There were no visible signs of trauma other than frothy blood in the mouth. The individual was black in color, with white belly and flanks. It had a small stocky body with small flippers and flukes. The animals in the water were making roostertail splashes. Photos and 2 blubber samples taken, 1 frozen, 1 in DMSO.

For condition code 3 was animal injured? YONOUO

Trip / Haul Offload (circle one)	Interaction Date Month	Interaction Date Day	Species Common Name	Mammal code	Total number of animals observed	Number of animals in interaction	Did you observe mammal?	Interaction code	Condition Code	Deterrence code	Deterrence successful?	Food species	Location during Trip Latitude (N) Deg	Latitude (N) min	Latitude (N) sec	Longitude Deg	Longitude min	Longitude sec	E/W	Specimen Data: Specimen number	Animal number	Specimen type	Sex	Value
2	03	15	Steller Sea Lion	EJ	1	1	Y	14	3				53	54	29	166	31	40	W					

Comments: (see manual for list of required information)

While waiting outside port to finish processing before offload, a M. Steller sea lion feasted on the discards from the vessel. Most of the discard was heads and entrails. The animal was large, nearly ten feet long with robust body. It was light brown in color and had a thickened neck with obvious ears and large Susital crest. He fed for about an hour before leaving.

For condition code 3 was animal injured? YON●UO

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division

Page _____ of _____ for transmission

Cr. 08

Figure 14-7: Marine Mammal Interaction and Specimen Form Example

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TAGGED FISH AND CRAB

PRIORITIES

- Identify tagged organism to species.
- Collect pertinent biological data and capture location.
- Complete tagged fish information form.

INTRODUCTION

Fish and crab are tagged for a variety of reasons. Currently there is research being conducted on fish migration, stock separation, fishing related mortality, and population dynamics. These studies are being conducted by the International Pacific Halibut Commission, NMFS, the University of Washington, and the Alaska Department of Fish and Game. Data from tagged fish and crab are vital to the success of these studies and collection by observers data is an excellent way for fishery biologists to receive this information.

When you arrive at a plant or vessel you should inform the crew that externally tagged fish or crab should be saved for you. Emphasize ***to the crew that tags are less useful if they are returned without accompanying information on the capture location and biological attributes (particularly size).*** If vessel or plant personnel give you an external tag or an externally tagged animal, you should write down the person's name and address so they can receive a reward for returning the tag. If you are given just the tag without the animal, collect as much information as possible about the animal. For example, find out what species the tag was from, where it was caught, what haul it was in. Observers cannot collect rewards for tags they submit, so if you find an externally tagged fish or crab in your sample list the captain as the person who found it.

When externally tagged fish or crab are encountered, collect the tag (except from live king crab) and pertinent biological information and record the capture location. Do not interrupt your normal sampling to take this information unless it is convenient. If you are busy completing other tasks put the tagged fish or crab aside and collect the information after your sample is complete. Collecting information from tagged fish or crab does not take precedence over other sampling duties, but is an important part of your job.

Species that have been tagged include Atka mackerel, black rockfish, Pacific cod, Pacific halibut, Pacific sleeper sharks, pollock, sablefish, salmon, shortspine thornyhead, turbot, yellowfin sole, Alaska skates, big skates, and king crab. These species may have an external tag on the dorsal surface or on the gill cover, or they may have an internal tag in the snout of the fish. See "Tagged Fish and Crab Guidelines" on page 15-6.

Tags

Most external tags are "spaghetti" tags and consist of a monofilament strand covered in brightly colored plastic, which is attached to the fish either as a loop or through an anchoring mechanism such as a barbed tip. Tag ID numbers and contact information are usually printed on the tag. On larger individuals, *e.g.*, skates and sharks, tags may not be immediately obvious. Some fish may have other types of tags, such as plastic discs or plates.

Electronic Tags

While spaghetti tags serve only to mark a fish, electronic tags capture data while they are on the fish. Most collect depth and water temperature, providing information about fish behavior and marine environmental conditions. These tags are very expensive and large monetary awards are usually offered for their return. Observers are not eligible for these awards. If you are given one of these tags by a crew member, make sure that you obtain all contact information required on the Tagged Fish and Crab Form!

TAGGED SALMON

Tagged salmon have coded-wire tags embedded into their snouts. Coded-wire tags are about 1 mm in length, have a distinct code (usually a series of slashes at different intervals) engraved in them. ***Salmon with coded-wire tags can be identified by a missing or clipped adipose fin.*** Collect samples from tagged salmon in your species composition or from your genetics samples following these guidelines:

- **Bering Sea pollock catcher processors and motherships -** Collect a Chinook or chum salmon snout from only those tagged Chinook or chum salmon that are selected for genetic samples. Collect snouts from all other tagged salmon species encountered in your salmon census.
- **Pollock catcher vessels** - Collect salmon snouts from ***all tagged*** salmon species ***within*** your species composition samples.
- **Plants receiving pollock deliveries -** Collect a Chinook or chum salmon snout from only those tagged Chinook or chum salmon selected for genetic samples. Collect snouts from all other tagged salmon species encountered in the pollock delivery.
- **All vessels not targeting pollock** - Collect salmon snouts from ***all tagged*** salmon species ***within*** your species composition samples.
- **All observers** - Do not collect information or snouts from tagged salmon found outside of your species composition sample or salmon genetics sample.

For each salmon that meets the above criteria collect a snout and a scale sample to accompany the snout:

- Collect 10 scales, place them in the envelope, and label the envelope as “Snout”(see “Salmon Scale Collection Guidelines” on page 12-9).
- Fill out the scale envelope according to guidelines on page 12-9.
- ***Collect a separate FMA ID scale sample from each salmon snout specimen.***
- Multiple specimens collected from the same salmon must have the same specimen number.

To remove the salmon snout, make a cut one centimeter behind the eye down through the head to the base of the upper jaw. You do not need to include the lower jaw since tags are placed in the upper snout.

Once you have removed the salmon snout, fill out the Bag and Tag Specimen Collection Label and keep it with the snout.

- Check the salmon snout circle and record the specimen number on the label.
- The specimen number must match the specimen number recorded for the snout in your raw data on the Deck Form.

See the Bag and Tag Specimen Collection Label (page 15-3) example for how to complete the label.

Do not fill out a Tagged Fish and Crab Form for tagged salmon. The “Bag and Tag Specimen Collection Label." replaces the Tagged Fish and Crab Form.

Place the snout and Bag and Tag Specimen Collection Label in one of the bags you were issued and put several handfuls of table or rock salt in the bag. Ensure the snout is immersed in salt. Clip or attach the snout scale sample envelope to the outside of the bag and ensure that it will stay dry. Periodically, drain off any liquid that accumulates in the bag and replace the salt. If no salt can be found, freeze the snout.

Remember to get frozen snouts out of the freezer before you disembark.

Bag and Tag Specimen Collection Label

Cruise	Permit	Haul No.	Offload No.	Sample No.	S-Sample No
15242	2053		14		

⊗ Lead ○ Second ○ Sole — Lead Cruise No. If Second Observer:

Species Code: 222 — Species Name: Chinook Salmon

Reason for Collection

Other (Please Comment) ○ — ID Verification ○ — Out of Range ○ — Training Specimen ○ — Salmon Snout ⊗

Comments: — Specimen No. 12 (Required for Salmon Snouts)

The Bag and Tag Specimen Collection Label is also used for other specimen collections; see page 2-10.

Recording Tagged Salmon Data on the Length and Specimen Form

Raw biological data from your tagged salmon are recorded on your Deck Form. Salmon snouts are recorded as specimen type 11 - Other Tissue.

- Record the specimen's length and weight on the Length and Specimen Form as specimen code 3 - Length/Weight.
- The specimen type 11 - Other Tissue (snout) must be recorded with the same specimen number as its corresponding Length/Weight specimen.
- Record a weight of 0.00 kg with your snout collection (specimen type 11 - Other Tissue).
- The scale sample taken to accompany the salmon snout is ***not*** entered on the Length and Specimen Form.
- The tagged snouts and accompanying scale samples are turned in together at debriefing.

See "Example of Expected Documentation for Prohibited Species Biological Data Collections" on page 12-18 for an example of how to record these data on a Deck Form. and "Examples of Prohibited Species Biological Data Reported at the Appropriate Level for CV" on page 12-21 for an example of tag data recorded on the Length and Specimen Form.

TAGGED CRAB

King crab are tagged with external spaghetti tags which are found in between the abdominal flap and the posterior edge of the carapace. If you find a live tagged king crab, record the pertinent information, but do not remove the tag. King crab should be released with the tag intact so they can be captured and identified again. If you find a dead king crab, remove the tag and return it to NMFS with the pertinent information.

TAGGED FISH AND CRAB FORM INSTRUCTIONS

Complete a Tagged Fish and Crab form for every tag that you find or is given to you. Do not complete this form for salmon snout specimens. Complete as much information as possible, and remember that capture location and size are critical pieces of information. If a crew member gives you only a tag (instead of the fish), ask them for the information needed. Any information that can be used to estimate a capture location is valuable (even if it is a very rough estimate, such as a NMFS statistical area). Be clear and concise in your descriptions, and affix the tag to the form. Remember to include the tag serial number on the form. Often, tags are lost in processing and without a copy of this information, the rest of the data on the form are useless. ***Otoliths from tagged fish that are found outside of your sample do not get entered into ATLAS or recorded on the paper Length and Specimen Form***.

Cruise Number, Vessel/Plant Permit, Haul/Offload Number, Gear Type: Cruise numbers are issued during training or briefing. Tagged specimens should be recorded under the lead observer's cruise number. Vessel/plant permits are listed on page A-27. Enter the haul or offload number from which the tagged fish was found. Enter the gear type for the vessel.

Observer Name and Vessel/Plant Name: Write your full name and the name of the vessel on the lines provided at the top of the form.Tagged specimens should be recorded with the lead observer's name.

Reward Recipients Name and Shipment Address: The recipient's name and address are important fields on this form. Tagging agencies provide incentive gifts such as hats and t-shirts to encourage participation in these programs. Most programs using electronic tags offer monetary reward. The recipient's address should be a permanent address, not the address of a processing plant. Tag rewards are often sent 3-6 months after you turn in the paperwork!

Species and Tag Prefix Number: Enter the species name for the tagged fish and record the numbers (if readable) on the tag.

Captains Signature and Printed name: Ask the captain to sign and print his name. If the captain does not want to provide a signature, the FMA may not be able to release the tag and associated data to the tagging agency.

Date of Capture, Time of Capture, Depth, Capture Location, NMFS area, Source of Information: Record capture information to the best of your ability. If you found the tag during the sample, this information can be taken from the vessel logbook and your haul forms. If the tag was found by a crew member you may be able to use to the logbook information if the tag was a recent discovery. However, it is common for crew to give an observer tags encountered during unobserved trips. In these situations any information the crew can provide is beneficial to the data user.

Sex, Gonad Maturity, Length, Weight, General Appearance, Condition of Tagging Wound, Comments: If you have the fish in hand, record this information. Determining the maturity level is subjective. A spawning fish will release eggs or sperm when squeezed. A mature fish will have gonads that are easily observed and have substance, whereas immature gonads may be hard to distinguish from other organs. If you were given only the tag and did not have a chance to examine the fish record this in the comments section.

Tag and Otolith Vial: Remove the otoliths and tape the vial to the fish form along with the tag. If the tagged fish was a randomly selected otolith specimen the otoliths should stay with the data set and not be included with the tag. Record only the vial number instead. ***Otoliths from tagged fish that are found outside of your sample do not get entered into ATLAS or recorded on the paper Length and Specimen Form.***

Tagged Fish and Crab Form

Cruise No.	Vessel / Plant Permit	Haul / Offload No.	Gear Type
26420	12345	Haul 14	8 - longline catcher

Observer Name: WALLY OBSERVER

Vessel / Plant Name: FISHY II

Reward Recipient's Name: JOHN J. SKIPPER
(Vessel or Plant Personnel)

Reward Shipment Address: 555 W. 55TH AVE
ANCHORAGE, AK.
99513

Species: SABLEFISH Tag Prefix and Serial No.: BC96222726
(e.g. PCA 00392)

I authorize NMFS to provide this form and the tag to the tagging Country/Agency

John J. Skipper
(Captain/Owner Signature)

John J. Skipper
(Captain/Owner Printed Name)

Date of Capture: 03-22-13 Time of Capture: 1430 Depth (F): 280

Capture Location: Latitude (N): 53°39.55' Longitude: 164°34.61' E/(W)

NMFS or ADF&G Area: _____ (if Latitude / Longitude is unknown)

Source of Capture Information: Vessel log
(e.g. vessel log, navigation equipment, crew member, plant personnel, etc.)

Sex: MALE Gonad Maturity (immature, mature, spawning) MATURE

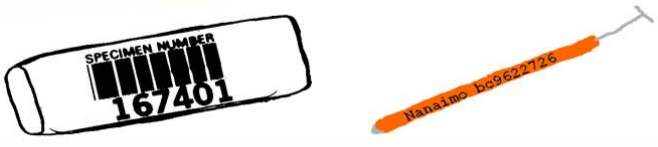
Length (cm): 71 Weight (kg): 3.8

General Appearance (poor body condition, good body condition): good body condition

Condition of Tagging Wound (healthy healed tissue, open wound): open w/ no infection

Other Comments: only one otolith recovered, vial # 167401

Tape tag and otolith vial here:



National Marine Fisheries Service / North Pacific Groundfish Observer Program Rev. 2009

Figure 15-1: Tagged Fish and Crab Form (example)

Halibut

If fish is alive:

- remove tag
- measure fish
- weigh fish if possible
- note body condition
- note condition of tagging wound
- complete Tagged Fish and Crab Form

If fish is dead:

- remove tag
- measure fish
- weigh fish if possible
- collect otoliths, determine sex
- note body condition
- note condition of tagging wound
- complete Tagged Fish and Crab Form

Salmon

If fish is alive or dead:

- collect data from tagged salmon as outlined on page 15-2.
- measure fish
- weigh fish
- collect scales (see “Scale Sample Protocols” on page 12-9)
- determine sex
- collect salmon snout
- complete a Bag and Tag Specimen Collection Label and place it in bag with snout

King Crab

If crab is alive:

- ***do not remove tag***
- write down tag number
- measure crab
- weigh crab
- determine sex
- determine condition
- release crab
- complete Tagged Fish and Crab Form

If crab is dead:

- remove tag
- measure crab
- weight crab
- determine sex
- complete Tagged Fish and Crab Form

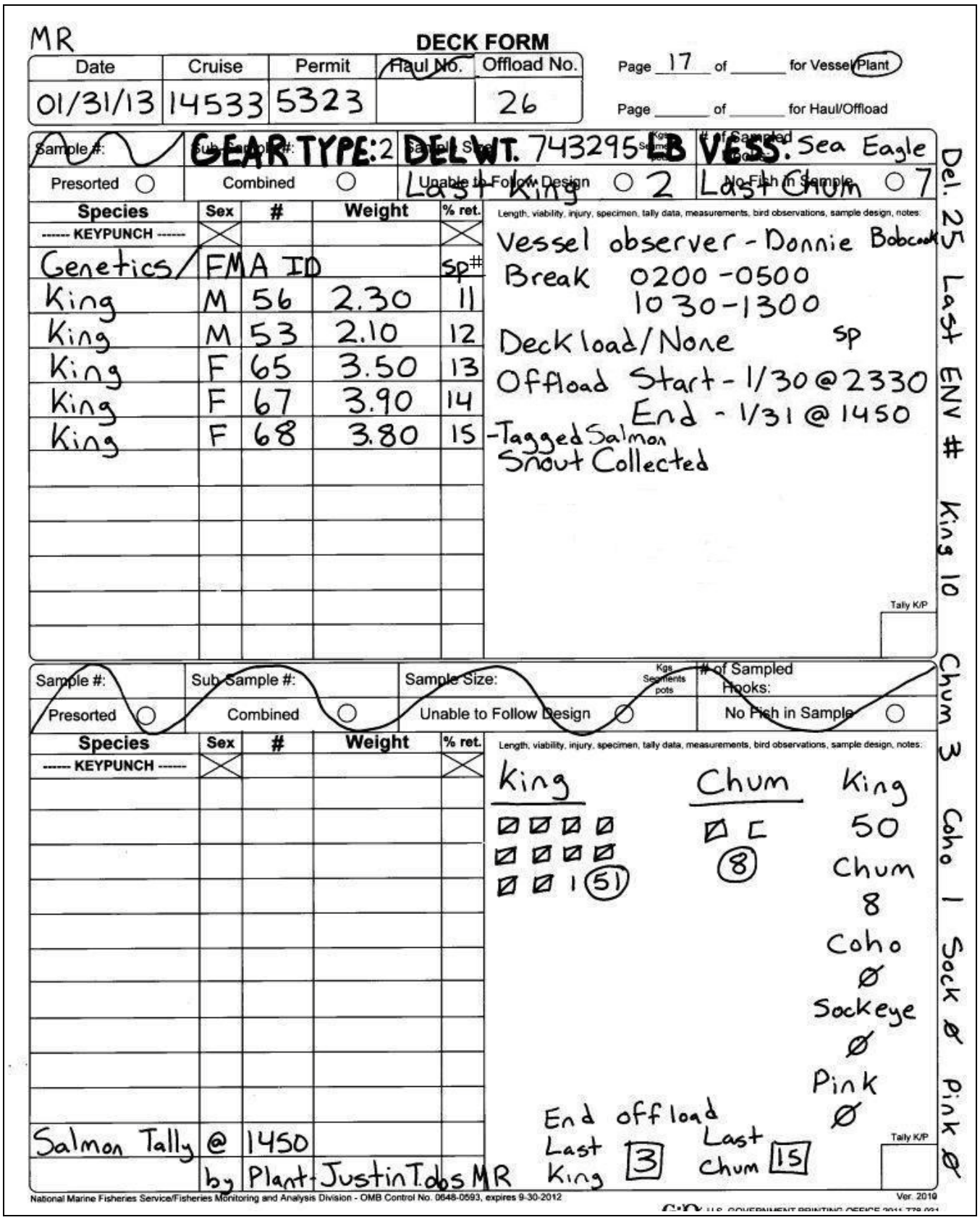
All Other Tagged Roundfish and Flatfish (alive or dead)

- remove tag
- measure fish
- weigh fish
- collect otoliths
- determine sex
- note body condition
- note condition of tagging wound
- complete the Tagged Fish and Crab Form

Sharks and Skates (alive or dead)

- remove tag
- record recovery location
- determine sex (sharks and skates are sexually dimorphic; gender can be determined by external features)
- note condition of tagging wound
- complete Tagged Fish and Crab Form

Figure 15-2: Tagged Fish and Crab Guidelines



MR

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
01/31/13	14533	5323		26

Page 17 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

Sample #: | Sub Sample #: GEAR TYPE: 2 | Sample Size: DELWT. 743295 LB | # of Sampled Hooks: VESS. Sea Eagle

Presorted ○ | Combined ○ | Unable to Follow Design ○ Last King 2 | No Fish in Sample ○ Last Chum 7

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				
Genetics / FMA ID				sp#
King	M	56	2.30	11
King	M	53	2.10	12
King	F	65	3.50	13
King	F	67	3.90	14
King	F	68	3.80	15

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Vessel observer - Donnie Babcock
Break 0200 - 0500
1030 - 1300
Deckload / None sp
Offload Start - 1/30 @ 2330
End - 1/31 @ 1450
- Tagged Salmon Snout Collected

Tally K/P

Del. 25 Last ENV # King 10 Chum 3 Coho 1 Sock Ø Pink Ø

Sample #: | Sub Sample #: | Sample Size: | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------				
Salmon Tally	@	1450		
	by	Plant - Justin T. obs MR		

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

King: ☑☑☑☑ ☑☑☑☑ ☑☑1 (51)

Chum: ☑☐ (8)

King 50
Chum 8
Coho Ø
Sockeye Ø
Pink Ø

End offload
Last King 3
Last Chum 15

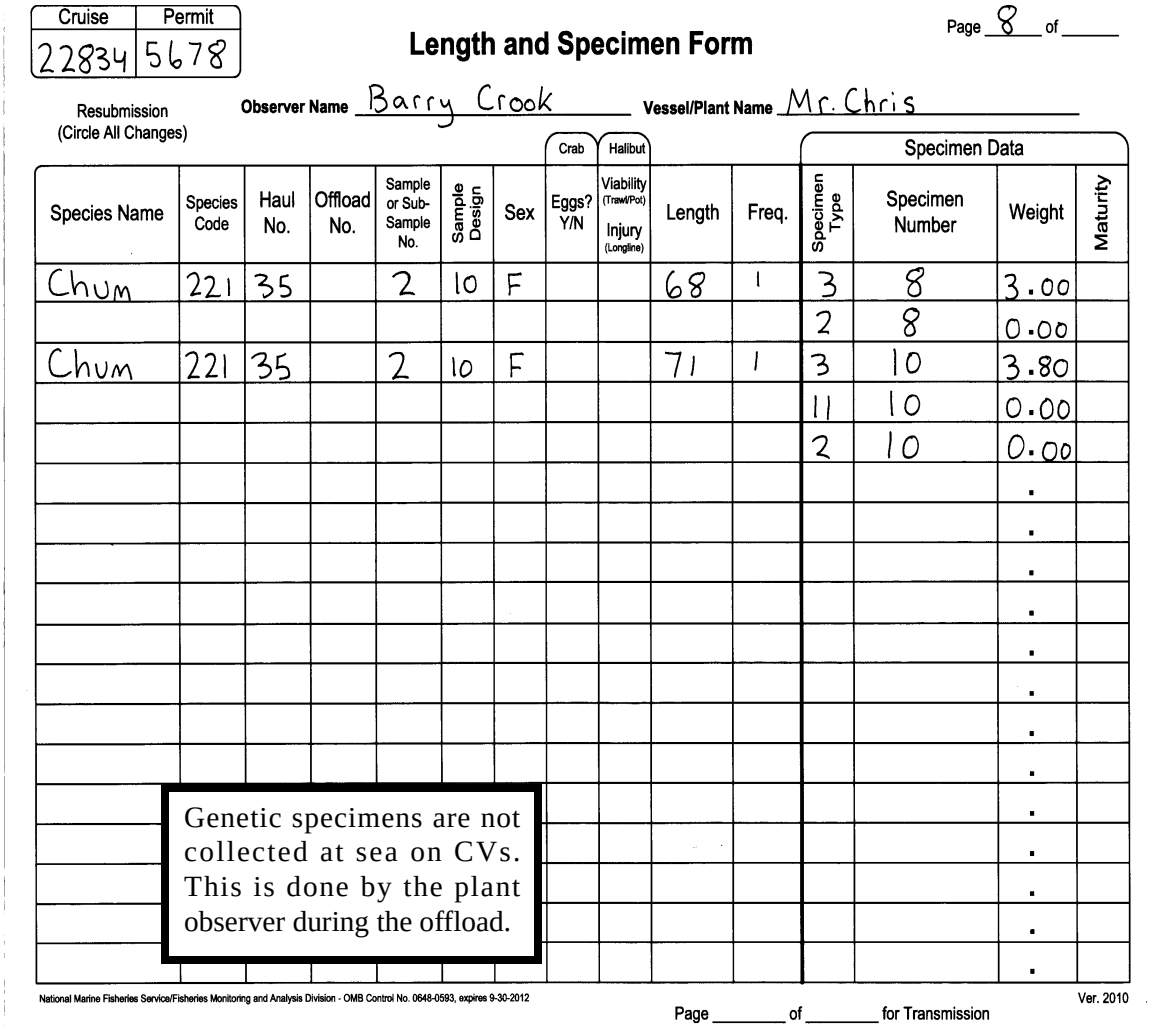
Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Ver. 2010

U.S. GOVERNMENT PRINTING OFFICE 2011-778-021

Figure 15-3: Example of a Pollock Offload with a Tagged Salmon



Cruise	Permit
22834	5678

Length and Specimen Form

Page 8 of _____

Resubmission (Circle All Changes)

Observer Name Barry Crook **Vessel/Plant Name** Mr. Chris

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab: Eggs? Y/N	Halibut: Viability (Trawl/Pot) / Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Chum	221	35		2	10	F			68	1	3	8	3.00	
											2	8	0.00	
Chum	221	35		2	10	F			71	1	3	10	3.80	
											11	10	0.00	
											2	10	0.00	
													.	
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Genetic specimens are not collected at sea on CVs. This is done by the plant observer during the offload.

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Page _____ of _____ for Transmission

Ver. 2010

Figure 15-4: Example of Paper Form from a Catcher Vessel with Tagged Salmon in the at sea species composition sample

BIRD SIGHTINGS AND INTERACTIONS

Table of Contents

PRIORITIES

- Record takes of short-tailed albatross, red-legged kittiwakes, Steller's and spectacled eiders, and marbled and Kittlitz's murrelets.
- Make every reasonable effort to rehabilitate injured short-tailed albatross and other species of interest.
- Collect all seabird specimens except for the large gulls. Collect all dead endangered and/or "species of interest" seabirds and all banded or tagged birds.
- Record all takes and collect all birds inside your species composition sample.
- Record takes and collect all dead banded and tagged birds.
- Record sightings of species of interest.
- Record other seabird mortality.

INTRODUCTION

Seabirds in Alaska are managed by the U.S. Fish and Wildlife Service (USFWS), under the authority of the Endangered Species Act (ESA) and the Migratory Bird Treaty Act (MBTA). The National Marine Fisheries Service and the USFWS cooperate to obtain information on the mortality of birds in groundfish fisheries in the Gulf of Alaska and the Bering Sea. Of special interest are six species whose populations are very small, or are declining, referred to here as "species of interest."

Endangered and threatened species status are federal designations of populations that may become extinct if steps are not taken to ensure their continued existence. Among the species of interest, the short-tailed albatross is endangered and the Steller's and spectacled eiders are threatened throughout their ranges.

In addition to recording incidental take, you may have the opportunity to record sightings of species of interest, report leg bands found on dead birds, document collisions of birds with the vessel superstructure, and report the methods vessels are using to reduce seabird bycatch. The collection of information on incidental takes of birds is critical, and is accomplished as part of your species composition sampling. Information on species of interest is also of high priority. All other bird duties are of low priority but the data are valuable if they can be collected.

Observer data are crucial for the management of seabirds by the USFWS. Observer collected data are provided to the USFWS by NMFS for their review and analysis. NOAA Fisheries also analyzes your data each year and completes estimates of total seabird incidental take by species. These data are reported annually to the North Pacific Fisheries Management Council through the Ecosystem Chapter of the Stock Assessment and Fishery Evaluation (SAFE) report and through other venues to make the data readily available to managers, scientists, the fishing industry and the environmental community.

SPECIES OF INTEREST

The six species of interest fall into four groups of marine birds: albatross, kittiwakes, murrelets and eiders. Reliable and accurate identification, to the species level where possible, is the goal for birds in these groups. In addition, there are special requirements for the endangered or threatened bird species.

The "species of interest" are: short-tailed albatross, red-legged kittiwake, Steller's eider, spectacled eider, marbled murrelet and Kittlitz's murrelet.

Albatross

Three species of albatrosses occur in Alaskan waters: Laysan, black-footed, and short-tailed. The short-tailed albatross is an endangered species. The 2008 the worldwide population estimate was approximately 2,400 short-tailed albatross. In 2001, the population estimates were approximately 2.3 million Laysan and 250,000 black-footed albatross. Observers are required, under the Endangered Species Act (ESA), to report all short-tailed albatross takes and to save all dead individuals for return to NMFS. You must report ***any*** catches of short-tailed albatross, not only those in your species composition sample. If you are at all unsure about your identification, ***bring the specimen back*** and experts at NMFS and the USFWS will determine the identification. Follow the procedures for collecting specimens on page 16-4. If you cannot bring back the entire carcass, ***bring back at least the head!*** In the rare event of a take of a short-tailed albatross by your vessel additional information should be included on the Bird Interaction, Activity, and Species Form (see "Short-Tailed Albatross Incidental Take Information" on page 16-14).

The current ESA Biological Opinion allows for four short-tailed albatross mortalities over a two-year period in the groundfish longline fleet and two short-tailed albatross mortalities over a five year period for trawlers. Industry participants have mistakenly viewed this as a strict quota that, if exceeded, would close the longline fishery. In actuality, if this level of take were to occur, NMFS would initiate consultation with the USFWS. Staff would reevaluate the take limit based on changes in albatross populations, fishing patterns, and other variables. While one possible result would be a fishery closure, other actions are much more likely, such as raising the mortality level or changing seabird avoidance requirements.

Eiders

Four species of eiders occur in Alaskan waters. Two of these species, the spectacled and Steller's eiders, are listed as threatened under the ESA. Although these birds are highly unlikely to be taken by gear, they may strike vessels. Bird strikes and bird storms (numerous strikes in a short time period),

seem to occur in association with bad weather, low ambient light, and the use of bright ship lights. You need to report all bird strikes involving spectacled and Steller's eiders. In addition, the ESA requires that you retain all carcasses that can be recovered. Follow the procedures for collecting specimens on page 16-4.

Murrelets and Kittiwakes

Two species of kittiwakes and three species of murrelets commonly occur in Alaskan waters: black-legged and red-legged kittiwakes; and ancient, marbled, and Kittlitz's murrelets. Red-legged kittiwakes, marbled murrelets, and Kittlitz's murrelets are species of interest because of low or declining populations. Make every effort to identify dead kittiwakes and murrelets to species and, if possible, take photos. Retain marbled and Kittlitz murrelets, red legged kittiwakes, and any unidentified murrelet or kittiwake. Follow the procedures for collecting specimens on page 16-4.

INCIDENTAL TAKE

One hundred million marine birds of over 80 species occur in Alaskan waters. These birds spend most of their lives foraging at sea for small fish, squid, and crustaceans. Birds are attracted to fishing vessels because of the presence of readily available food in the form of offal, discard, and bait. The most likely seabird species to be caught in trawl gear are shearwaters, fulmars, and occasionally alcids (puffins, murres, etc.). The most likely seabird species to be caught in pots are murrelets and murres.

Birds taken during longline operations are attracted to baited hooks when the gear is set; they become hooked at the surface, are dragged underwater and drown. Other times they get hooked on the line as the gear is retrieved. If any bird comes up on a hook during sampling, regardless of when or how it was hooked, it is considered "caught" and must be included in the species composition sample. The most likely species to be caught in longline gear are northern fulmars and gulls, which constitute more than 70% of bird bycatch. The albatross species and dark shearwaters are also taken regularly, although in much lower numbers. Unidentified seabirds make up the third largest category behind fulmars and gulls.

SAFE BIRD HANDLING

Always wear heavy gloves when handling live or dead birds. Birds may carry diseases transmissible to humans. Wash your hands thoroughly after handling a bird.

All birds have sharp beaks and strong jaws that can cause serious injury. Along with wearing gloves to protect your hands, take care to protect your eyes when handling live birds. Hold the live bird at waist level to protect your face and wear safety glasses if possible. See "Seabird Handling Safety" on page A-73 for additional information.

INJURED BIRDS

In most cases the best course of action is to end the birds suffering by following the procedures for euthanizing seabirds (see "Protocols for Handling Injured or Sick Seabirds" on page A-73). It is your option to euthanize the bird and collect it as a specimen, attempt rehabilitation, or return the bird to the sea. ***Rehabilitating short-tailed albatross and other species of interest is a top priority. These are the only species that should be rehabilitated.***

DEAD BIRD IDENTIFICATION

Identification of marine birds in the Gulf of Alaska and Bering Sea is not easy - some closely-related species are virtually indistinguishable. The beached birds guide provided to you is a key developed specifically to identify dead seabirds in hand. This guide relies on the characteristics of the bill and feet, rather than plumage, which is often in a state of disarray.

Observers are asked to identify birds to the species level where possible. This is crucial for species of interest and those species that could be confused with species of interest (*e.g.*, black-footed and Laysan albatross). In cases where you do not feel comfortable with your identification, use the appropriate species group. For example, you will not be able to identify immature gulls to species and should instead use the group code for "unidentified gull."

Identifying Dead Birds

- With the seabird in hand, use the *Beached Birds: A COASST Field Guide* to identify the bird to the species level where possible.

- At a minimum, attempt to identify albatross, eiders, murrelets, and kittiwakes to species.
- If you cannot identify a bird to species, do not guess! Key it to the highest taxonomic group to which you are confident.
- Identify gulls, dark shearwaters, and murres to group - *e.g.*, gull unid., dark shearwater unid., and murre unidentified.
- If the bird is a species of interest, or an unidentified albatross, eider, murrelet or kittiwake, follow the "Tag and Bag Procedures for Retained Seabird Specimens" on page 16-4.
- Retain banded or tagged seabirds, following the "Tag and Bag Procedures for Retained Seabird Specimens" on page 16-4.
- Complete a Seabird Species Identification Form for all new species seen, for ***every*** species of interest encountered, and for any unidentified seabird.
- Optional: take photos of a dead seabird with a personal camera, supplemental to completing a species ID form.

SPECIES COMPOSITION

Crewmen may try to throw birds overboard as quickly as possible, as there is a superstition that dead birds on a vessel are bad luck. ***Be sure to ask the crew to save all birds for you regardless of whether or not you are sampling.*** Additionally, many longline fishers are concerned that catching a short-tailed albatross may close their fishery thus providing an incentive for not reporting these birds. You must report any bird that lands in your composition samples and you should alert the crew to this fact. For more information on how the Endangered Species Act affects fisheries, see page 16-2.

What To Do with Birds in your Samples

In addition to completing the steps outlined in the "Identifying Dead Birds" section, gather the following information on birds inside your composition samples.

1. Drain as much water as possible from the carcass prior to weighing the bird(s). Weigh short-tailed albatross individually. Other species may be weighed individually or in groups by species.

Birds are much lighter than they appear. Weights over 5 kg are extremely doubtful!

2. Look for leg bands, nasal tags, and radio tags. If the bird has any of these, See "Banded Birds" on 16-8.

3. Record species, number, and weight information on the Deck Form.

4. For birds that drop off longline gear or are thrown overboard before you have a chance to weigh them, identify them as closely as you can and enter a zero in the weight column for that individual.

5. If you see an albatross fall off the gear or thrown overboard and cannot positively identify it, you ***must send a text message or call the field office as soon as possible***. Document all circumstances and details associated with the drop-off or discard in your logbook Daily Notes. Report the event via ATLAS and on the Bird Interaction, Activity and Species Form.

6. ***Collect bird specimens except the common large gull species, such as Herring gull, Glaucus gull, and Glaucus-winged gull.*** Juveniles of large gulls, even though they are unidentified, also do not need to be collected. If you think you have a unique specimen, please collect it. Collect kittiwakes and any other small gulls.

Takes of unidentified albatross or short-tailed albatross must be reported to NMFS as soon as possible. Due to the sensitive nature of an albatross take, do not report via radio!

TAG AND BAG PROCEDURES FOR RETAINED SEABIRD SPECIMENS

Seabird specimens are of high scientific value. NMFS requests that you save all dead seabirds from your cruise following the species guidelines in bullet 6 above. Collect birds whether or not they were from inside your sample. These specimens provide critical information such as geographic range, genetic make-up, age, sex, reproductive condition, food habits, and occurrence of marine plastics to a variety of data requestors, including museums, universities and government agencies.

Most cruises do not have bird mortalities. When bird mortalities occur, usually only one or two birds are taken. If you experience high seabird bycatch, general

priorities are to collect all albatrosses, banded/tagged birds, or birds of special interest. If you cannot collect all other birds collect a representative sample of the species that occur over time and areas.

Do not collect common large gull species, such as Herring gull, Glaucus gull, and Glaucus-winged gull. Juveniles of large gulls, even though they are unidentified, also do not need to be collected. If you feel you have a unique specimen, please collect it. Collect kittiwakes and any other small gulls. Please contact your inseason advisor for direction on which species to retain if you are experiencing high seabird bycatch. Follow the instructions below for retaining seabird specimens:

1. Stuff the mouth and throat of the bird with absorbent material (paper towels, cotton balls, etc.) and secure the beak closed.

2. Place the bird in a plastic bag.

3. For each specimen, complete a Tag and Bag Specimen Label. Be sure to record the following information on the tag: cruise number, vessel permit, haul number, species code, species name, and sample number if applicable. Include any other pertinent information in the comments field. If the specimen is not associated with a specific haul or offload, enter the best location information (latitude/longitude or port) available to you. Specimen information on the Tag and Bag Specimen Label must match corresponding information on the Bird Specimen and Tag Information Form.

4. Place tag in the bag and close the bag securely. Place this bag in a second bag and close tightly.

5. Make tag visible from outside the bag.

6. Place double-bagged bird in the freezer.

7. Remember to retrieve the bird specimen when you reach port and take it to a NMFS office!

8. If you are collecting a specimen of a species of interest or an unidentified albatross, eider, murrelet, or kittiwake, ***notify NMFS staff as soon as possible.***

NMFS has provided you with a bird specimen collection permit from the USFWS.

SEABIRD AVOIDANCE INITIATIVES

In 1997, NMFS put into law the requirement that specified longline groundfish fishing vessels must use measures to avoid seabird bycatch. These steps were necessary to mitigate longline fishery interactions with the endangered short-tailed albatross and other seabird species. NMFS revised and improved these regulations based on research work completed in 1999 and 2000, and changes to seabird avoidance measures were implemented in February 2004. The regulations require that vessels over 55 feet in length overall (LOA) using hook-and-line gear in the BSAI/GOA groundfish or Pacific halibut fishery must use the following avoidance measures:

- Paired streamer lines of specified performance and materials standards must be used. The regulations allow for single or no streamer lines to be used only in the case of severe weather.
- Stop directed discharge (through chutes, pipes or other similar devices) of residual bait or offal from the stern of the vessel while setting gear.
- If offal is discharged while gear is being hauled, it must be in a manner which detracts seabirds from baited hooks - either aft of, or on the opposite side of, the hauling station.
- Prior to offal discharge, embedded hooks must be removed from offal.

The Seabird Avoidance regulations listed here have been summarized. The complete regulatory requirements can be found in the Code of Federal Regulations at 50 CFR 679.24. Refer to supplemental information provided by the FMA observer program for documenting Seabird Avoidance measures required for hook and line vessels under 55 feet LOA.

Monitoring Avoidance Measures

One of an observer's duties aboard longline vessels is to monitor and record the types of seabird avoidance gear your vessel is using. Check the gear setting operations and record what type of seabird avoidance gear is being used for as many sets as possible. For more information on how to record this information on the Observer Haul Form, see page 7-17.

A summary of seabird avoidance gear and performance standards begins on page 20-15. ***You are not asked to actually measure performance standards.*** You ***are*** asked to document whether the vessel is in compliance with meeting requirements to deploy streamer lines while setting their gear. You can best do this simply through a spot check of as many sets as possible, noting the number of streamer lines. There typically should be two but vessels can deploy either one or none depending on wind conditions. Refer to the Beaufort Sea State descriptions on page 16-7 to code wind conditions. Document obvious deficiencies of seabird avoidance gear and differences between the seabird avoidance gear recorded in the vessel logbook and what you observe in the Daily Notes. If your observation of the gear differs from what is recorded in the logbook talk with the captain. Document any explanations the captain provides for why avoidance measures were not followed. Follow the instructions "Steps to Take if You Suspect a Violation" on page 20-2.

REDUCING SEABIRD BYCATCH

Observers can play an important role in helping captains reduce seabird bycatch. An easy way to accomplish this is to let the captain know if you encounter seabird bycatch during your regular sampling duties. He may make adjustments to his seabird avoidance gear based on this information. This type of immediate feedback, if the captain is amenable, can be a good measure of performance of the seabird avoidance gear. If you have previously worked on a vessel that had effective seabird avoidance gear, you may assist other fishers by making recommendations based on your experience.

OTHER SEABIRD INTERACTIONS AND MORTALITY

Not all incidental seabird mortality is caused by fishing gear interactions. Seabirds may be killed or injured by colliding with fishing vessels or parts thereof. Report such incidents using ATLAS or on the Bird Interaction, Activity and Species Forms and/or Bird Specimen and Tag Information Forms.

Vessel Strikes

Incidents of vessel strikes range from the occasional bird found on deck to flocks of birds hitting the ship, referred to as "bird storms." It appears that birds hit the vessel because they become confused, primarily at night during inclement weather, and when bright lights are being used.

Seabird Interactions with Trawl Gear

On trawlers, observers have reported seeing birds strike the third wire cables, main cables or become entangled in the net wings. The third wire cables are part of the trawl sonar system that consists of a unit, often called the suitcase, attached to the headrope. The suitcase sends signals to the vessel via the third wire cable. Seabirds, attracted to a stream of offal or discard, may collide with this cable. Observers have reported some birds being seriously injured from this. Collisions have been observed during both day and night. Some observers have documented dead birds wrapped around this cable near the suitcase.

Because of the potential for trawl gear interactions with short-tailed albatross, as well as other seabirds, NMFS and USFWS are interested in information regarding the magnitude of this problem. If you are on deck during gear retrieval, please check for seabirds wrapped around the third wire, main wire or caught in the net wings. Record these mortalities on the Deck Forms and enter them in ATLAS or on the Bird Interaction, Activity and Species Forms and/or Bird Specimen and Tag Information Forms.

DOCUMENTING SEABIRD INTERACTIONS

All bird strikes and other mortalities from interactions with gear (in and outside of your samples) that you are aware of should be reported, whether the haul was sampled or not. Record as much detailed information as possible about the interaction on your Deck Forms and report the interaction via ATLAS or the Bird Interaction, Activity, and Species Form (both for short-tailed albatross). If necessary, record any additional or clarifying information in the Daily Notes of your logbook.

Code	Knots	Air	Sea Description	Code	Knots	Air	Sea Description
0	0	Calm Air	Sea like a mirror	7	28-33	Near Gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks in the direction of the wind.
1	1-3	Light Air	Ripples with the appearance of scales are formed, without foam crests.	8	34-40	Gale	Moderately high waves of greater length; the foam is blown in well-marked streaks along the direction of the wind.
2	4-6	Light Breeze	Small wavelets, still short, but more pronounced, crests have a glassy appearance but do not break.	9	41-47	Strong Gale	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble, and roll over; spray may affect visibility.
3	7-10	Gentle Wind	Large wavelets; crests may break, scattered white caps.	10	48-55	Storm	Very high waves with long overhanging crests; the resulting foam is blown in dense white streaks along the direction of the wind; on the whole, the sea surface takes a white appearance; visibility affected.
4	11-16	Moderate	Small waves, becoming longer, fairly frequent white caps	11	56-63	Violent Storm	Exceptionally high waves, the sea is completely covered with long white patches of foam lying along the direction of the wind; all edges of the wave crests are blown into froth; visibility affected.
5	17-21	Fresh Wind	Moderate waves, taking a more pronounced long form; many white caps are formed (chance of some spray.	12	64+	Hurricane	The air is filled with foam and spray; sea completely white with driving sprays; visibility very seriously affected.
6	22-27	Strong Wind	Large waves begin to form; the white foam crests are more extensive everywhere (probably some spray)	99		Unknown	Use this code if you do not know the sea state condition at the time of the event.

Figure 16-1: Beaufort Sea State Descriptions

You may pass along information on effective seabird avoidance gear, but protect the privacy of other vessels! Do not give vessel names or fishing operation information.

Thoroughly wet birds cannot fly or keep themselves warm! To rehabilitate these birds, see the protocols on page A-73. Please note that rehabilitating seabirds should only be done for short-tailed albatross and other birds of interest. You ***must*** retain the bird specimen if the birds are dead and are unidentified albatross, short-tailed albatross, spectacled or Steller's eider, or are banded or tagged. The program requests that you save all dead seabirds except for large gulls (see page 16-4) from your cruise, but if this is not possible, collect carcasses of other species of interest such as murrelets, and red-legged kittiwakes; also collect Laysan and black-footed albatross.

Intentional killing or maiming of seabirds sometimes occurs. If you see this, record the details in the Daily Notes section of your logbook with all necessary information. This includes date, location, species, numbers, vessel name, crew members involved in the incident, and any other pertinent information. As with other violations, you must let the captain know at least once that you witnessed this violation. This will give him the opportunity to correct the behavior in the future.

BANDED BIRDS

Internationally, over one million birds are banded by government and scientific research institutions. Information from recovered bands are an important data source used in the management of migratory birds. The Bird Banding Laboratory (BBL) of the U.S. Geological Survey and the Banding Office of the Canadian Wildlife Service jointly manage the bird banding program in North America. Analysis of banding data allows calculation of important population parameters.

A tremendous cost is associated with banding efforts and only a small percentage of bands are ever recovered. Reporting recovered bands is extremely helpful to these researchers. Record any tagged or banded birds on your Deck Form and report the event via ATLAS or the paper forms (see Figure 16-4 on page 16-18 and see Figure 16-5 on page 16-19). Always include the complete tag or band number, colors and configuration of plastic bands, and which leg each band was on.

If the bird is dead, label and freeze it. If this is not feasible, remove the tag or band and return it to NMFS. The tag or band is used to determine rates of wear and other information that contributes to data analysis. ***Even if you cannot retain the bird specimen or bands, record all pertinent data on your Deck Forms and send via ATLAS or the fax paper forms.***

If the bird is alive, do not remove the band. Record the complete tag or band number, colors and configuration of plastic bands, which leg each band was on, and the position and date of capture, prior to releasing the bird.

Remember to take precautions to safely handle birds; see "Seabird Handling Safety" on page A-73.

SIGHTINGS OF SPECIES OF INTEREST

In the course of fulfilling your duties, you will see many birds gathered around the vessel. The distributions of a few species are poorly known, and records of sightings are valuable. ***It is very important that you record sightings of short-tailed albatross.*** Sightings of the other species of interest are also valuable to marine ornithologists. Steller's eiders are commonly seen near ports and do not need to be reported when spotted there.

Record each sighting on the Bird Interaction, Activity, and Species Form or via ATLAS. Each sighting should be recorded as an individual event and therefore, will have a unique event number. ***A sighting may involve multiple birds doing different activities.*** When there is more than one bird, record the activity you observed the majority of the birds doing during the event. For example, if during the same sighting you see two short-tailed albatross on the water and one in the air record this as one event with three birds and record the bird location as code 2 - Water. The other observed activities are recorded in the comments section of the form. Data for individual species in the event should be similarly recorded. ***Observers do not need to log sightings of non-sensitive species of birds (such as fulmars and gulls).***

RECORDING BIRD DATA

All seabird interaction, specimen, and species of interest sightings data must be transmitted via ATLAS or faxed using the paper forms. ***If you have an interaction with a short-tailed albatross you must fill out all bird forms, even on an boat with ATLAS.*** On boats with ATLAS, paper bird forms are ***required for short-tailed albatross*** but not for other species. For short-tailed albatross takes please also complete the "Short-Tailed Albatross Incidental Take Information" on page 16-14. ***All raw data must be recorded on the Deck Forms*** (see Figure 16-6). Instructions for entering bird data in the Bird Data Form in Atlas start on page 18-17.

Completing the Bird Interaction, Activity and Species Form

The Bird Interaction, Activity and Species Form should be filled out when:

- You have a sighting of a species of interest or any bird with tags.
- You witnessed a bird interaction or mortality.
- You collected a specimen (either within or outside of your species composition sample).

Each record is based on an event. For data collection purposes, an event for a sighting is when you saw the bird of interest or any bird with tags (Figure 16-2). For an interaction or mortality, an event is the moment the bird ***first*** interacts with the gear or vessel. Below are some examples of how to define an event.

1. On a longliner, the observer is tallying and sees a dead fulmar coming up on the line. The event is when the bird first interacted with the gear and was caught. Most likely, this occurred while the boat was setting the gear.

2. On a longliner, the observer is tallying and notices a gull being hooked as the line is being retrieved. The gull escapes and flies off. The event is when the gull was hooked and though the bird escaped, this event needs to be captured in the Bird Interaction, Activity and Species Form to document the interaction.

3. On a catcher processor trawler, the observer sees a dead fulmar go by on the conveyor belt while sampling. The event is when the bird was caught in the net, not when the observer encounters it while sampling. The event could have happened when the vessel was setting or retrieving the gear or while the net was actively fishing in the water.

4. On a catcher trawler vessel, a crewman collects a dead fulmar that was found in the codend. The crewman gives the bird to the observer and the bird is collected as a specimen. The event is when the fulmar was caught in the codend, not when the crewman gave the bird to the observer.

Each event has a unique event number and an event is comprised of: 1) a Bird Interaction, 2) An Interaction Outcome, and 3) a Species. ***Do not fill out the paper form if you are assigned to an ATLAS vessel unless you are reporting a short-tailed albatross interaction.***

On the paper form, all fields followed by a rectangular box require a numeric code entry (no written descriptions). Fields followed by an oval are check boxes; **check** the oval if it applies to the event and leave it blank if it does not apply. Every event must be recorded on a separate form.

Cruise, Permit, Year: Enter the cruise number supplied in your training or briefing. Vessel permits can be found on page A-27.

Event Number: Enter a unique Event Number for every interaction or sighting. ***The event number should not be duplicated for a vessel.***

Trip, Haul or Offload: A bird event may be recorded from a Trip, Haul or Offload. On the paper form, circle where the event occurred and corresponding trip, haul or offload number.

Observer Name/Vessel Name: Enter your name and the name of the vessel.

"Interaction Description" Tab:

Date and Time: Enter the date and time if the bird event was recorded during a trip.

Bird Location: The bird location code is the location of the bird at the time of the event.

1 - AIR - The bird is in the air or flying
2 - WATER - The bird is on water or diving
3 - BOAT - The bird is on the boat
4 - LAND - The bird is on land
5 - IN GEAR - The bird is on or in the gear
6 - NOT APPLICABLE - None of the other options apply

7 - ON DEBRIS OR OBJECT - The bird is on debris or an object floating in the water

Fishery Location: Enter the Fishery Number Code for where the vessel was fishing at the time of the event.

1 - Gulf of Alaska
2 - Bering Sea / Aleutian Islands
3 - Bering Sea
4 - Aleutian Islands
5 - Prince William Sound
6 - Kodiak Island Area
7 - Southeast Alaska
8 - West Coast

Location During Trip or Offload: If the bird event was recorded during a trip or offload, you must record the position. If the event was from a haul, the position is not required; that information will be inherited from the retrieval position recorded on the haul form.

Weather Conditions During the Interaction:
Beaufort Sea Scale: Refer to descriptions of the Beaufort Sea Scale listed in Figure 16-1. Record the numeric code that corresponds with the appropriate sea conditions.

Weather: Record the appropriate weather code for the weather at the time of the event.

1 - SUN
2 - CLOUDS
3 - RAIN
4 - FOG
5 - SNOW
6 - VARIABLE

Interaction Description and Comments: Record any additional comments or details that may help categorize the event.

"Vessel Activity" Tab:
Vessel Activity describes the vessel's activity at the time of the event. Bird Deterrent is a list of equipment used to deter birds from interacting with the gear. Vessel Activity and Deterrent Types are listed on the second tab of the Bird Data Form in ATLAS and is a check list on the paper form. Unlike other fields, multiple answers are allowed. Place a check mark next to the appropriate vessel activities and deterrents used at the time of the event.

Vessel Activity:

Traveling - Vessel is underway, but not actively fishing
Setting - Deploying fishing gear
Offloading - Offloading Gear or Catch
Sampling - Observer sampling or tallying catch
Processing - Processing catch
Resting - Vessel not underway and not fishing
Fishing - Actively fishing
Retrieving - Hauling or Retrieving Gear
Not Applicable

"Deterrent Type" Tab: **Deterrent Used?** This is a list of reasons for the presence or absence of deterrents used at the time of the event. Each reason has a corresponding numeric code that should be recorded in the box to the right of this field. This is not a simple Yes or No question.

1 - Yes - A deterrent was used
2 - Non-Standard - A non-typical or unlisted deterrent was used
3 - No - Bad Weather. Use when the vessel personnel do not put deterrents out by choice due to conditions, but deterrents may be required by regulation (Longliners)
4 - No - Not Required. Use when weather is bad enough that the vessel is not required to put them out (Longliners)
5 - No - Should Have
6 - Unknown - You were not able to determine if a deterrent was used
7 - Not Applicable - Most often used for trawl and pot gear types

Following are examples of how to determine the "Deterrent Used" code.

1. On a longliner, the observer is tallying and sees a dead fulmar coming up on the line. The observer had spot checked to see if the streamer lines were deployed during the setting of that haul. Because the bird was

caught during setting and the observer verified that the streamer lines were deployed, the observer lists code 1 - Yes, a deterrent was used.

2. On a longliner, the observer is tallying and sees a dead fulmar coming up on the line. The observer ***did not*** spot check to see if the streamer lines were deployed for that set. Because the observer did not witness any deterrent used for that haul, the observer lists code 6 - Unknown, you were not able to determine if a deterrent was used.

3. On a catcher processor trawl vessel, the observer sees a dead shearwater pass by on the conveyor belt. The deterrent used is code 7 - Not applicable, since trawlers are not bound by regulation to use bird deterrent devices.

Indicate the deterrent type under the dashed line. Deterrent types can be gear, equipment or human interactions used to deter birds from interacting with the gear.

Weights - Weights used to sink the ground line rapidly

Other - Any other equipment or method not listed to deter birds from interacting with the gear or vessel

1 Streamer Line - One streamer line deployed from the stern of the vessel

1 Bird Bag - One buoy or bird bag is dragged from the stern of the vessel

Lining Tube - The vessel deploys gear through an under water tube from the stern of the vessel

Discharge Offal - The vessel discharges offal in the opposite direction of the gear

Unknown Number of Streamers - You do not know the number of streamers used

2 Bird Bags - Two buoy or bird bags are dragged from the stern of the vessel

Water Hose - The crew sprays water directly at a bird or used sprinklers to deter birds from the vessel or gear

2 Streamer Lines - Two streamer lines deployed from the stern of the vessel

Entering Species Information

An unlimited number of bird species may be present for a specific bird event. After the interaction, vessel activity, and deterrence information have been entered; each species must be recorded. For each species you must record a count, a description of certainty for your species identification, an interaction description and an interaction outcome. All short-tailed albatross must be identified to a specific age category and you must provide a count of the number of birds in each age category.

Species Code: Record the appropriate species code. A complete list of Bird Species codes may be found in the Appendix “Species Code List - Seabirds” on page A-11.

Species Name: Record the bird species.

Number of Birds: Record the total number of birds for the species listed in the interaction. This field is not filled out for short-tailed albatross interactions or sightings. For a short-tailed albatross individual counts are recorded for specific age categories.

Count Type: Describes how the total or estimated number of birds for a species was determined. Each Count Type has a corresponding numeric code that should be recorded.

1 - Specific - An accurate count of every bird involved in the interaction

2 - Grouped - A rough count of the species in a flock or grouping of multiple birds

3 - Estimated - An estimation of the total number of birds for a species.

Good Look at Bird: Describes the level of the observation. This is a personal assessment of whether the bird was in plain view or not. Circle the appropriate response.

Y - Yes - The bird was in plain view

N - No - The bird was seen at a glance

N/A - Not Applicable

How Certain of ID: Describes the confidence level of your species identification. This assessment should take into account if you had a good look at the bird and

your confidence in using any reference materials to identify the bird. Circle the appropriate response on the paper form.

Y - Yes - Positive of the ID

N - No - Not positive of the ID

M - Maybe - Fairly positive of the ID

Interaction Description: Describes the bird interaction with gear, vessels, offloads, etc. Choose the most accurate description of the bird's interaction at the time of the event. If an accurate description of the interaction is not listed below, select the interaction description that most closely matches the interaction, and enter a detailed description of the interaction in the "Identifying Characteristics" comments field. Contact your inseason advisor or FMA staff to help you determine which interaction description is most appropriate and how best to document the unusual interaction. This can be further reviewed at debriefing. Each interaction type has a corresponding numeric code. Record this code on the form.

1 - Sighting- Bird was observed on or near vessel, but did not interact with the gear

2 - Third Wire, Paravane or Warp Cable Contact - Bird came into contact with the third wire, paravane or warp cable

3 - Rig Strike - Bird made contact with vessel's rigging, excluding third wire, paravane, or warp cable interactions

4 - Bird Storm - A flock of birds strike the vessel, gantry or stack; then land on deck. A bird storm may include a rig strike

5 - RE Deterrent - Bird interacted with the deterrent measure/device. RE is an acronym for "Regarding."

6 - Land on Vessel - Bird landed on the vessel, but not part of a bird storm

7- Oiled Bird - Bird was oiled at sea. Does not include birds that were oiled when it contacted something on the vessel.

8 - Gear Interaction - The bird made some sort of contact or interacted with the gear. This does not include third wire or warp cable interactions

9 - At Bait - Bird was feeding on the bait

10 - Discard Feeding - Bird was feeding on discarded fish or offal

11 - Foraging, Not Bait - Bird was foraging/feeding near the vessel, but not feeding on the bait

12 - Following - Bird was following or resting near the vessel.

13 - Harassment by Crew - Bird was harassed by a crewman. Harassment includes throwing objects, or other nonlethal deterrent methods

14 - Killing by Crew - Bird was intentionally or unintentionally killed by a crewman and is not gear related

15 - Maimed by Crew - Bird was wounded by a crewman and is not gear related (*i.e.* bird is injured when gaffed by the rollerman).

Interaction Outcome: Describes the interaction outcome. Choose the most accurate description of what happened to the bird(s) involved. In some instances, more than one option may apply to the event. If there is more than one outcome for an event, choose the most appropriate answer. Record the corresponding number of the most accurate outcome of the interaction.

1 - Hooked - The bird was hooked and retrieved on the gear or was accidently snagged by a loose hook. A bird does not have to be killed to be hooked

2 - Injuries - The bird was injured during the event

3 - Flew Off - The bird flew off or left the immediate area of the interaction. This is a common outcome for sightings

4 - Released To Water - Any bird that was removed from the vessel or gear and returned to the water. This could be a bird that was involved in a bird storm

5 - Released Flew Off - Any bird that was removed from the vessel or gear and released over board. Upon release, the bird flew off

6 - Died - The bird did not live

7 - Carcass Salvaged - The bird died and the whole specimen was saved

8 - Observer End Observing - Use this code when observing a bird and the event ends because you return to other duties. This would be a common outcome for a sighting for a seabird of interest

9 - Not Applicable - None of the above outcomes apply

Short-Tailed Albatross Counts: Short-tailed albatross must be identified to a specific age category. A specific count of the number of short-tailed albatross in each category must be recorded. The age category count fields are located in the shaded area of the form (Figure 16-2 on page 16-16). If you are recording a short-tailed albatross you ***do not*** fill out the Total Number of Birds field in the non-shaded area of the form.

Identifying Characteristics: Record any identifying characteristics or other comments in this field.

Specimen?: In the lower right corner of the comment field is a check box labeled "Specimen?" followed by a bubble. If you collected any specimen from this species, fill in the bubble completely. If this field is completed, there must be a corresponding Bird Specimen and Tag Information Form for the specimen.

Completing Bird Specimen and Tag Information Form

The Bird Specimen and Tag Information Form must be filled out for any bird specimen collected. A specimen can be a bird, photo, or tag (see page 16-13 for the complete list of "Specimen Types"). Each specimen ***requires*** a unique specimen number, even if taken from the same bird. For example, you collect a dead bird with a plastic tag. You must record 2 specimens on the Bird Specimen and Tag Information Form--the bird and the tag. Specimens from different events and different species may be listed on the same form. All specimens for a single event must be grouped together. Skip a line between specimens from different events (Figure 16-5). ***Do not complete the paper form if you are assigned to an ATLAS vessel unless you are reporting a short-tailed albatross specimen.***

Cruise, Permit: Enter the cruise number supplied in your training or briefing. Vessel permits can be found on page A-27.

Observer Name/Vessel Name: Enter your name and the name of the vessel.

Event Number: The event number for the specimen must correspond to the event number from which it was collected on the Bird Interaction, Activity and Species Form.

Species Code: Record the appropriate species code. The species code for each event must match the code on the Bird Interaction, Activity and Species Form. A complete list of Bird Species codes may be found in the Appendix on page A-11.

Species Name: Record the bird name. The species name for each event must match the name used on the Bird Interaction, Activity and Species Form.

Specimen Number: Enter a unique number for each specimen collected. ***Do not duplicate specimen numbers.***

Enter the appropriate numeric code from the lists below in the corresponding boxes on the form (written descriptions are not needed).

Age of Bird: Only fill out this field if you are recording a short-tailed albatross specimen. In ATLAS, you will see this field only if you entered the species code for short-tailed albatross. Choose the appropriate bird age and record the corresponding numeric code. Refer to your laminated guide to North Pacific Albatrosses for the identifying characteristic of each age category.

1-Adult
2- Sub-Adult
3- Immature
4- Juvenile

Specimen Type: Choose the best description for the type of specimen collected. Record the numeric code in the Specimen Type column. If there are multiple specimens with the same specimen type for the same species, each specimen should be recorded on a separate line. See Figure 16-5 on page 16-19.

1 - Pictures - Any photograph taken of a bird (dead or alive)
2 - Feathers -Any bird feather collected
3 - Beak - The beak of the bird
4 - Tissue - Any tissue sample collected

5 - Stomach - The stomach of the bird and any stomach contents

6 - Bird Feet - One or both of the feet. Record any tag information as a separate specimen

7 - Bird Head - Only the head of the bird was saved. Collect the head of a short-tailed albatross if you are unable to collect the whole bird

8 - Whole Bird - The entire bird was collected

9 - Other - Any other specimen or part of the bird not already listed

10 - Bird Tag Information - Any information regarding a tag or band on a bird

"Tag Data" Tab:

The bird tag data portion of the Bird Specimen Form should only be filled out for Specimen Type 10. These fields are shaded on the paper form. Try to collect as much detailed information about each tag or band as possible. You do not have to have a tag or band number in order to record bird tag information. ***If a bird has multiple tags or bands, record each tag or band as a separate specimen.***

Tag Color: Choose the color of the band or tag:

1 - Red
2 - Pink
3 - Orange
4 - Yellow
5 - White
6 - Blue
7 - Green
8 - Purple
9 - Gray
10 - Black
11 - Gold
12 - Silver
13 - No Color - Radio or Web Tag
14 - Other - Any other color not listed above

Tag Type: Describes the type of tag or band:

1 - Plastic
2- Metal
3 - Web Tag - Small metal clip found between toe webbing
4 - Other - Any other type of material not already listed above

Tag Location: This is a list of the possible tag or band locations on the bird:

1 - Right Leg
2 - Left Leg
3 - Right Wing
4 - Left Wing
5 - Right Foot - web tag
6 - Left Foot - web tag
7- Neck
8 - Beak
9 - Other

Tag Position: This is the position of the tag or band on the leg of the bird relative to the other tags:

1 - Only Tag
2 - Top Tag
3 - 2nd Tag
4 - 3rd Tag
5 - 4th Tag

Tag Number: Record the number on the tag or band exactly as it is displayed. If you do not have the tag in hand, but are able to see a tag on a live bird, record the number as accurately as possible.

Comments: Record any other pertinent information regarding the specimens in this field.

Short-Tailed Albatross Incidental Take Information

In the rare event an incidental take of a short-tailed albatross occurs by your vessel, additional information is requested. To the best of your ability please answer the following questions on the back of the paper Bird Interaction, Activity, and Specimen Form. If you are on an ATLAS vessel you must also record your answers in the "Interaction, Description, and Comments" section of the form in ATLAS. ***Complete these questions for short-tailed albatross takes only.***

Gear and Vessel Operations Questions:

1. Was the gear set from the side or from the stern? Were floats attached to the longline?

2. Was the longline weighted and if so were weights integrated into the line or were weights added during the set (i.e., snap-on cannonball weights)?

3. What was the setting speed and direction relative to the wind?

4. If the set was at night was it clear or overcast? Could you see the moon and was it bright?

5. What kind of bait was the vessel using?

6. Was offal being discharged during the setting of the longline gear?

7. Were the streamer lines in good condition with individual streamers intact and not rolled up around the main line of the streamer lines? Did the streamer lines have sufficient drag to achieve maximum extent behind the vessel (60 m aerial extent)? What was attached to the in-water end of each streamer line to create drag?

8. Were the streamer lines on either side of the longline/baited hooks?

Bycatch and Bird Questions:

1. What was the condition of carcass when it was retrieved?

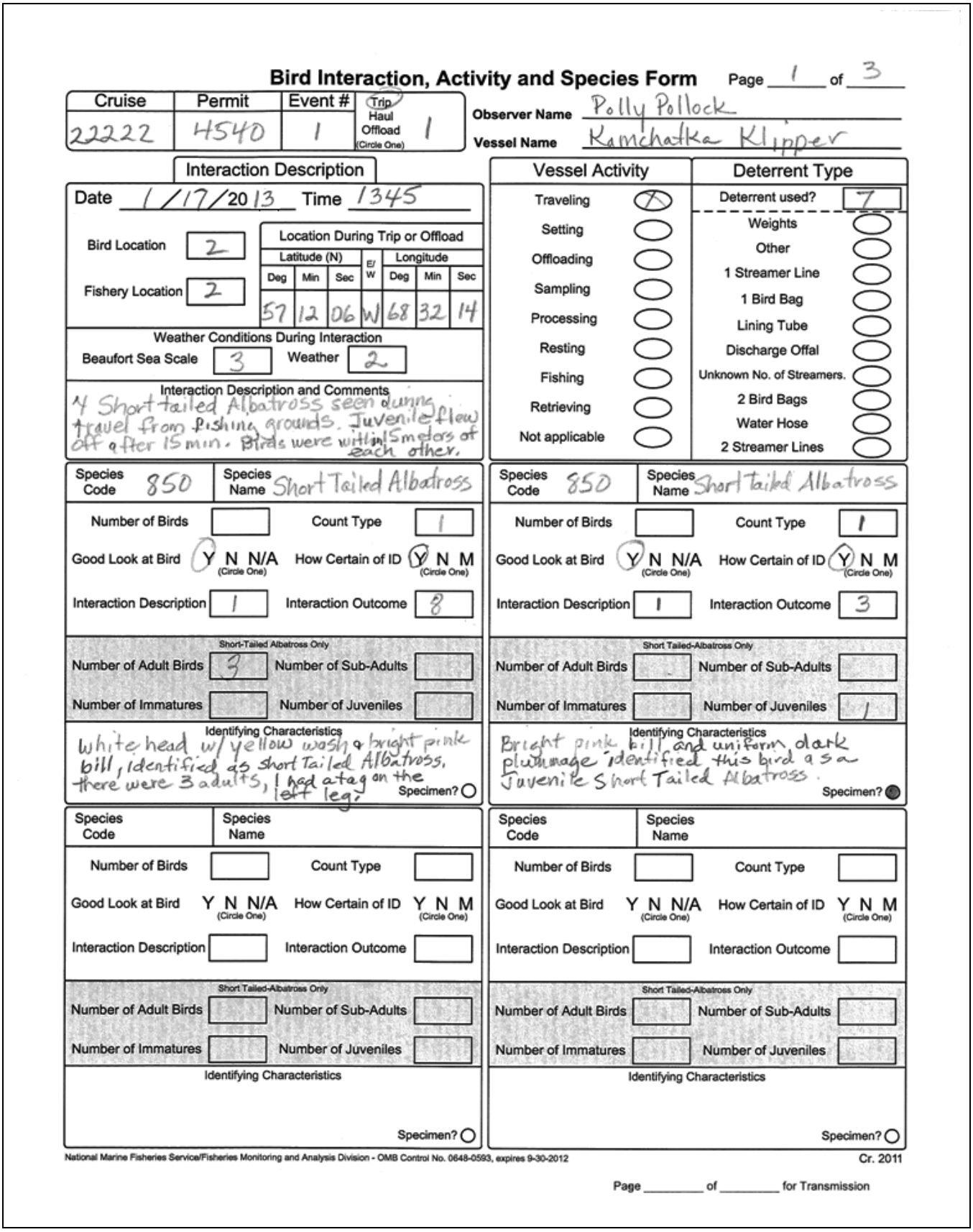
2. How many other seabirds were caught in the set and what species? Were other birds taken throughout the trip (species and numbers)?

3. Did there seem to be more albatrosses than usual around the vessel in the few days before the take occurred? Were there more than usual around the vessel the day of the take?

4. How many short-tailed albatrosses were in the vicinity at the time of the set? If you do not know an exact number please provide an estimate.

5. How many birds were in the area at the time and was their behavior unusual?

6. Did the short-tailed albatrosses or other birds seem to be more aggressive in attempting to steal bait?



Bird Interaction, Activity and Species Form

Page 1 of 3

Cruise	Permit	Event #	Trip Haul Offload (Circle One)
22222	4540	1	1

Observer Name: Polly Pollock

Vessel Name: Kamchatka Klipper

Interaction Description

Date 1/17/2013 Time 1345

Bird Location: 2

Fishery Location: 2

Location During Trip or Offload

Latitude (N) Deg	Min	Sec	E/W	Longitude Deg	Min	Sec
57	12	06	W	68	32	14

Weather Conditions During Interaction

Beaufort Sea Scale: 3 Weather: 2

Interaction Description and Comments

4 Short tailed Albatross seen during travel from fishing grounds. Juvenile flew off after 15 min. Birds were within 5 meters of each other.

Vessel Activity

- Traveling: X
- Setting:
- Offloading:
- Sampling:
- Processing:
- Resting:
- Fishing:
- Retrieving:
- Not applicable:

Deterrent Type

Deterrent used? 7

- Weights:
- Other:
- 1 Streamer Line:
- 1 Bird Bag:
- Lining Tube:
- Discharge Offal:
- Unknown No. of Streamers.:
- 2 Bird Bags:
- Water Hose:
- 2 Streamer Lines:

Species 1

Species Code: 850 Species Name: Short Tailed Albatross

Number of Birds: Count Type: 1

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: 1 Interaction Outcome: 8

Short-Tailed Albatross Only

Number of Adult Birds: 3 Number of Sub-Adults:

Number of Immatures: Number of Juveniles:

Identifying Characteristics

White head w/ yellow wash & bright pink bill, identified as Short Tailed Albatross, there were 3 adults, I had a tag on the left leg.

Specimen? ○

Species 2

Species Code: 850 Species Name: Short Tailed Albatross

Number of Birds: Count Type: 1

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: 1 Interaction Outcome: 3

Short Tailed-Albatross Only

Number of Adult Birds: Number of Sub-Adults:

Number of Immatures: Number of Juveniles: 1

Identifying Characteristics

Bright pink bill and uniform dark plumage identified this bird as a Juvenile Short Tailed Albatross.

Specimen? ●

Species 3

Species Code: Species Name:

Number of Birds: Count Type:

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: Interaction Outcome:

Short Tailed-Albatross Only

Number of Adult Birds: Number of Sub-Adults:

Number of Immatures: Number of Juveniles:

Identifying Characteristics

Specimen? ○

Species 4

Species Code: Species Name:

Number of Birds: Count Type:

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: Interaction Outcome:

Short Tailed-Albatross Only

Number of Adult Birds: Number of Sub-Adults:

Number of Immatures: Number of Juveniles:

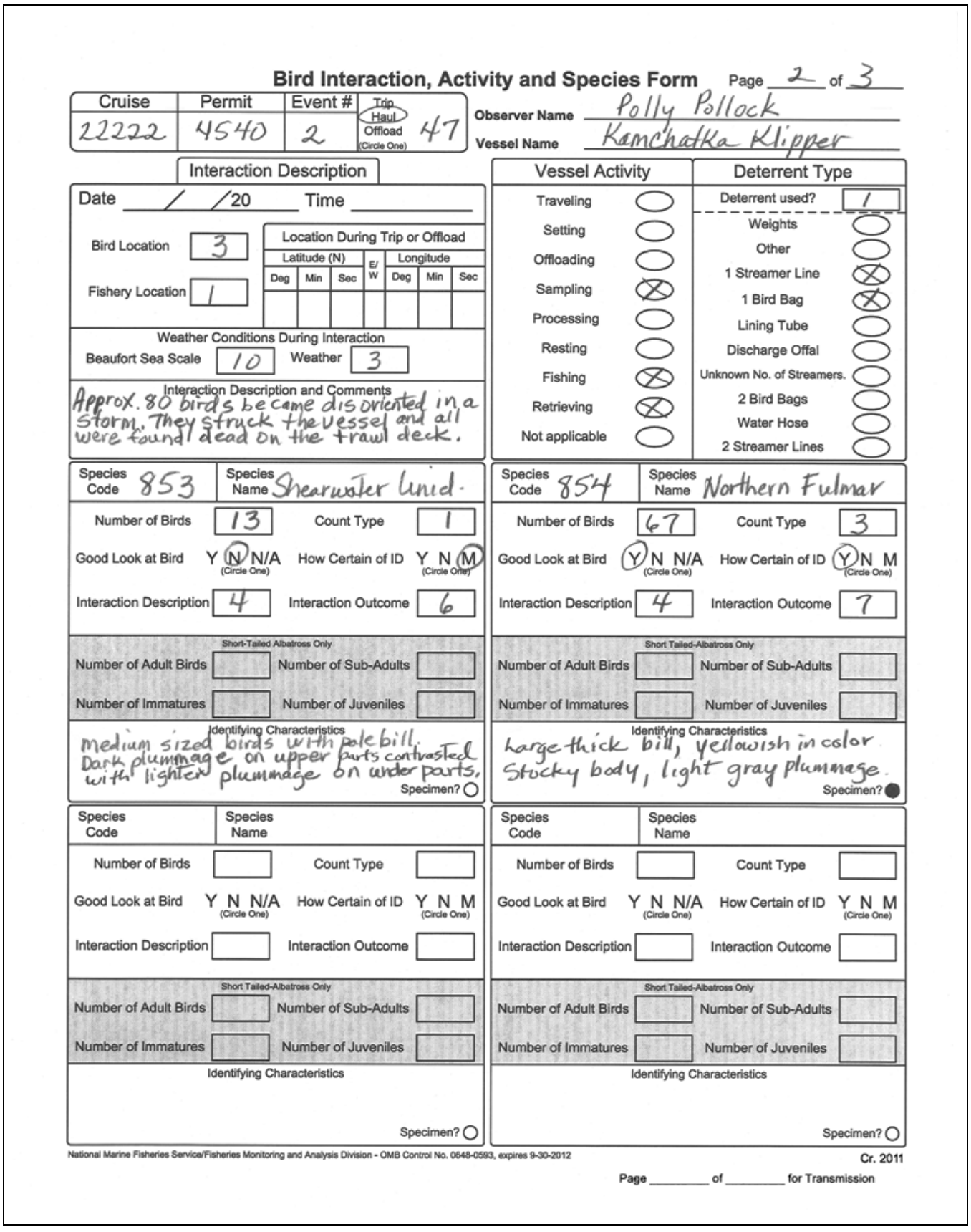
Identifying Characteristics

Specimen? ○

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Cr. 2011

Page _____ of _____ for Transmission

Figure 16-2: Example of Documentation for Short-Tailed Albatross Sighting and Specimen Collection



Bird Interaction, Activity and Species Form Page 2 of 3

Cruise	Permit	Event #	Trip Haul Offload (Circle One)
22222	4540	2	47

Observer Name: Polly Pollock
Vessel Name: Kamchatka Klipper

Interaction Description

Date ___/___/20___ Time ___

Bird Location: 3
Fishery Location: 1

Location During Trip or Offload

Latitude (N) Deg	Min	Sec	E/W	Longitude Deg	Min	Sec

Weather Conditions During Interaction
Beaufort Sea Scale: 10 Weather: 3

Interaction Description and Comments:
Approx. 80 birds became disoriented in a storm. They struck the vessel and all were found dead on the trawl deck.

Vessel Activity

Traveling	○
Setting	○
Offloading	○
Sampling	⊗
Processing	○
Resting	○
Fishing	⊗
Retrieving	⊗
Not applicable	○

Deterrent Type

Deterrent used? 1

Weights	○
Other	○
1 Streamer Line	⊗
1 Bird Bag	⊗
Lining Tube	○
Discharge Offal	○
Unknown No. of Streamers.	○
2 Bird Bags	○
Water Hose	○
2 Streamer Lines	○

Species Code 853 — Species Name: Shearwater Unid.

Number of Birds: 13 Count Type: 1
Good Look at Bird: Y (N) N/A (Circle One) How Certain of ID: Y N (M) (Circle One)
Interaction Description: 4 Interaction Outcome: 6

Short-Tailed Albatross Only
Number of Adult Birds: ___ Number of Sub-Adults: ___
Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:
Medium sized birds with pale bill. Dark plummage on upper parts contrasted with lighter plummage on under parts.
Specimen? ○

Species Code 854 — Species Name: Northern Fulmar

Number of Birds: 67 Count Type: 3
Good Look at Bird: (Y) N N/A (Circle One) How Certain of ID: (Y) N M (Circle One)
Interaction Description: 4 Interaction Outcome: 7

Short Tailed-Albatross Only
Number of Adult Birds: ___ Number of Sub-Adults: ___
Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:
large thick bill, yellowish in color. Stocky body, light gray plummage.
Specimen? ●

Species Code ___ — Species Name ___

Number of Birds: ___ Count Type: ___
Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)
Interaction Description: ___ Interaction Outcome: ___

Short Tailed-Albatross Only
Number of Adult Birds: ___ Number of Sub-Adults: ___
Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:
Specimen? ○

Species Code ___ — Species Name ___

Number of Birds: ___ Count Type: ___
Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)
Interaction Description: ___ Interaction Outcome: ___

Short Tailed-Albatross Only
Number of Adult Birds: ___ Number of Sub-Adults: ___
Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:
Specimen? ○

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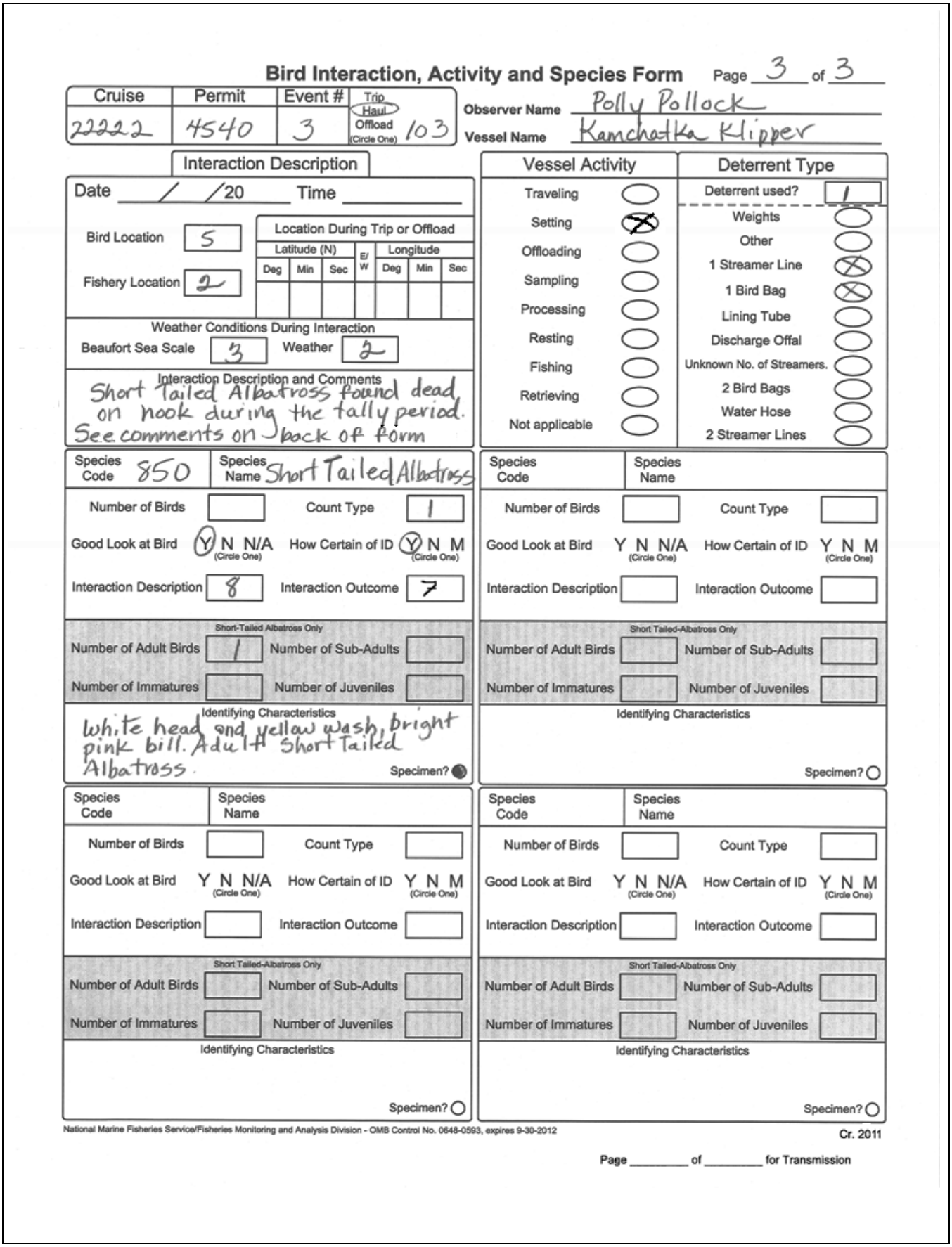
Figure 16-3: Example of Documentation for Bird Storm



Bird Interaction, Activity and Species Form

Page 3 of 3

Cruise	Permit	Event #	Trip / Haul / Offload (Circle One)
22222	4540	3	103

Observer Name: Polly Pollock

Vessel Name: Kamchatka Klipper

Interaction Description

Date ___/___/20___ Time ___

Bird Location: 5

Fishery Location: 2

Location During Trip or Offload

Latitude (N) Deg	Min	Sec	E/W	Longitude Deg	Min	Sec

Weather Conditions During Interaction

Beaufort Sea Scale: 3 Weather: 2

Interaction Description and Comments:

Short Tailed Albatross found dead on hook during the tally period. See comments on back of form

Vessel Activity

- Traveling: ○
- Setting: ⊗
- Offloading: ○
- Sampling: ○
- Processing: ○
- Resting: ○
- Fishing: ○
- Retrieving: ○
- Not applicable: ○

Deterrent Type

Deterrent used? 1

- Weights: ○
- Other: ○
- 1 Streamer Line: ⊗
- 1 Bird Bag: ⊗
- Lining Tube: ○
- Discharge Offal: ○
- Unknown No. of Streamers.: ○
- 2 Bird Bags: ○
- Water Hose: ○
- 2 Streamer Lines: ○

Species 1

Species Code: 850 Species Name: Short Tailed Albatross

Number of Birds: ___ Count Type: 1

Good Look at Bird: (Y) N N/A (Circle One) How Certain of ID: (Y) N M (Circle One)

Interaction Description: 8 Interaction Outcome: 7

Short-Tailed Albatross Only

Number of Adult Birds: 1 Number of Sub-Adults: ___

Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:

White head and yellow wash, bright pink bill. Adult Short Tailed Albatross.

Specimen? ●

Species 2

Species Code: ___ Species Name: ___

Number of Birds: ___ Count Type: ___

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: ___ Interaction Outcome: ___

Short Tailed-Albatross Only

Number of Adult Birds: ___ Number of Sub-Adults: ___

Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:

Specimen? ○

Species 3

Species Code: ___ Species Name: ___

Number of Birds: ___ Count Type: ___

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: ___ Interaction Outcome: ___

Short Tailed-Albatross Only

Number of Adult Birds: ___ Number of Sub-Adults: ___

Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:

Specimen? ○

Species 4

Species Code: ___ Species Name: ___

Number of Birds: ___ Count Type: ___

Good Look at Bird: Y N N/A (Circle One) How Certain of ID: Y N M (Circle One)

Interaction Description: ___ Interaction Outcome: ___

Short Tailed-Albatross Only

Number of Adult Birds: ___ Number of Sub-Adults: ___

Number of Immatures: ___ Number of Juveniles: ___

Identifying Characteristics:

Specimen? ○

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Figure 16-4: Example of Documentation of a Bird Caught in Gear

Bird Specimen and Tag Information Form

Page 1 of 1

Cruise	Permit
22222	4540

Observer Name Polly Pollock

Vessel Name Kamchatka Klipper

Event Number	Species Code	Species Name	Specimen Number	Age of Bird	Specimen Type	Tag Data					Comments
						Tag Color	Tag Type	Tag location	Tag Position	Tag Number	
1	850	Short Tailed Alb.	1	4	1						Took 1 picture of bird on water
2	854	N. Fulmar	2		8						Collected 3 dead fulmars
2	854	N. Fulmar	3		8						
2	854	N. Fulmar	4		8						
3	850	Short Tailed Alb.	5	1	1						Took 1 picture
3	850	Short Tailed Alb.	6	1	8						Collected bird
3	850	Short Tailed Alb.	7	1	10	3	1	2	1	B6943	

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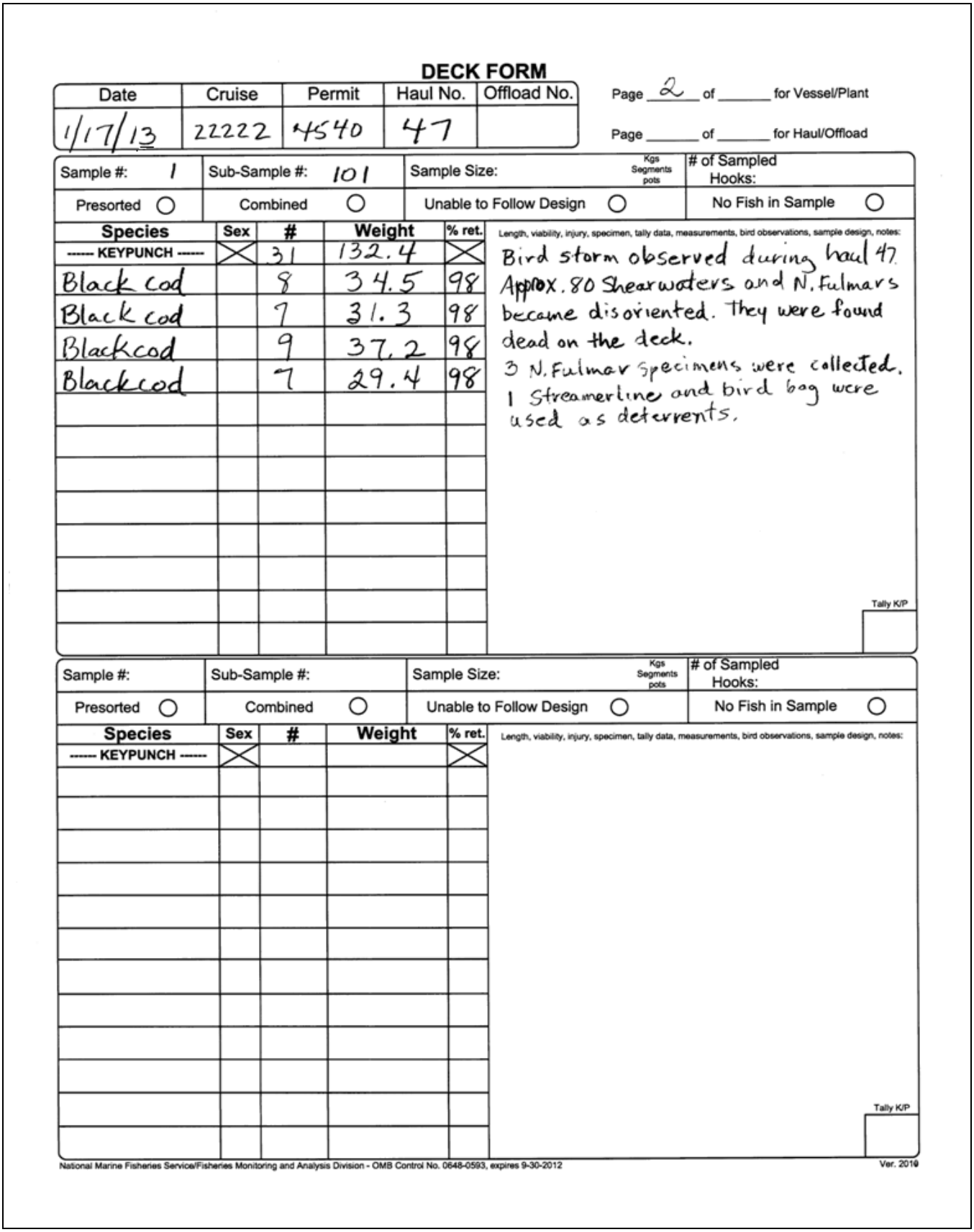
National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012

Cr. 2011

Figure 16-5: Example of Bird Specimen and Tag Information Form



DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
1/17/13	22222	4540	47	

Page 2 of _____ for Vessel/Plant

Page _____ of _____ for Haul/Offload

Sample #: 1	Sub-Sample #: 101	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	31	132.4	X
Black cod		8	34.5	98
Black cod		7	31.3	98
Blackcod		9	37.2	98
Blackcod		7	29.4	98

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Bird storm observed during haul 47. Approx. 80 Shearwaters and N. Fulmars became disoriented. They were found dead on the deck.
3 N. Fulmar specimens were collected.
1 Streamerline and bird bag were used as deterrents.

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

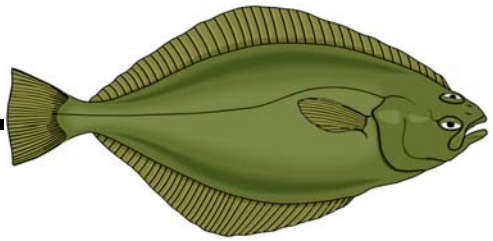
Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Tally K/P

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division - OMB Control No. 0648-0593, expires 9-30-2012 Ver. 2010

Figure 16-6: Example of Raw Seabird Data on a Deck Form



STOMACH AND ISOTOPE COLLECTION

Table of Contents

INTRODUCTION

The data resulting from successful completion of the stomach and stable isotope collection project is very important. Stomach collections provide data on predation mortality of commercial stocks of fish and crab, and are used to estimate the degree of this mortality. Stable isotope specimens provide general information about trophic level and food web linkages over longer periods depending on turnover rates specific to each tissue type. Combined, these data enhance our understanding of spatial, seasonal, and inter-annual patterns in the marine foodweb.

Your comments and suggestions about this project are important to the Food Habits Lab. At the end of this chapter is a questionnaire about the project to assist you in providing comments to the Food Habits Lab.

Stable isotope collection is an intermittent project. Do not collect isotopes unless you are directed to do so by NMFS.

Who Collects Stomachs and Isotopes?

The stomach and stable isotope collection project is assigned for specific vessels rather than to specific observers. Therefore, your participation in the project will depend upon the vessel to which you are assigned. The project is primarily assigned to vessels that have historically provided an adequate sampling platform for this project. ***Observers aboard catcher vessels must read the special instructions for completing stomach and isotope collections! See page 17-5.***

- Please read all instructions carefully.
- Data for the stomach collections and related isotope collections are recorded on the standard Length and Specimen Form, and the data are entered into ATLAS.
- Stop by the Food Habits Lab if you have questions about this project prior to your deployment.

Food Habits Lab - Room 1093
Richard Hibpshman (206) 526-4238
richard.hibpshman@noaa.gov
Troy Buckley (206) 526-4349
troy.buckley@noaa.gov
Geoff Lang (206) 526-4196
geoff.lang@noaa.gov

MATERIALS FOR STOMACH COLLECTIONS

Observer Program field staff will provide this gear if it is not already available on your vessel.

- 1 liter of 100% formalin
- 1 5-gallon bucket
- 2 bucket lids (1 cut and 1 uncut)
- 2 large plastic bags
- Assorted sizes of specimen bags
- Small and large ziploc bags
- 100 Stomach Collection Labels
- Material Safety Data Sheets (MSDS) for 100% formalin
- MSDS for 10% formalin

Please return all unused supplies and the empty plastic formalin bottle to the Food Habits Lab or to an FMA field office. Do not place unused sampling gear in a bucket with specimens!

Formalin Handling Protocol for Observers

- Formalin is a hazardous chemical and must be handled appropriately to ensure your safety. Stomach collections require only a small quantity of formalin and if the formalin protocol is followed exposure to yourself and others will be well below established safe exposure levels.
- Read the MSDS before using formalin to understand its properties. You can find "Material Safety Data Sheet for 100% Formalin" on page A-78 and "Material Safety Data Sheet for 10% Formalin" on page A-82.
- ***ALWAYS*** wear gloves, rain gear, and the goggles provided in the kit when handling formalin.
- ***ALWAYS*** use formalin on an open deck. ***Do not use it in the factory, below decks or in your cabin.***
- Inform captain and crew that you have formalin onboard, where it is stored, location of MSDS, potential hazards, and what to do in case of a spill.
- If the formalin is spilled, the quantity you have is small enough that you may dilute it with water and wash it overboard.
- Add formalin to a bucket half-full with seawater, rather than adding seawater to the formalin. This will dilute the formalin quickly, and will prevent formalin from splashing on you.
- Use extreme caution when adding formalin to the bucket of seawater. Hold the bucket lid over as much of the bucket opening as possible while pouring the formalin, using it as a shield.
- If formalin comes into contact with your skin or eyes, rinse skin immediately and thoroughly with water for 15 minutes as per the MSDS. Rinse your eyes with saline provided in kit, then use onboard eye wash (if available) or water as needed to flush eyes for 15 minutes as per the MSDS.
- If the formalin is ingested, DO NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Seek medical attention as soon as possible as per the MSDS.
- If you are overcome by fumes, move into fresh air. Administer oxygen if necessary and available, as per the MSDS.
- If the vessel or plant personnel have concerns about the use of formalin direct them to call NMFS; see "Contact Addresses and Numbers" on page A-51.

Where to Keep Formalin Onboard

Formalin should be stored in a well ventilated space designated by vessel personnel. Pure 100% formalin should be stored at or above 50°F. Below 50°F, a component precipitates out and the formalin loses potency. Pure formalin is a flammable material and should be stored in an appropriate flammable storage area until it has been diluted. Once diluted to a 10% solution, formalin can and should be stored on a weather deck. The solution will not freeze.

Store your bucket securely tied to an immobile object. ***Leave the bucket in place and carry specimens to the bucket.*** This will avoid the potential of spilling formalin in the factory and will keep the formalin away from fish processing operations.

Do not submerge your gloves in the formalin when you add specimens to the bucket. If the specimens float, use a pair of forceps or some other tool to submerge the specimens. Rinse the tool with water after formalin contact.

Anytime formalin gets spilled and/or inadvertently comes into contact with any object other than your specimens, flush the object or area with plenty of water.

COLLECTION PROCEDURES

Determining Sex and Spawning Condition

To determine sex and spawning condition in flatfish and gadids, give the abdomen a light squeeze. The extrusion of milt (male) or eggs (female) indicates a fish in spawning condition. If no milt or eggs are released the fish is considered to be in a pre-spawn condition.

Stomach Collection Procedure

1. Prior to the first haul from which you plan to collect stomachs, fill the five gallon bucket half-full with seawater and add the contents of the one liter bottle of 100% formalin (37% formaldehyde) creating a 10% formalin solution (3.7% formaldehyde).

2. Seal with the cut lid. Add specimens to this bucket as you collect them, one stomach per bag.

3. Collect stomach specimens according to the length of fish (see "Selecting Fish for Your specimens" on page 17-4).

4. Use the tally sheet (Figure 17-1 on page 17-8) to keep track of the length categories that you need to fill.

You may collect fish from any haul sampled for composition.

Collect fish that do not show signs of net feeding or regurgitation. These signs include prey items (fresh or digested) in mouth or gill rakers or flaccid (loose and bloated) stomachs. ***Do not keep these!***

5. Signs of "natural" stomachs include stomachs that are constricted tightly around the prey inside and naturally empty stomachs, which appear tight and contracted. ***Keep these!*** Determine the weight, sex, fork length, and spawning condition of each fish and collect the stomach (see methods for individual species).

Record the raw data on your Deck Form (see Figure 17-5 on page 17-12 and Figure 17-6 on page 17-13). Record on the Deck Form which sample the stomach came from and assign it a specimen number.

If a fish is discarded due to regurgitation, take the next fish in the basket. If the subsequent fish has food in its stomach, go ahead and collect the specimen. If the subsequent fish has an empty stomach (naturally empty or regurgitated), discard it and go on to the next fish until a non-empty stomach is encountered. This special note applies only to the fish selected immediately after a regurgitation discard, because we don't want you to replace a regurgitated stomach with an empty stomach. A naturally empty stomach is a valid collection when not collected immediately following a regurgitated stomach.

6. Record all information on a Stomach Collection Label (Figure 17-2 on page 17-9) as described in "Labels and Records" on page 17-6. Place each stomach in an individual cloth bag of the appropriate size and include the Stomach Collection Label. Please close the bag tightly shut with the drawstrings and secure it with a single overhand knot. ***Do not double knot the drawstrings!*** Place the bag into the bucket.

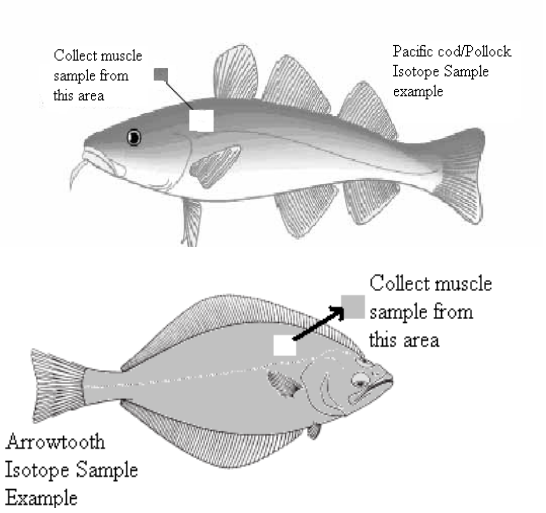
7. Enter stomach collection data into ATLAS or record data onto the Length and Specimen Form (Figure 17-7 on page 17-14 and Figure 17-8 on page 17-15) if you are not entering data into ATLAS.

Stop collecting when you have collected 80 stomachs or the bucket is full when loosely packed. When the collection is complete seal the bucket with the uncut lid.

Stable Isotope Collection Procedures

Stable isotope collection is an intermittent project; do not collect isotope specimens unless instructed to do so by NMFS. It is not necessary to collect isotope tissue specimens and stomach specimens from the same fish. If isotope tissue specimens are not associated with a stomach collection, record information according to Length and Specimen Form rules outlined on page 17-6. Collecting stable isotope tissue specimens from Pacific cod, pollock or arrowtooth flounder requires a liver sample and a

muscle sample (up to 20 fish per haul and up to 80 per observer). Collect these specimens from across a range of lengths.



1. Collect the 1 cubic cm muscle sample from the area just below the dorsal fin and above the pectoral fin. Collect a similar sized sample of the liver from the same fish.

2. Maturity scan data are not collected if an isotope specimen is collected without an associated stomach specimen.

3. Place each of these tissue specimens in their own ziploc bag. Place the two ziploc bags containing specimens into another ziploc bag labeled with a completed specimen tag (use a Stomach Collection Label).

4. These specimens should be recorded as raw data on the Deck Form. Isotope data should be entered into ATLAS, or recorded on the Length and Specimen Form along with the corresponding stomach collection and maturity scan data. The specimen type is code 10. The specimen number is the same as the corresponding stomach and maturity scan specimen number. The weight should be recorded as 0.00 kg in ATLAS or on the Length and Specimen Form (Figure 17-7 on page 17-14).

5. FREEZE the isotope tissue sample. ***These specimens should not come into contact with formalin.*** Upon disembarking your vessel, please place all frozen tissue specimens into a large plastic bag, labeled with your name, cruise number, and vessel permit and drop them off at the Dutch Harbor Field office.

6. Isotope specimens without an associated stomach specimen (code 10) must be numbered starting as 100+*n*, where *n* is the number of the specimen collected.

7. An isotope specimen without an associated stomach specimen (code 10) is recorded with a weight of 0.00 kg on the Length and Specimen Form.

SELECTING FISH FOR YOUR SPECIMENS

Stomach and isotope specimens should only be collected from fish which were randomly selected for your sex/length samples. The exception to this is BSAI arrowtooth flounder stomach collections; because arrowtooth lengths are not collected in the Bering Sea arrowtooth stomachs/isotopes may be collected from fish within your species composition samples. ***Other than arrowtooth flounder, at no time should you collect fish from outside of your sex/lengths sample for stomach/isotope collections. In addition, do not collect stomach specimens from fish that are also used for otolith collections.***

Stratify the stomach/isotope collection by size of fish. No more than 5 stomach/isotope specimens should be collected per sampled haul. It is acceptable to collect from multiple hauls each day.

Figure 17-1 on page 17-8 shows a tally sheet with species lengths and the number of specimens per size category and haul. There are four length categories. Refer to the following chart to determine the size category breakdown for the species from which you are collecting specimens. Fill in the blanks on your tally sheet according to the appropriate size category.

Collect 5 stomach specimens per haul. The 5 stomachs collected should come from a single size category. The stomach collection should involve 16 hauls total; 4 different hauls per each of the 4 size categories with 5 stomachs collected per haul until the desired numbers are collected. Depending on the catch composition, it may take several weeks to fill all of the size categories.

You may have difficulty finding specimens for a particular size strata (especially if your vessel targets large fish). If this happens, take more from the size categories you are finding (but no more than 5 per

haul) or wait a few hauls if you think your vessel may catch a different size group. It is acceptable to take fewer than 5 stomach specimens for these hard to find size categories (*e.g.*, smaller cod). The total number of specimens requested is a maximum. If your bucket is full when loosely packed before you have reached 80 specimens, ***stop collecting***. The number which will fit in a bucket will depend on the size and fullness of the stomachs collected.

Pacific cod, Pacific halibut, Greenland turbot, and arrowtooth flounder:

1) <31 cm	3) 51-70 cm
2) 31-50 cm	4) >70 cm

Walleye pollock:

1) <30 cm	3) 40-50 cm
2) 30-39 cm	4) >50 cm

Yellowfin sole:

1) <20	3) 25-29 cm
2) 20-24 cm	4) >29 cm

Flathead sole:

1) <21 cm	3) 31-40 cm
2) 21-30 cm	4) >40 cm

Sablefish (Gulf of Alaska only)

1) <50 cm	3) 60-70 cm
2) 50-60 cm	4) >70 cm

Method of Collecting Stomachs from Gadids

1. To examine a stomach for regurgitation, first examine the mouth and gill rakers, then cut through the skin of the fish as shown in Figure 17-3. ***Be careful not to cut into the stomach***. If there is no sign of regurgitation, keep the fish and continue with the collection process.

2. Open the body cavity at the incision and examine the stomach, if there is no sign of regurgitation.

3. Excise the stomach by cutting just anterior to the pyloric caeca and posterior to the gill chamber. Include all of the esophagus. Place the stomach in a specimen bag with a Stomach Collection Label and preserve it.

Method of Collecting Stomachs from Flatfish

1. To examine stomachs for regurgitation, cut through the skin of the blind side of the fish as shown in Figure 17-4. ***Be careful not to cut through the stomach***.

2. Lift flap and examine body cavity; if there is no sign of regurgitation, keep the fish and continue with the collection process.

3. If the fish is less than 20 cm in length, remove the entire head along with the digestive tract attached and put it in a sample bag with a Stomach Collection Label and preserve it.

4. If the fish is 20 cm or larger, remove the entire digestive tract from the beginning of the esophagus to the posterior end of the intestine just above the anus. Place the stomach with the intestine attached into a stomach bag with a Stomach Collection Label and preserve it.

For all of the large flatfishes (arrowtooth flounder and Greenland turbot) remove only the stomach and leave the intestine behind. Make an incision posterior to the gill chamber and anterior to the pyloric caeca. Be aware that arrowtooth are prone to regurgitation.

Dutch Harbor Catcher Vessel Collection

The stomach sample collection will only be completed on a catcher trawl vessel delivering fish to Alyeska, Unisea or Westward Seafoods that is retrieving the last haul before delivery within 16 hours from port. You will need to collect supplies from the blue flammable lockers at each plant or from the Dutch Harbor Field office (specimen bags, plastic bags, and Stomach Collection Labels) prior to your departure from port. During the last haul of the trip you will collect a maximum of 5 stomach specimens, with no size restrictions, from arrowtooth flounder, Pacific cod, and/or pollock. Stomach collections should come from within your species composition samples. You will fill out the Stomach Collection Label and place them into the specimen bag with the collected stomach, being sure to close the specimen bag carefully. You can store these in plastic bags (do not allow the stomach specimens to freeze) until you arrive into port where you will remove them from the plastic bags and place them in the proper stomach collection bucket located in blue flammable lockers at the designated processing plant. Each blue locker has a unique combination which will be given to you during training/briefing. Any questions about this collection please contact the Dutch Harbor field office @ (907) 581-2060.

You may complete the stable isotope tissue collection at any time if you are instructed to collect isotope specimens. Isotopes should be collected according to the isotope collection procedure (page 17-3). Be sure that these remain frozen until they can be dropped off at the Dutch Harbor field station.

Kodiak Catcher Vessel Collection

The stomach sample collection will only be completed on a catcher trawl vessel delivering to a Kodiak processing plant that is retrieving the last haul within 16 hours of arrival to port. You will need to collect supplies (mesh bags, plastic bags, and Stomach Collection Labels) from the bunkhouse, the Kodiak field office or from the flammable lockers located at all processing plants (with the exception of Global Seafoods) prior to your departure from port. These flammable lockers all have unique combinations that will be provided to you during your training/briefing. During the last haul of the trip you will collect a maximum of 5 stomachs and isotope tissue specimens (with no size restrictions) from arrowtooth flounder, Pacific cod, and/or pollock. Stomach collections should come from within your species composition samples. You will fill out the Stomach Collection Label and place them into the specimen bag with the collected stomach, being sure to close the mesh bag carefully. You can store these in plastic bags (do not allow the stomach specimens to freeze) until you arrive into port where you will remove them from the plastic bags and place them in the proper stomach collection bucket located in flammable lockers at the designated processing plant. If you offload at Global Seafoods, please put your specimens in the buckets located at the Trident Seafoods processing plant. If you need assistance please ask the plant observer. Any questions about this collection, please contact the Kodiak field office @ (907) 481-1770.

You may complete the stable isotope tissue collection at any time if you are instructed to collect isotope specimens. Isotopes should be collected according the isotope collection procedure (page 17-3). Be sure that these remain frozen until they can be dropped off at the Kodiak field station.

LABELS AND RECORDS

- Always use a pencil.
- Fill out a Tally Sheet for your species - C/Ps only (see Figure 17-1).
- Raw data must be recorded on the Deck Form. Include specimen number and whether the fish was from sex/lengths or from inside your sample. See Figure 17-5 and Figure 17-6.
- Fill out a Stomach Collection Label for each sample and place it in the bag with the stomach (see Figure 17-2).
- Record the stomach data on the Length and Specimen Form for the appropriate sample (see Figure 17-7). Enter these data into ATLAS if your vessel has the ATLAS system.

Length and Specimen Form Instructions

Record the stomach/isotope collection data on the Length and Specimen Form (see Figure 17-7). There should be one stomach collection specimen entry, one maturity scan entry, (and one isotope specimen entry if collected) for each stomach collected. Each stomach specimen must be recorded on two separate lines on the Length and Specimen Form, or three separate lines if an isotope specimen was collected. Maturity scan data are not collected if an isotope specimen is collected without a stomach specimen.

The specimen number for maturity scan and isotopes must be the same specimen number used for the associated stomach collection (see “Example of Pollock Lengths, Stomach and Maturity Scan Information on the Paper Length and Specimen Form” on page 17-14).

When an isotope specimen is collected without a stomach specimen from the same fish, the isotope specimen must be numbered distinctly from the isotopes collected with an associated stomach specimen. Isotope specimens without an associated stomach specimen must be numbered as 100+*n*, where *n* is the number of the specimen collected. The first isotope and maturity collected (without a stomach specimen) should be number 101. The next specimens should be 102, 103, etc. The isotope specimen number must be unique for the cruise and vessel permit number.

- Record the stomach collection specimen code (code - 9), the specimen number, and weight of the fish on line one.
- Record the specimen code for maturity scan (code 7), the specimen number, and enter the weight as 0.00 kg on line two.
- If isotopes were collected, record the specimen code for isotopes (code 10), the specimen number, and the weight as 0.00 kg on line three.

Complete the following fields on the Length and Specimen Form:

- Species name
- Species code
- Haul number
- Sample or subsample number if taken from within composition sample
- Sample design: The sample design column captures the method that was used to select the length fish from which the stomach specimen was collected. See “Completing the Length and Specimen Form” on page 13-20 for a more detailed description of these designs:

  Code 4 - Size Selected: Use this code if your stomach specimens were taken from fish outside of your required length sample and you only chose fish of specific sizes from the sample. This code may only be used for arrowtooth flounder stomachs collected in the BSAI.

  Codes 6 - Simple Random: Use this code if your stomach specimens were taken from sex/length fish that were collected using a simple random method.

  Code 7 - Systematic Random: Use this code if your stomach specimens were taken from sex/length fish that were collected using a systematic random method.

  Code 9 - Other Random: Use this code if your stomach specimens were taken from sex/length fish that were collected using a random method not described above.

  In most cases pollock and cod stomachs will be selected using one of the random methods above.

  Code 10 - Census: Use this code if your stomach specimens were taken from fish outside of your required length sample and you used all the fish of that species that were in your sample. (Arrowtooth flounder may be collected using a census method if there are very few in the source sample.)

- Sex - “F” (female), “M” (male), or “U” (unsexed or uncertain)
- Length in centimeters (fork length)
- Frequency
- Specimen Type:

  7 - Maturity Scan
  9 - Stomach
  10 - Isotope

- Specimen number (number assigned consecutively throughout the entire cruise to each sample as it is collected). If an isotope specimen is collected without a stomach specimen (code 10) see page 17-6 for specimen numbering rules.Weight for specimen code 9 only (specimen codes 7 and 10 require a weight entry of “0.00”).
- Maturity Scan code for specimen code 7 only:

  3 - Pre-Spawn
  4 - Spawning

Note: these are the only Maturity Scan codes used with stomach collection data!

Stomach Collection Label

Record the following where indicated.

- Vessel permit number
- Cruise number
- Haul number and sample number (if from a sample)
- Specimen number
- Length
- Sex (M, F or U) and Maturity Scan code
- Name

When Your Sea Time Is Finished (CPs only)

Label the uncut lid with your name, vessel name, species collected, and year. Seal the bucket with the uncut lid.

Normally, you should return the full bucket to the field office. It is possible to leave it on the vessel, if arrangements have been made to do so through the Observer Program. If you are the last observer on your vessel during the current sampling cycle, remove all stomach sampling gear and return it to the field office when you disembark. If you are unsure if this pertains to you, contact your inseason advisor.

During debriefing, please give your debriefer your debriefing questionnaire (your answers may be recorded in your daily notes and then photocopied).

DEBRIEFING QUESTIONNAIRE

Your Name:

Vessel Name:

1. Did you have any problems in carrying out this project (lack of sufficient equipment, lack of time, etc.)?

2. How long did it take you to collect your specimens from one haul?

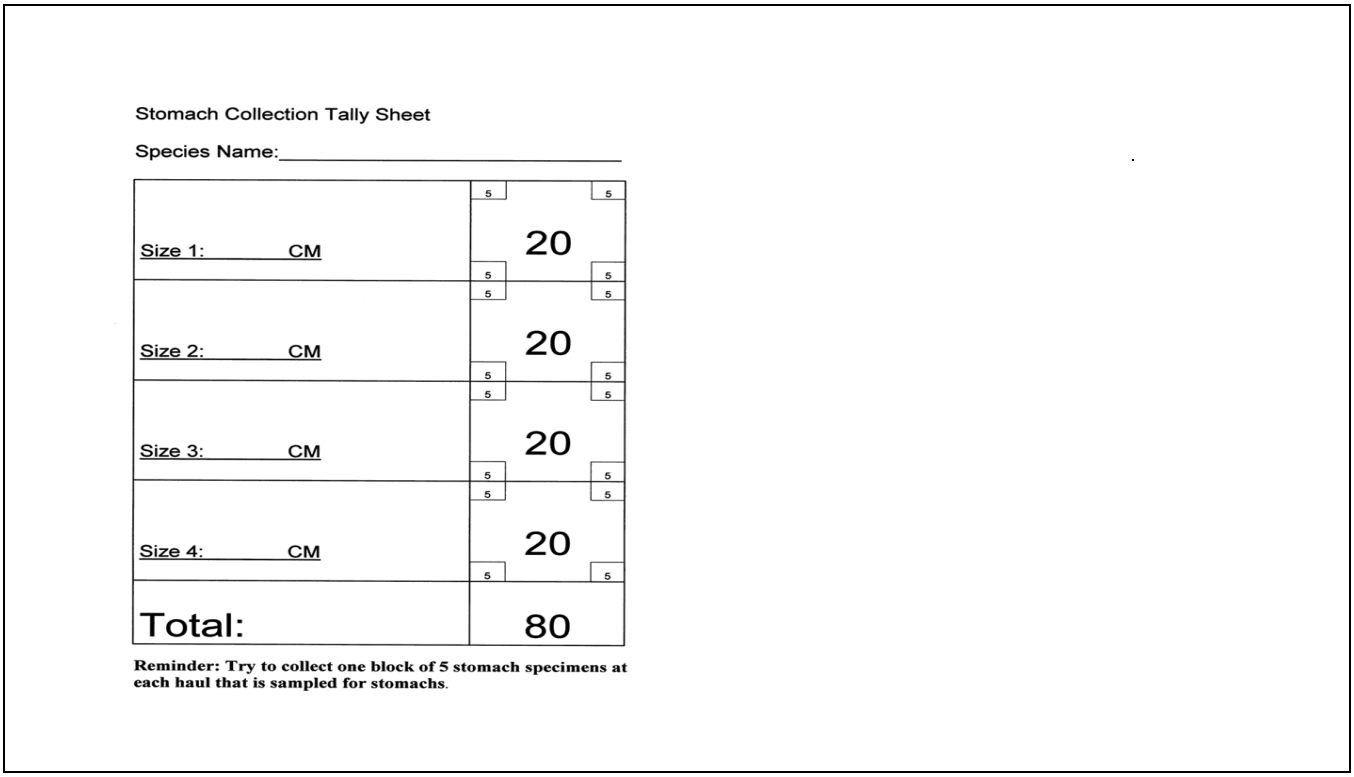
3. Was it difficult to collect the expected number of specimens from different size groups?

4. Do you have any suggestions that would improve the sampling procedure for this project?

5. Do you have any suggestions that would make it easier for you to successfully complete this project?

6. Where were the buckets and formalin stored onboard? Did you have difficulty locating them?

.

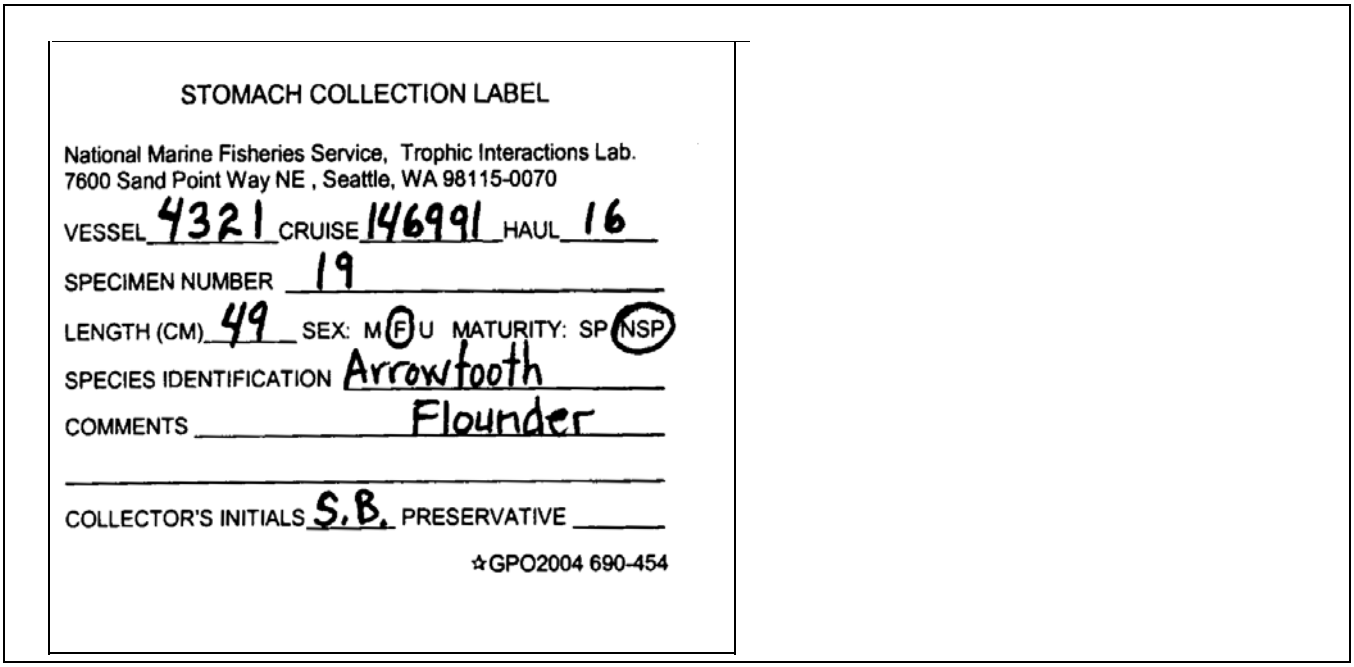

Stomach Collection Tally Sheet

Species Name:_____

Size 1: _____ CM	5 5 20 5 5
Size 2: _____ CM	5 5 20 5 5
Size 3: _____ CM	5 5 20 5 5
Size 4: _____ CM	5 5 20 5 5
Total:	80

Reminder: Try to collect one block of 5 stomach specimens at each haul that is sampled for stomachs.

Figure 17-1: Stomach Collection Tally Sheet



STOMACH COLLECTION LABEL

National Marine Fisheries Service, Trophic Interactions Lab.
7600 Sand Point Way NE , Seattle, WA 98115-0070

VESSEL 4321 CRUISE 146991 HAUL 16

SPECIMEN NUMBER 19

LENGTH (CM) 49 SEX: M (F) U MATURITY: SP (NSP)

SPECIES IDENTIFICATION Arrowtooth Flounder

COMMENTS

COLLECTOR'S INITIALS S.B. PRESERVATIVE

☆GPO2004 690-454

Figure 17-2: Stomach Collection Label

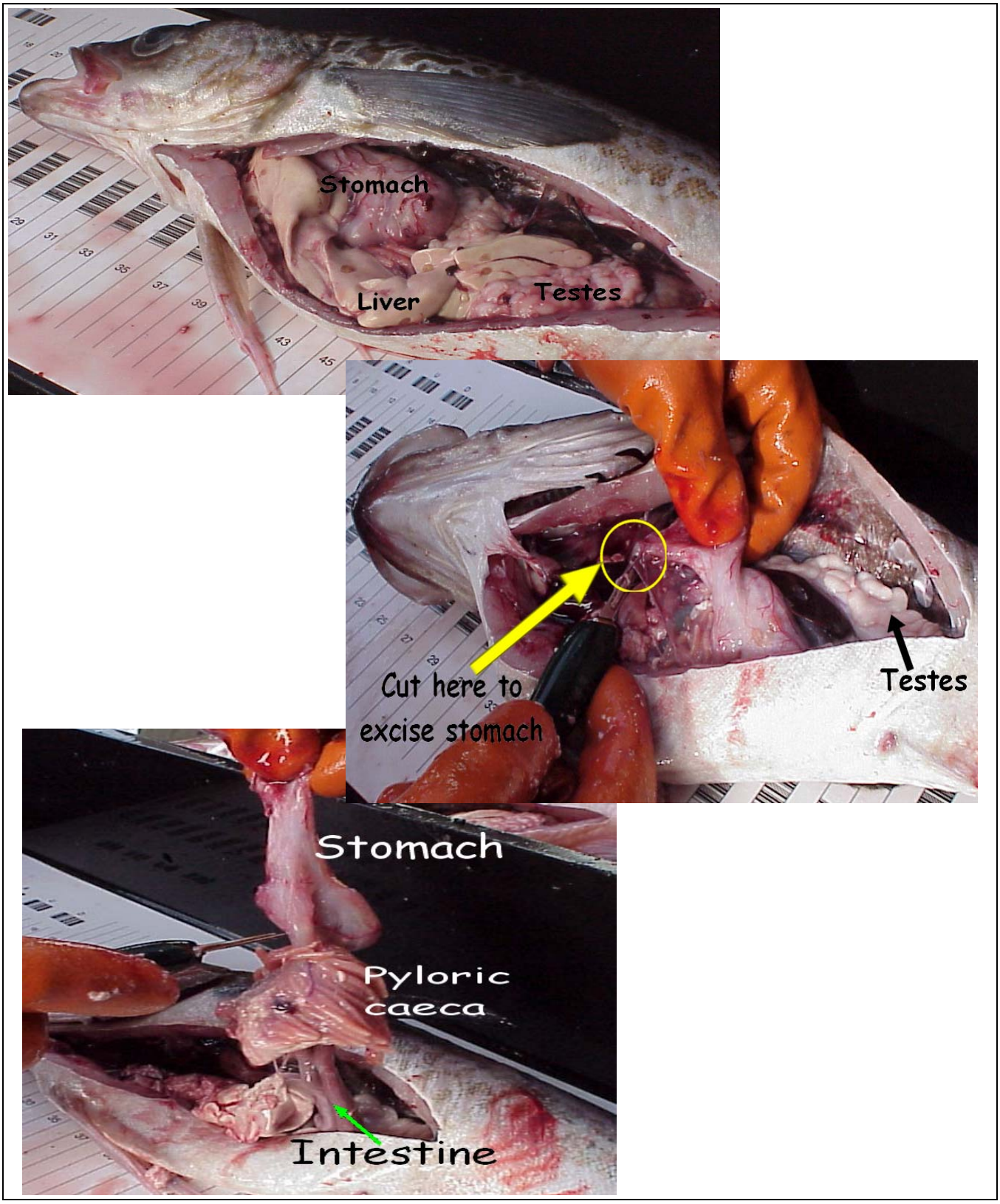


Figure 17-3: Removing a Gadid Stomach

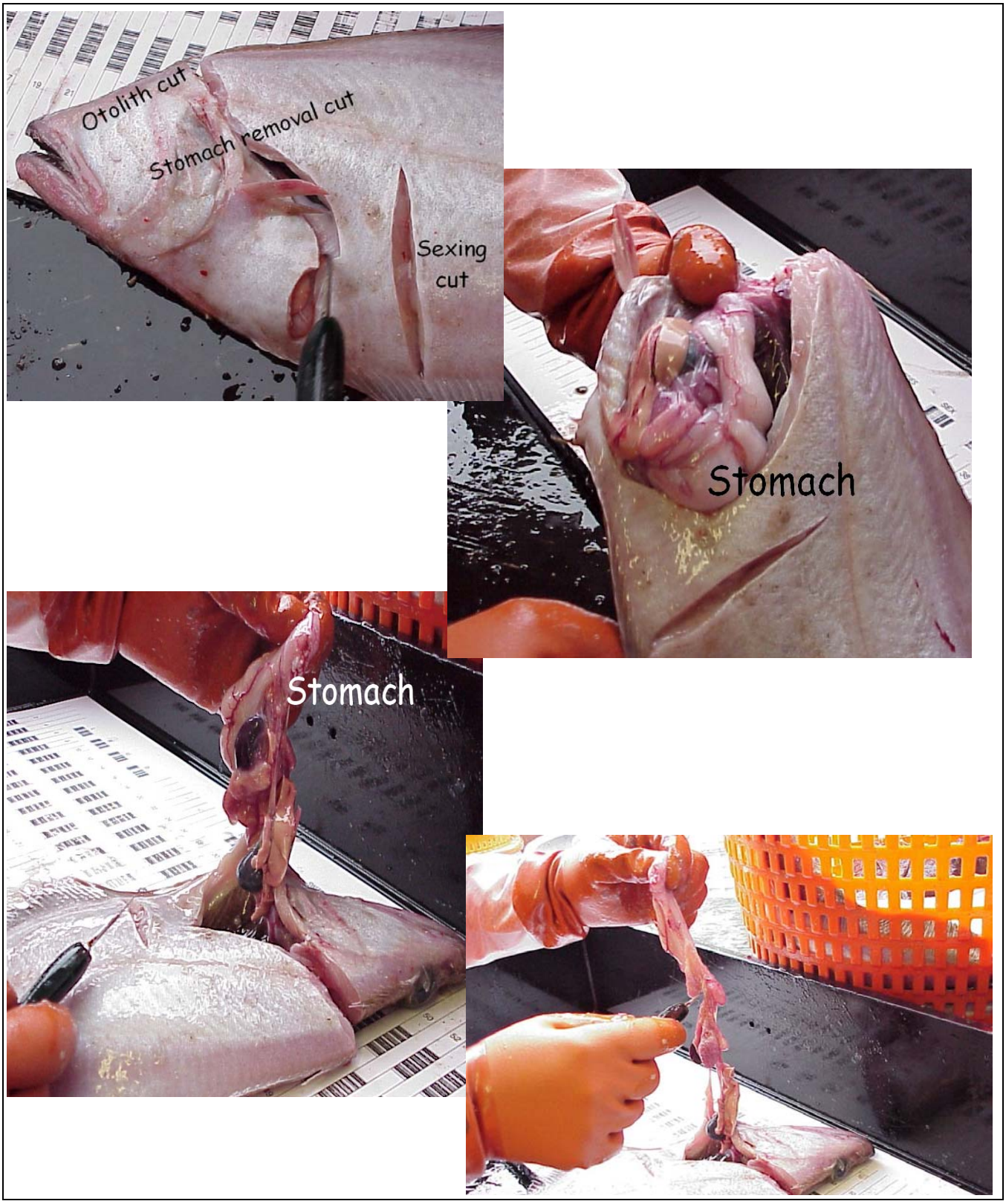


Figure 17-4: Removing a Flatfish Stomach

PT

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
06/17/13	14000	1234	181	

Page 2 of _____ for Vessel/Plant

Page 2 of 3 for Haul/Offload

Sample #: 2 | Sub-Sample #: | Sample Size: 151.34 (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	144	151.34	X
POLLOCK		31	35.20	100
POLLOCK		40	37.80	100
POLLOCK		40	35.00	100
POLLOCK		27	32.10	100
P. COD		1	4.62	100
FLATHEAD		2	1.48	100
ARROWTOOTH		3	5.14	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

POLLOCK S/L

M	F
36-L	28-1
37-L	36-□
39-1	44-L
43-L	48-L
46-1	49-1
47-1	

Tally K/P

Sample #: | Sub-Sample #: | Sample Size: (Kgs / Segments / pots) | # of Sampled Hooks:

Presorted ○ | Combined ○ | Unable to Follow Design ○ | No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

POLLOCK STOMACHS FROM SAMPLE # 2

#1 48 F 1.12 kg Spawn
#2 48 F 1.08 kg Spawn
#3 49 F 1.10 kg Spawn
#4 47 M 1.08 kg prespawn
#5 46 M .88 kg Spawn

Tally K/P

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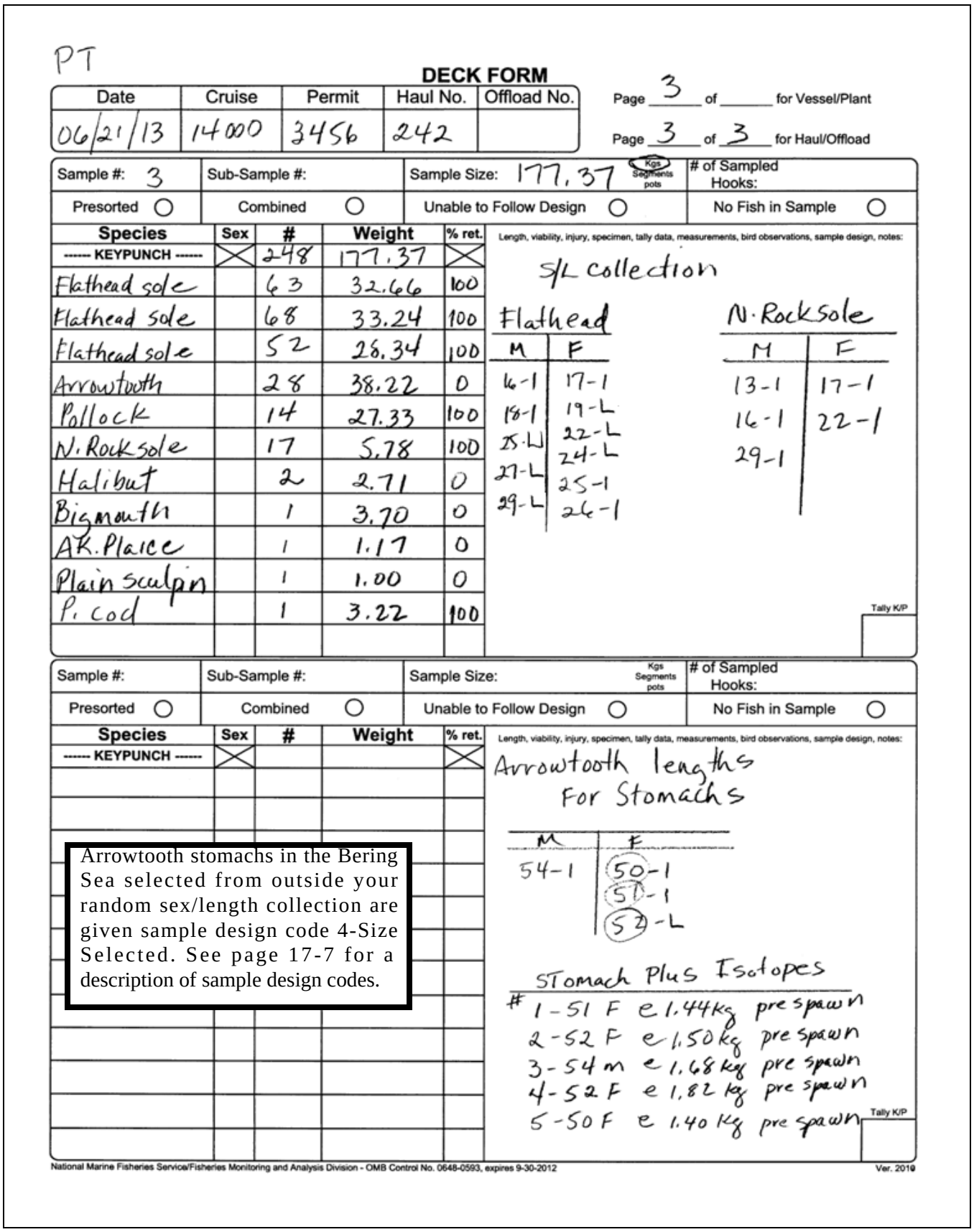
Figure 17-5: Example of Deck Form with Pollock Stomach and Maturity Scan Information Collected from Sex/Lengths



PT

DECK FORM

Date	Cruise	Permit	Haul No.	Offload No.
06/21/13	14000	3456	242	

Page 3 of _____ for Vessel/Plant

Page 3 of 3 for Haul/Offload

Sample #: 3	Sub-Sample #:	Sample Size: 177.37 (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X	248	177.37	X
Flathead sole		63	32.66	100
Flathead sole		68	33.24	100
Flathead sole		52	28.34	100
Arrowtooth		28	38.22	0
Pollock		14	27.33	100
N. Rocksole		17	5.78	100
Halibut		2	2.71	0
Bigmouth		1	3.70	0
AK. Plaice		1	1.17	0
Plain sculpin		1	1.00	0
P. cod		1	3.22	100

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

S/L collection

Flathead

M	F
16-1	17-1
18-1	19-L
25-L	22-L
27-L	24-L
29-L	25-1
	26-1

N. Rocksole

M	F
13-1	17-1
16-1	22-1
29-1	

Tally K/P

Sample #:	Sub-Sample #:	Sample Size: (Kgs / Segments / pots)	# of Sampled Hooks:
Presorted ○	Combined ○	Unable to Follow Design ○	No Fish in Sample ○

Species	Sex	#	Weight	% ret.
------ KEYPUNCH ------	X			X

Length, viability, injury, specimen, tally data, measurements, bird observations, sample design, notes:

Arrowtooth lengths For Stomachs

M	F
54-1	50-1
	51-1
	52-L

Stomach Plus Isotopes

1-51 F e 1.44kg pre spawn
2-52 F e 1.50 kg pre spawn
3-54 m e 1.68 kg pre spawn
4-52 F e 1.82 kg pre spawn
5-50 F e 1.40 kg pre spawn

Tally K/P

Arrowtooth stomachs in the Bering Sea selected from outside your random sex/length collection are given sample design code 4-Size Selected. See page 17-7 for a description of sample design codes.

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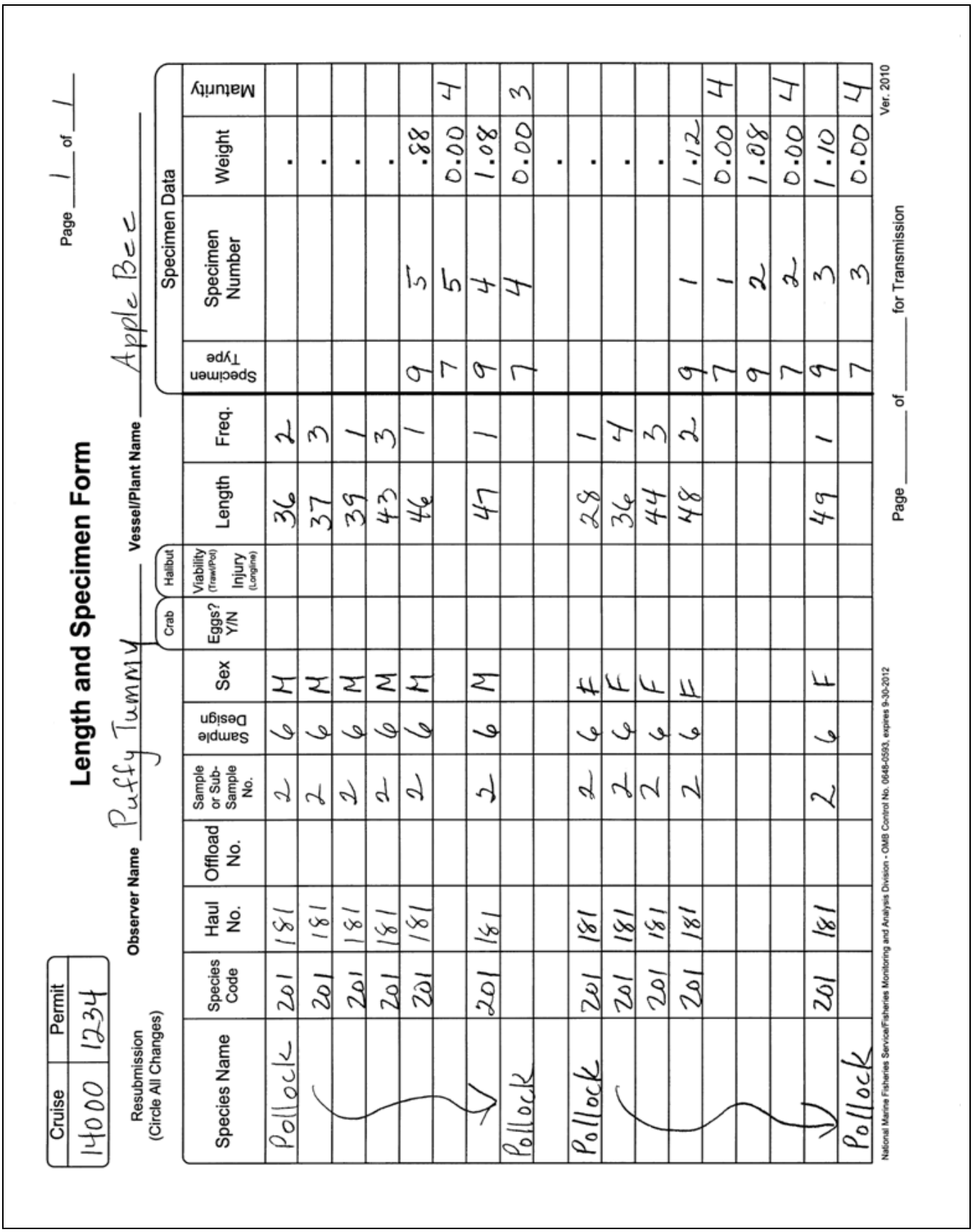
Figure 17-6: Example of Deck Form with Arrowtooth Stomach, Isotope and Maturity Scan Information Collected Outside of Sex/Lengths



Length and Specimen Form

Page 1 of 1

Cruise	Permit
14000	1234

Resubmission (Circle All Changes)

Observer Name Puffy Tummy Vessel/Plant Name Apple Bee

Species Name	Species Code	Haul No.	Offload No.	Sample or Sub-Sample No.	Sample Design	Sex	Crab Eggs? Y/N	Halibut Viability (Trawl/Pot) Injury (Longline)	Length	Freq.	Specimen Data: Specimen Type	Specimen Number	Weight	Maturity
Pollock	201	181		2	6	H			36	2			.	
	201	181		2	6	H			37	3			.	
	201	181		2	6	M			39	1			.	
	201	181		2	6	M			43	3			.	
	201	181		2	6	M			46	1	9	5	.88	
											7	5	0.00	4
	201	181		2	6	M			47	1	9	4	1.08	
											7	4	0.00	3
Pollock													.	
Pollock	201	181		2	6	F			28	1			.	
	201	181		2	6	F			36	4			.	
	201	181		2	6	F			44	3			.	
	201	181		2	6	F			48	2	9	1	1.12	
											7	1	0.00	4
											9	2	1.08	
											7	2	0.00	4
	201	181		2	6	F			49	1	9	3	1.10	
Pollock											7	3	0.00	4

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Page ____ of ____ for Transmission

Ver. 2010

Figure 17-7: Example of Pollock Lengths, Stomach and Maturity Scan Information on the Paper Length and Specimen Form

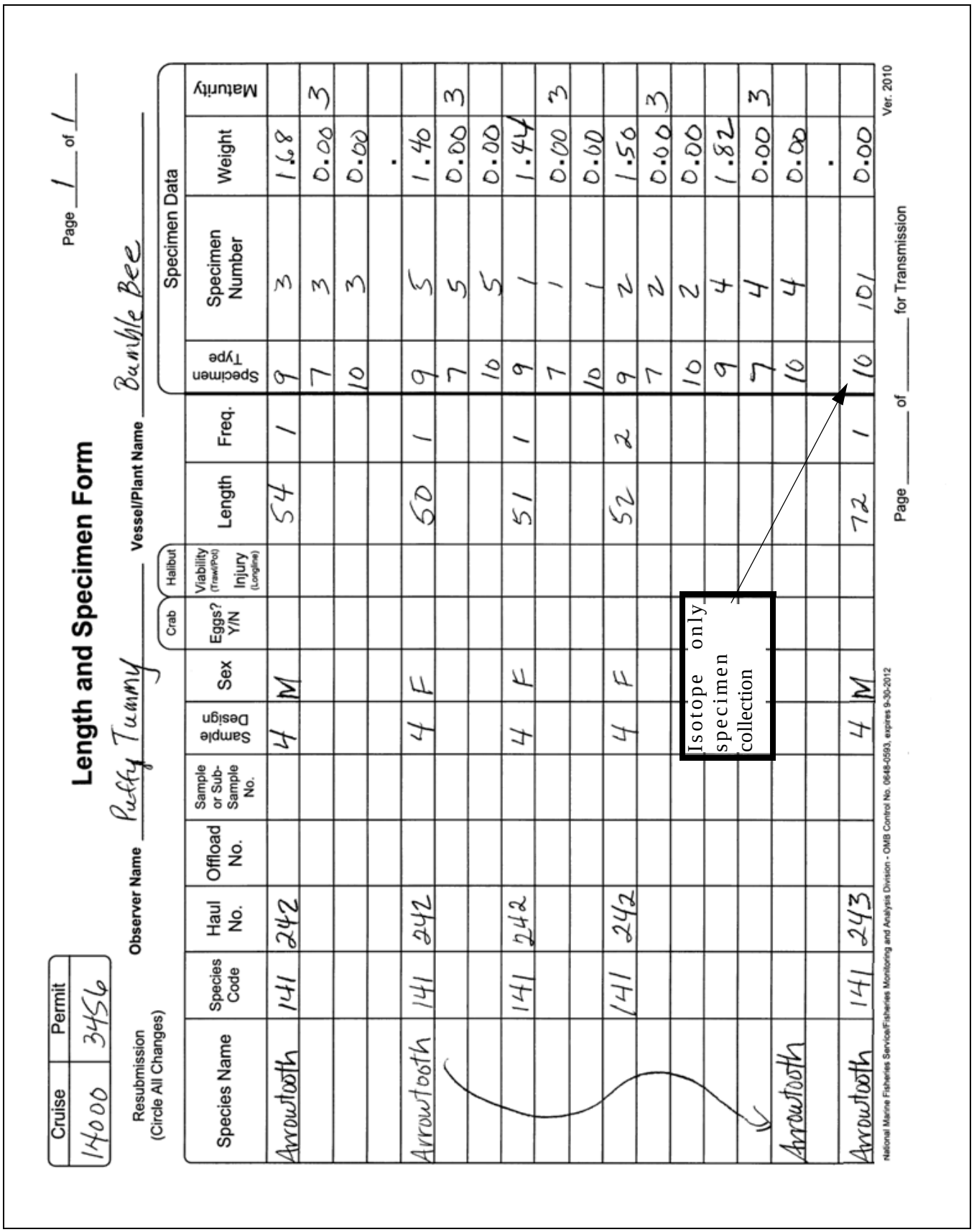

Figure 17-8: Example of Arrowtooth Lengths, Stomach, Maturity Scan, and Isotope Information on the Paper Length and Specimen Form From a Catcher Vessel

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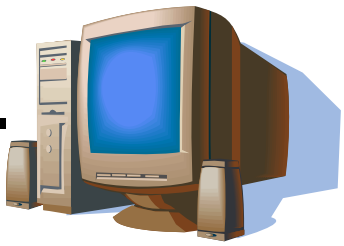

ATLAS INSTRUCTIONS

Table of Contents

INTRODUCTION

The Atlas software is an electronic input program that allows groundfish observers to enter and send data direct from a vessel or plant to NMFS at the Alaska Fisheries Science Center in Seattle. Once the electronic observer data is received by NMFS in Seattle, the data are used by NMFS fisheries managers to make inseason management decisions on those ongoing fisheries. Data are also reviewed weekly by FMA staff (Inseason Advisors) to help ensure that data are of the highest quality. The software also allows observers and FMA staff to communicate via text messages. Text communication serves as a vital link by helping observers in the field, with any issues they may face, both with observer related duties and technical issues.

This manual will provide a basic understanding of the features provided with the Atlas software and how to use those features. This manual assumes that the reader already has some rudimentary understanding of the Windows operating system. Please inform an instructor if you need more computer training prior to departing for your assignment. A tutorial will be given during your regular observer training/briefing. For the rest of these instructions, the word “Atlas” will be used for term “Atlas software.”

STARTING THE ATLAS SOFTWARE

If you are assigned to a vessel or plant that has a computer that is installed with Atlas, you will first need to locate that computer. All catcher processors, motherships, and catcher vessels over 125 feet and all plants have Atlas. After locating the computer with Atlas, go to the Windows desktop and double click on the icon labeled Observer Atlas.

Atlas Security Screen

Once Atlas starts, the first screen you will see is the Atlas Logon screen.

Figure 18-1: ATLAS Login Screen

New Users

If you are the sole observer or the lead observer on a vessel or at a plant and have never entered any data or text messages, you will need to click on the New User button (Figure 18-1). After selecting the New User button, you will need to create a new password (Figure 18-2). Your new password may be any combination of numbers and/or characters. It must be at least 4 characters/numbers long. ***Passwords are case sensitive.*** Once you have created a new password, you will need to re-type it again for security purposes. Once the password has been re-typed, select the Submit button to continue. Please remember that if you are the lead observer and another observer will also be entering data under your cruise number, you will need to provide the second observer with the password.

Figure 18-2: New Users Screen

If you receive an error message that the re-typed password does not match the new password, you will need to re-enter both fields again.

It is extremely important that you do not share your password with any vessel or plant personnel. If someone besides the second observer gains access to your password, they then have the ability to make changes to your data without your knowledge.

To protect your data remember to always close your ATLAS session whenever you will be away from the computer.

Current Users

If you are logging into Atlas to continue data entry, select the Current User button (Figure 18-1). Type in your current password and select the Submit button to continue (Figure 18-3)

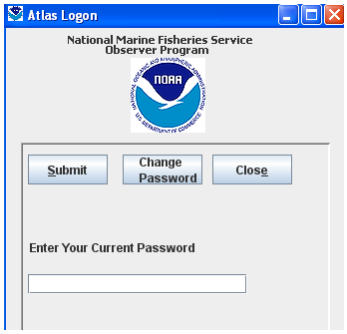

Figure 18-3: Current Users Login Screen

Changing Passwords

In order to change your password, you must know your current password. If you do not know your current password, you will need to contact FMA to gain access to all the data that has been entered so far. To change your password, you must select the Current User button from the first login screen (Figure 18-1). Then select the Change Password button. Enter your current password first, then your new password (Figure 18-4). Re-type your new password again and select the Submit button to continue.

Figure 18-4: Changing Your Password

Atlas Main Menu

Once you have successfully entered your password, the Atlas Main Menu (Figure 18-5) will appear. The Atlas Main Menu is the starting point for the rest of Atlas. The first time you get to this screen, you must enter the required information on the right hand side of the screen. The required fields are: First Name, Last Name and Cruise Number. If there is more than one observer, only the lead observer should enter their information in the required fields. ***In most cases, the vessel permit and vessel name field will already be filled out and you won't need to make changes to these fields.*** Once you have entered the required fields, you will not have to enter this information again for the rest of your cruise.

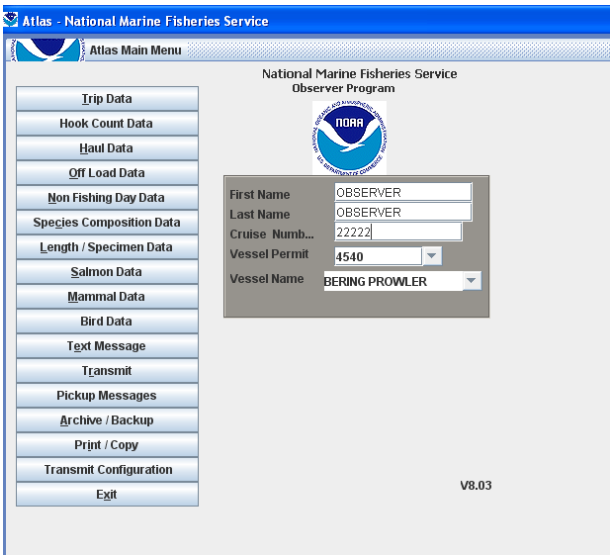

Figure 18-5: Atlas Main Menu

Main Window Navigation Buttons

On the left side of the Atlas Main Menu, you will find the Atlas navigation buttons that will allow you to access the observer electronic forms and other Atlas functions (Figure 18-5). If you are stationed on a vessel, all data entry must start with the Trip Data form (except for Non-Fishing Days and Hook Counts). If you are stationed at a plant, all data entry must start with the Offload Data form, or the Non-Fishing Days.

Keyboard Shortcuts

Each Navigation Button in Atlas can be activated by using the mouse or by using a keyboard shortcut. The keyboard shortcut-keys for each button can be identified by the underlined letter of each button. For

Navigation Title	Navigation Function
Trip Data	Opens Trip Data form for vessel observers.
Hook Count Data	Opens Hook Count collection form for longline observers.
Haul Data	Opens Haul Data form for Trawl, Pot, Longline.
Offload Data	Opens Offload Data form for catcher boat and plant observers.
Non-Fishing Day	Opens Non-Fishing day form for vessel and plant observers.
Species Composition Data	Opens Species Comp data form for vessel observers.
Length/Specimen Data	Opens Length/ Specimen Data form for vessel and plant observers.
Salmon Data	Opens Salmon data form for vessel and plant observers
Mammal Data	Opens Mammal data form for vessel and plant observers. ***The Mammal Specimen form is accessed through the Mammal data form.***
Bird Data	Opens Bird Interaction and Bird Specimen Data form for vessel and plant observers.
Text Messages	Opens the Text form where outgoing text messages are created and incoming text messages are read.
Transmit	Opens Transmit option form for sending data to NMFS in Seattle.
Pickup Messages	Retrieves text messages without preparing and transmitting data.

Navigation Title	Navigation Function
Archive/Backup	Opens form to access the following functions: Backup and Archive data.
Print/Copy	Copies data for use by the vessel and Prints data for use by the vessel. ***Does not print text messages.***
Transmit Configuration	Provides options for changing the configuration of how data is sent to Seattle via the ship's satellite communication system
Exit	For closing out of the Atlas program.

example, if you look at the Trip Data navigation button, you will notice that the "T" in Trip is underlined (Figure 18-6). To activate the Trip Data navigation button, using only the keyboard, press down and hold the <Alt> key then press down the <T> key.

Figure 18-6: Trip Data Navigation Button

Keyboard Alternatives to the Mouse

The Atlas program is like most Windows applications. When navigating through the program, you can either use the mouse or the keyboard. Basic keyboard navigation is as follows. The <Tab> key will move the cursor from one field to the next. The <Shift>+<Tab> keys will move the cursor backwards from a field to the previous field. If you are in a field and you want to move the cursor within that field, you use the left and right arrow keys.

Drop Down Lists

Many of the data entry fields in Atlas have a drop down list associated with that field. A drop down list is a list that contains all possible values for that particular field. When you are in a field that does contain a drop down list, you will see a down arrow next to that field. A user can then choose to either type in a value or click on the drop down arrow and expand the list. Once the list is expanded, the user can then select the value they want.

Required Data Entry Fields

Some of the data fields in Atlas are "Required" fields. This means that a valid value must be entered in this field before you can move on to the next field or Atlas form. For example, in the Trip Data form, the Trip Number is required. You will be unable to leave this field until you have entered a valid value.

Data Field Appearance

Some data fields in Atlas will appear or disappear based on certain values in another field. For example, when you open up the Haul Data form you will not see the Total Pots field. When you enter a value of 6, in the Gear Type field, then the Total Pots field will appear.

Data Entry Validation

When you enter data into a field in any form, it is possible that this field will automatically validate what has been entered. For example, when you are in the Deployment Time field in the Haul Data Form, you will not be able to enter a time of 2401, as that is not a valid time. This type of field validation will occur throughout Atlas.

Replicating Fields

When you enter data into a form, some fields may already be filled out based on previous entries. This is to help reduce the amount of data entry the observer must do. For example, if you enter haul data and enter the gear code as 2, the next time you enter another haul the gear code field will already be filled out with the number 2. Remember to change a replicating field if the previous value is not correct for the current entry.

Atlas Form Command Buttons

Within each Atlas data entry form, you will find command buttons at the top of the form/screen. These command buttons allow the user to perform certain functions while in that form.

There are 3 basic types of command buttons (Figure 18-7).

Add / Save	Choose this command to ADD new data to a form or to Save data that was entered or edited.
Delete	Choose this command to delete a record.
Close	Choose this command to close the form.

Figure 18-7: Command Buttons

TRIP DATA FORM

If you are stationed on a vessel (***not a plant***), you must always start by entering data in the Trip Data form. ***No other data (except for non-fishing day and hook count data) can be entered in any other data form until you start a trip).*** To open the Trip Data form, select the Trip Data Navigation button, from the Atlas Main Menu (Figure 18-5). The Trip Data form will open (Figure 18-8).

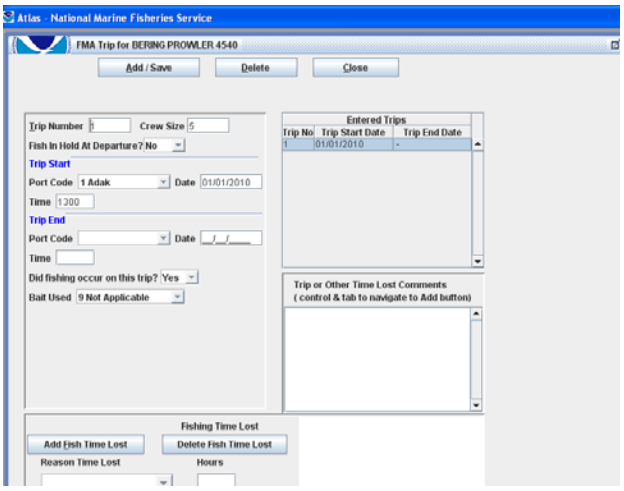

Figure 18-8: Trip Data Form

Specifics on the Trip Data Form

To start a new trip, click on the ADD/SAVE button found at the top of the form. The trip data entry form will open. The very first time you enter a new trip, the trip number will default to "1." This may be changed by the user.

When you start a new trip, all the fields in the Trip Start area of the form must be filled out. The Trip End fields can be left blank until the trip is complete ***(don't forget to update the Trip End fields when the trip is complete)***. If you do enter a Trip End Port Code, the Atlas program will expect you to fill out the Trip End fields. The bait code field should be filled out regardless of vessel type. On a trawler a code of 9 - Not Applicable should be entered. It is not possible for you to save another trip until the current open trip has trip end information and is saved. Once you have added all your trip data, select the Add/Save button at the top of the screen to save the data to the database. Once the data has been saved, you will see the trip listed on the right hand side of the screen in the Entered Trips list.

Editing Trip Data

To edit trip data, first go to the list of entered trips found on the right hand side of the screen (Figure 18-9). Double click on the trip you want to edit. All the previously entered trip data appears in the trip entry window on the left hand side of the screen. Make the necessary changes, then select the Add/Save button to save your changes. To edit fishing time lost data, select the Reason for Time Lost from the drop down list and enter the new amount of time lost and click the Add/ Save button. To delete a time lost record, select the Reason for Time Lost from the drop down list then click the Delete Fish Time Lost button.

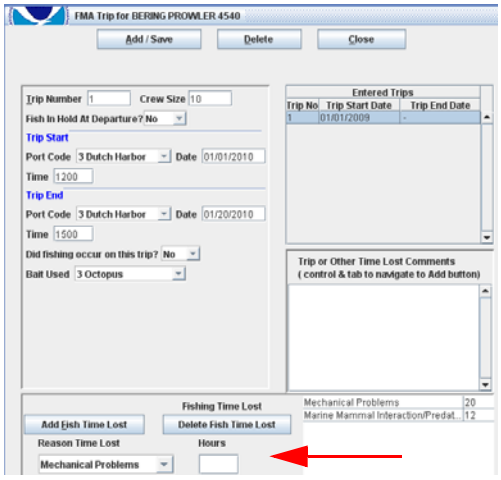

Figure 18-9: Editing Trip Data

HOOK COUNT DATA

To open the Hook Count Data form, select the Hook Count Data button from the Atlas Main Menu. The Hook Count button will be visible for longline vessels only. If you are assigned to a longline vessel, hook count collection data MUST be entered into Atlas prior to entering any haul data.

Specifics on the Hook Count Data Form

Each hook collection must be assigned a unique count number. Multiple collections may be recorded for the same date and an unlimited number of segment numbers may be entered for each collection. Once the Hook Count data has been added, select the Add/Save button to save the data to the database(Figure 18-10).

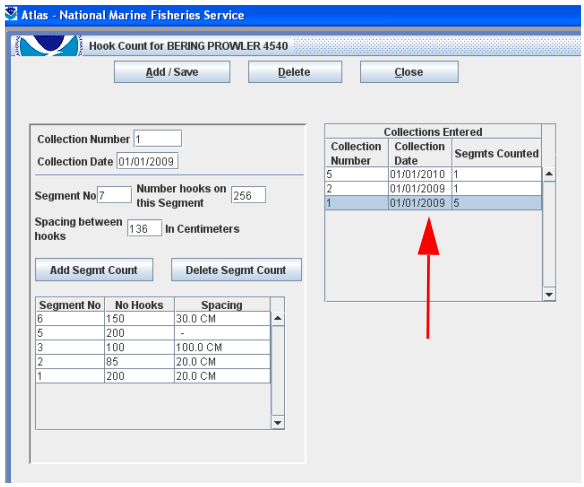

Figure 18-10: Hook Count Data Screen

Editing Hook Counts

To edit a hook count, double click the collection in the table on the right side of the screen. Then select the specific segment to edit from the segment table. To edit a specific segment, double click the record to pull the data into the edit fields. Click Add/Save after the changes have been made(Figure 18-10).

HAUL DATA FORM

To open the Haul Data form, select the Haul Data Navigation button from the Atlas Main Menu (Figure 18-5). The Haul Data form will open. (Figure 18-11).

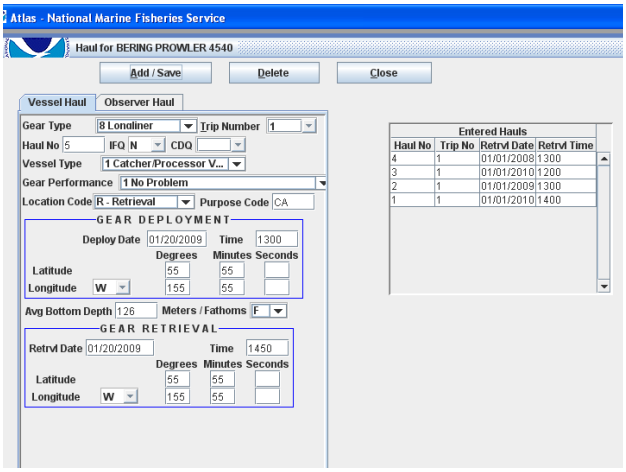

Figure 18-11: Vessel Haul Form

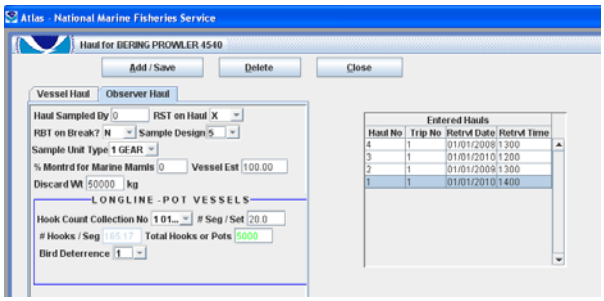

Figure 18-12: Observer Haul Form

Specifics on the Haul Data Form

To start adding a new haul, click on the Add/Save button at the top of the screen. The haul entry form will open. The Vessel Haul and Observer Haul forms are separated by two tabs. Once the last field is entered on the VHF, you can tab directly to the first field of the OHF(Figure 18-12). The first field in the haul form is the gear type field. Next you must select to which trip this haul belongs. ***The field Purpose Code will default to "CA." This should not be changed unless otherwise instructed to by FMA staff.*** Once you have added all your haul data, select the Add/Save button at the top of the screen to save the data to the database. Once the data has been saved, you will see the haul listed on the right hand side of the screen in the Entered Hauls list. When you begin adding another haul, many of the fields will automatically be filled based on entries from previous hauls.

Assigning Hook Count Data to a Haul

Once a hook count has been saved, it may be assigned to a specific haul within the haul form. To assign a hook count select the appropriate hook count from the drop down list. The total number of hooks will be calculated by Atlas based on the number of gear segments recorded in the haul form (Figure 18-13).

If the total number of hooks in a set is different from the value calculated in Atlas, a different value may be entered. Once you override the total number of hooks field, Atlas will no longer calculate this value for this haul. In order to have Atlas recalculate the value, the entire haul would have to be deleted and re-entered. If the haul is deleted all child records for the haul will be lost and have to be re-entered.

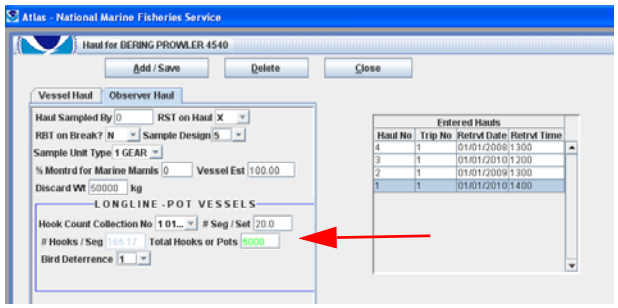

Figure 18-13: Assigning Hook Counts to a Haul

Editing Haul Data

To edit haul data, first go to the list of entered hauls found on the right hand side of the screen (Figure 18-14). Double click on the haul you want to edit. All the previously entered haul data will appear in the haul entry window on the left hand side of the screen. Make the necessary changes, then select the Add/Save button to save your changes.

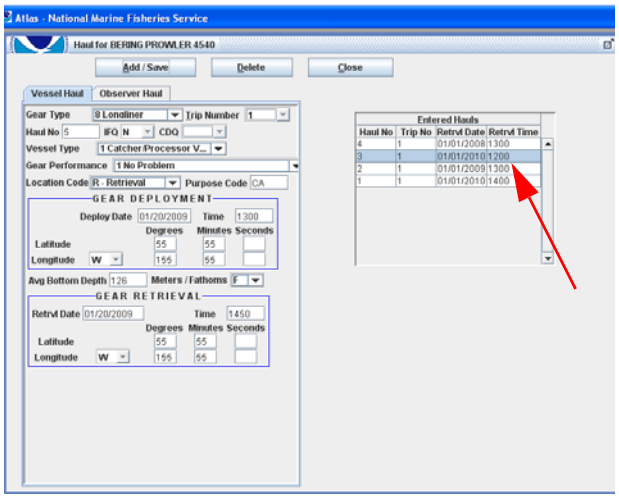

Figure 18-14: Editing Haul Data

Offload Data Form

To open the Offload Data form, select the Offload Data Navigation button from the Atlas Main Menu (Figure 18-5). The Offload Data form will open. (Figure 18-15).

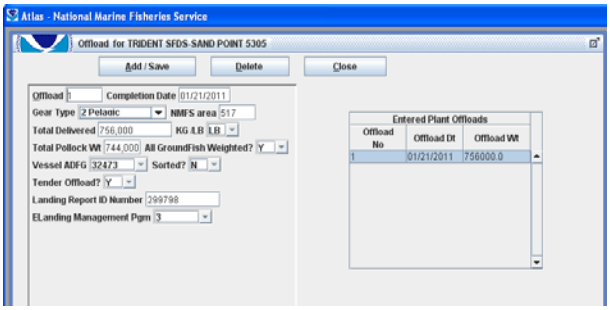

Figure 18-15: Offload Data Form

Specifics on the Offload Data Form

The Offload Data form will be filled out by observers assigned to catcher boats and observers assigned to a plant. To start adding a new offload, click on the Add/ Save button at the top of the screen. The offload entry form will open. If you are an observer assigned to a catcher boat, the first field you must fill out is the trip number field. Select the trip number to which the offload belongs. If you are an observer assigned to a plant the first field you need to fill out is the delivery number. Once you have added all your offload data select the Add/Save button at the top of the screen to save the data to the database. Once the data has been saved you will see the offload listed in the entered

offloads list on the right hand side of the form. When you begin adding another offload many of the fields will automatically be filled out based on entries from previous offloads.

Editing Offload Data

To edit offload data, first go to the list of entered offloads found on the right hand side of the screen (Figure 18-16). Double click on the offload you want to edit. All the previously entered offload data will appear in the offload entry window on the left hand side of the screen. Make the necessary changes, then select the Add/Save button to save your changes.

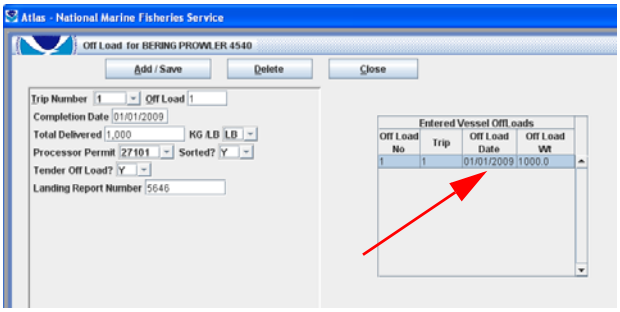

Figure 18-16: Editing Offload Data

NON-FISHING OR NON-DELIVERY DAY FORM

To open the Non-Fishing Day form, select the Non-Fishing Day button from the Atlas Main Menu (Figure 18-5). The Non-Fishing Day form will open (Figure 18-17). Plant observers will use the Non-Delivery Day form.

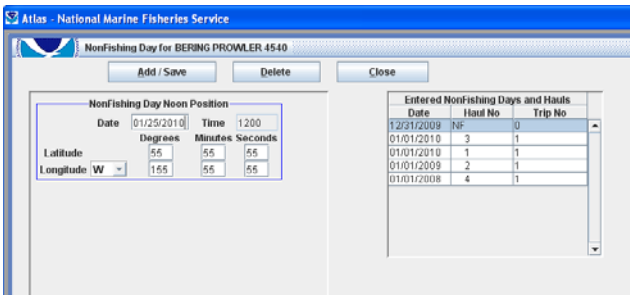

Figure 18-17: Non Fishing Day Form

Specifics on the Non-Fishing or Non-Delivery Day Form

Non-fishing or non-delivery day information must be filled out by both vessel and plant observers. To start adding a new non-fishing or non-delivery day, click on the Add/Save button at the top of the screen. The data entry form will appear. Enter the date and positions of the non-fishing day (date only for plant observers). The time will automatically be defaulted to 1200. After adding all your data, click on the Add/Save button and your non-fishing/non-delivery day information will be saved. Once the data has been saved, you will see the non-fishing/non-delivery day listed on the right hand side of the screen in the entered list of non-fishing days (non-delivery days for plant observers) and hauls.

Editing Non-Fishing or Non-Delivery Day Data

To edit non-fishing/non-delivery day data, go to the list of entered Non-Fishing or Non-Delivery Days and Hauls found on the right hand side of the screen (Figure 18-18). Find the non-fishing/non-delivery day you want to edit and double click on that row in the list. The data will appear in the Non-Fishing or Non-Delivery Day entry form on the left hand side of the screen. Make the necessary changes and then click on the Add/Save button.

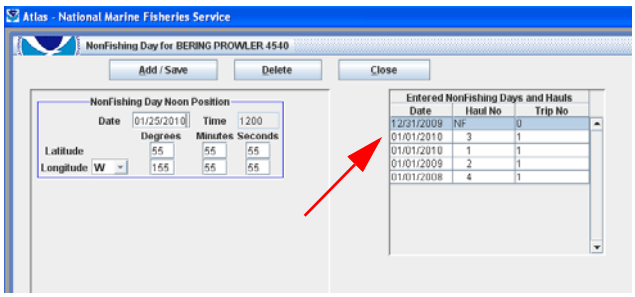

Figure 18-18: Editing Non Fishing Day Form

SPECIES COMPOSITION DATA FORM

Before adding species composition data, you must have already entered a haul or offload. To open the Species Composition form, select the Species Composition navigation button from the Atlas Main Menu (Figure 18-5). The Species Composition Data form will open. (Figure 18-19)

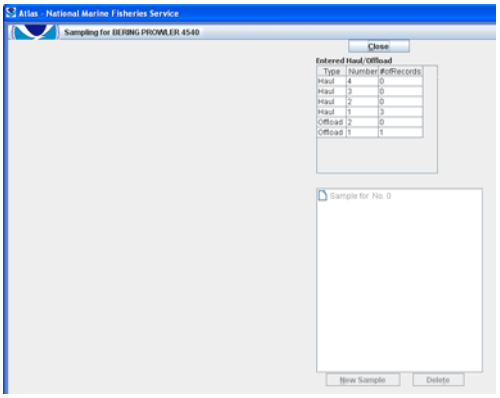

Figure 18-19: Species Composition Data Form

Specifics on the Species Composition Data Form

To add species composition data, find the haul or offload in the list of entered Hauls/Offloads found on the right hand side of the screen. Once the haul or offload has been located in the entered list, double click on that row in the list. The haul or offload number will appear in the bottom right side of the screen. Highlight that haul or offload number and click on the New Sample button. When the New Sample button is selected, the species composition data entry panel will open (Figure 18-20).

Adding Species Composition Data

After selecting the New Sample button, the species composition entry panel will open. The first field that must be entered is the sample number field. Once the sample number field is entered, you then must enter the sample weight for a trawl vessel or the number of segments or pots for a fixed gear vessel. For a longliner, the total number of sampled hooks is a calculated value based on the number of segments sampled and the hooks count collection assigned to the haul. If the total number of hooks sampled is different than the calculated value, this number may be entered directly in the Sampled Hooks/Pots field. Once this field has been overridden, Atlas will no longer calculate the total number of hooks sampled for this sample.

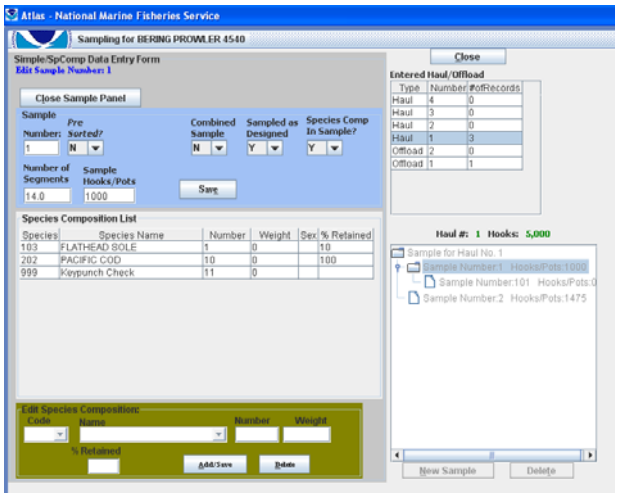

Figure 18-20: Species Composition Form with Data Entry Panel Open

After entering the sample weight or sampled hooks/pots, the species code or species name must be entered. If you enter the species code, the species name field will be filled out based on what species code has been entered. If you enter the species name first, then the species code will be filled out based on what species name was selected. ***Many species have similar names; ensure you select the correct code and name! Use only those species codes listed in the species code lists beginning on page A-1!*** Next the species number and species weight must be entered. Depending on what species is entered, the sex field may appear or disappear. The last field to enter is the percent retained field. The percent retained field is only to be entered for a haul (***not offload***). Once these data have been added, select the Add/Save button found in the lower right hand side of the screen. The entered species will be added to the Species Composition List (Figure 18-21).

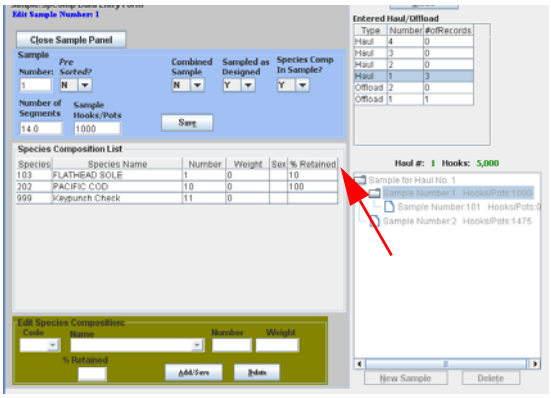

Figure 18-21: Species Composition List

Atlas will allow you to enter multiple lines of data for a single species when entering composition records. When you enter prohibited species salmon and crab that have an associated sex, sum the lines of data on your deck form to enter these as a single line of data into Atlas (Figure 18-22). This ***only applies to prohibited species salmon and crab that have a corresponding sex*** in the species composition data. You may enter other species as multiple rows if you prefer. You must show all calculations on your deck form.

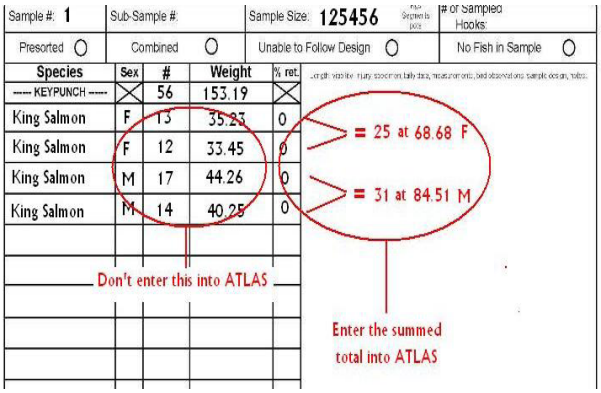

Figure 18-22: Summing Up Prohibited Species on Deck Forms

Before the Sample Panel can be closed, a keypunch record must be entered as part of the species composition data. To enter a keypunch record use a species code of 999 (Figure 18-23). The keypunch must equal the sum of the species numbers and sum of species weights. Once all species have been added, you can close the entry panel by selecting the Close Sample Panel button.

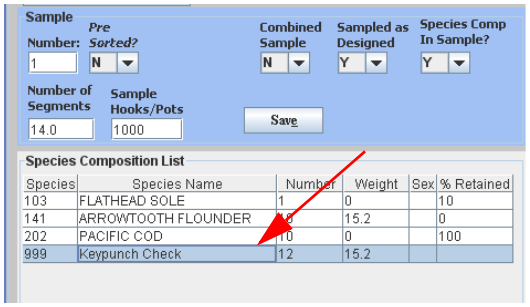

Figure 18-23: Keypunch Check in Species Composition

Longline, Pot, or Offload Samples With No Fish

If you are sampling an offload, longline set or pot set and there are no fish in the sample create a sample entry for the haul, number it appropriately, enter the sample size (total delivery weight, sample size in hooks or pots), and choose "N" for "Species Comp in Sample?"

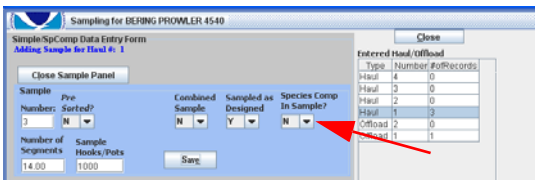

Figure 18-24: Indicating There Were No Fish in the Sample

Adding a SubSample to Species Composition Data

If you are on a vessel using trawl gear and you want to enter subsample species composition data, you must have first entered a sample that included 2 different species with a weight and number of 0. Once that sample data has been entered, you can enter your subsample data into the species composition form. In the species composition form in the lower right corner, find the data tree that has all the entered species composition hauls (Figure 18-25). ***Subsamples are not allowed for offload data.You can enter a subsample for any sampled haul for fixed gear data***.

Using the data tree, highlight the sample for which you want to enter a subsample. After you highlight that record, click on the New Sample button. The species

composition data entry panel will open (Figure 18-20). You can begin to enter your subsample data.

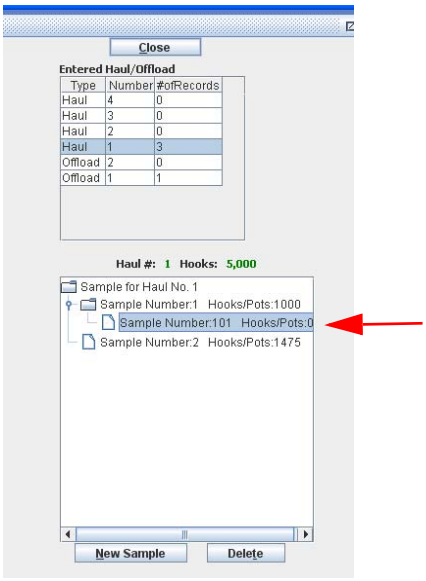

Figure 18-25: Editing Species Composition Data Tree

Editing Species Composition Data

To edit species composition data, first go to the list of entered hauls or offloads found on the right hand side of the screen (Figure 18-19). Find the haul or offload that contains the data you want to edit and double click on that record. On the bottom right side of the screen, you will see a data tree that contains all the species composition data entered for the selected haul or offload. (Figure 18-26).

Using the data tree (Figure 18-26), find the sample number that you want to edit. Double click on that row in the data tree and the sample data will appear in the species composition data entry screen (Figure 18-27).

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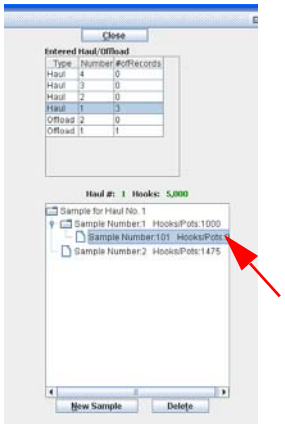

Figure 18-26: Editing Species Composition Data Tree

Once the entry panel is open, you may begin editing any field. To edit a specific species, find that species in the list of entered species (Figure 18-27) and double click on that row. The species information will appear in the species entry window at the bottom of the form. Now you can begin editing any field. Once you are done editing a specific record, always click on the Add/ Save button.

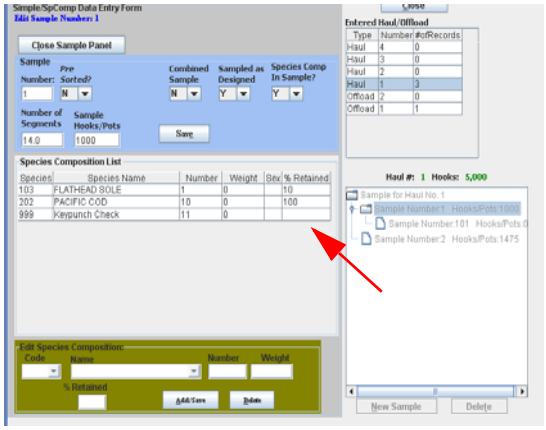

Figure 18-27: Species Composition Data Form with Entry Panel Open

LENGTH DATA FORM

Before adding length data, you must first enter haul, offload, and/or species composition data. Length data may come from any of these forms. To open the Length form, select the Length Data navigation button from the Atlas Main Menu (Figure 18-5). The length selection form will appear (Figure 18-28).

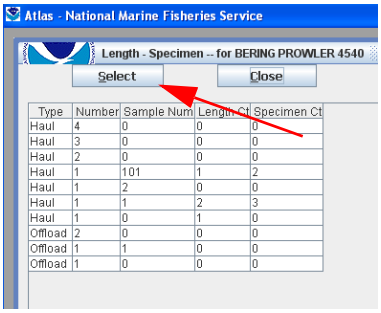

Figure 18-28: Length Selection Window

Once the length selection window opens, find the row containing the haul number and/or sample number or offload and/or sample number for which you want to enter length data. To open the data entry window, double click on the row or highlight the row and click the Select button (Figure 18-28).

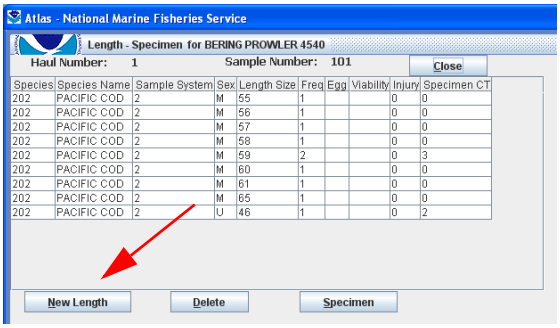

Figure 18-29: Length Data Entry Form

Specifics on the Length Data Entry Form

To add a new length, click on the New Length button found at the bottom of the form (Figure 18-29). Once the data entry form opens, enter the species code or the species name.

If you are entering length data from a sample, only those species codes that were in your sample will appear in the species code list. If you are entering length data from a haul or offload, the full species code list will be available.

If multiple records for the same species with different sex codes are entered in the species composition, a different record for each species and sex will appear in the species code list of the length form. If there are lengths for the same species but different sex codes, choose the appropriate species code and sex from the list. Once the appropriate species code and sex has been selected, Atlas will populate the sex code field (Figure 18-30).The sampling system field will default to code 6 (simple random) and in many cases should not be changed. If a sex code was not assigned to the length in the species composition, enter the sex and all other fields. Once all fields have been entered, select the Save button at the bottom of the entry panel (Figure 18-30). After selecting the Save button, the cursor will move automatically to the sex field. Also, after selecting the save button, the entered length data will appear in the entered length list at the top of the data form (Figure 18-31).

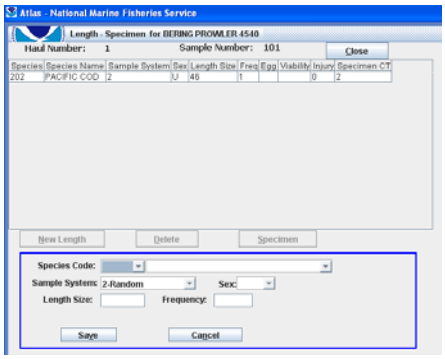

Figure 18-30: Length Data Entry Form with Data Entry Panel Open

Editing Length Data

To edit length data, first go to the list of entered lengths. Find the row that contains the data you want to edit and double click on that row (Figure 18-31).

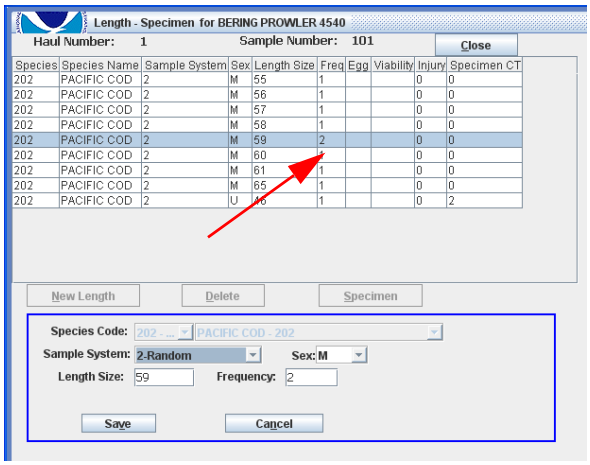

Figure 18-31: Edit Length List

The selected data will appear in the entry window to edit (Figure 18-31). You can make any changes to the data from here. After making your edits, select the Save button to save your changes.

SPECIMEN DATA FORM

Before adding specimen data, you must have first entered a length record. Each specimen record is entered for a specific length record. The only way to access the specimen entry form is through the Length/ Specimen Button on the Main Screen of Atlas (Figure 18-5). This will open the entered lengths list.

Find the row that contains the haul or offload number and/or sample number that contains the length data for which you are entering specimen data. Once the row has been located, double click on the row to open the entered length list (Figure 18-28) or highlight the row and hit the Select button. This will open the list of entered lengths.

Once the list of entered lengths is available, highlight the row in the Length form for which you want to enter specimen data (Figure 18-31). After highlighting the row, select the Specimen button, and the Specimen data entry panel (Figure 18-32) will open.

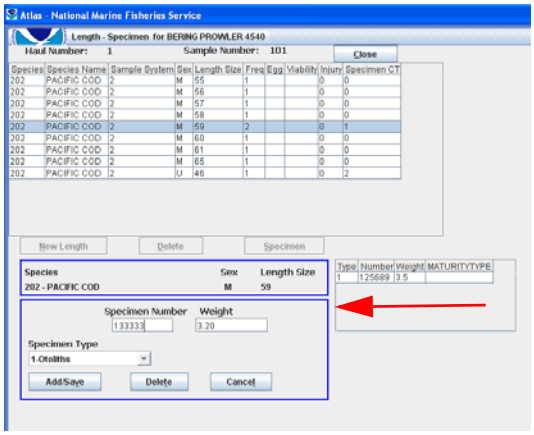

Figure 18-32: Specimen Form With Data Entry Panel Open

Specifics on the Specimen Data Entry Form

Once the specimen data entry window is open, click in the specimen number field to begin adding data. Once all the fields have been filled out, click on the Add/ Save button found at the bottom of the window. Your entered specimen data will appear in the table on the right hand side of the screen (Figure 18-33).

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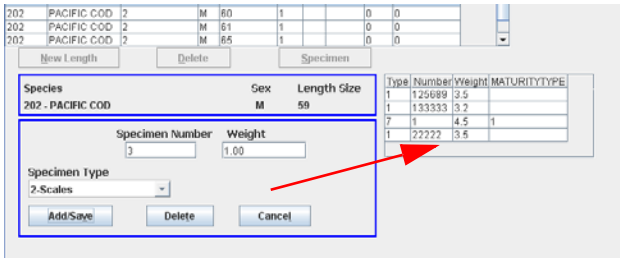


Figure 18-33: Entered Specimen Data List

Editing Specimen Data

To edit specimen data, first go to the list of entered length and specimen records. Lengths with corresponding specimen records can easily be identified by the Specimen Count Column found in the entered length list. Find the row that contains the data you want to edit and highlight the row, then click on the Specimen button (Figure 18-34).

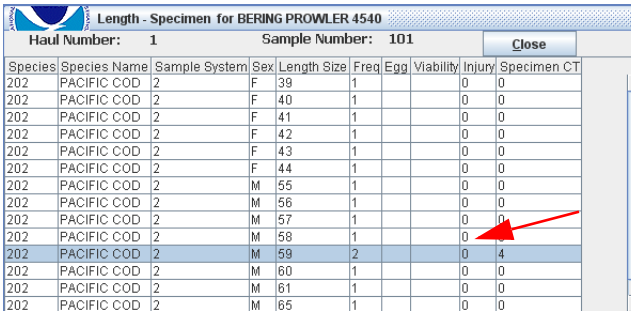


Figure 18-34: Entered Length List

Once the Specimen data entry panel is open, select the specimen record you want to edit. To select a specific record, double click the specimen record in the specimen table on the right of the screen. The selected data will appear in the entered specimen data list (Figure 18-35).

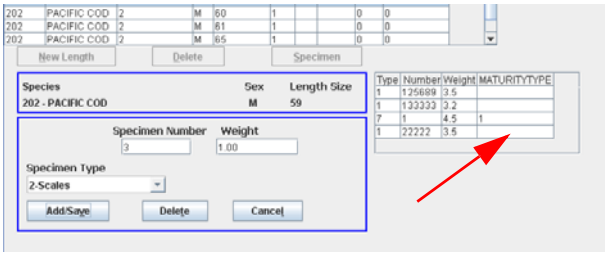


Figure 18-35: Entered Specimen Data List

You can make any changes to the data from here. After making your edits, select the Add/Save button to save your changes (Figure 18-35).

SALMON DATA FORM

To open the Salmon data form, select the Salmon Data Navigation button from the Atlas Main Menu (Figure 18-5). The Salmon Data entry form will open (Figure 18-36).

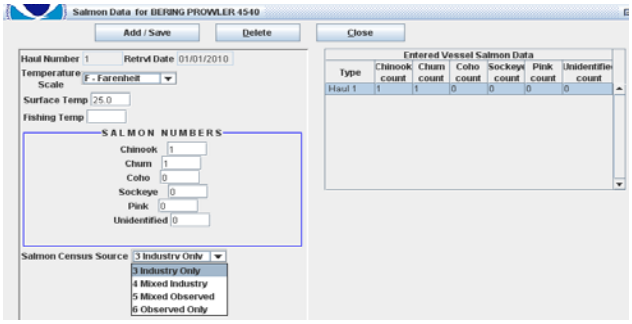


Figure 18-36: Salmon Data Entry Form

Specifics on the Salmon Data Form

To start adding salmon data, go to the list of entered offloads found on the right hand side of the screen. Highlight the offload for which you want to enter salmon data. Click on the Add/Save button at the top of the screen. The salmon entry form will open. Enter the data in the form, then click on the Add/Save button to save your entered data. Refer to the "Salmon Retention Data in the Pollock Fishery" on page 12-13 of this manual for specifics on completing the salmon data form.

Editing Salmon Data

To edit salmon data, first go to the list of entered salmon data found on the right hand side of the screen (Figure 18-37). Double click on the salmon record you want to edit. All the previously entered salmon data will appear in the salmon entry window on the left hand side of the screen. Make the necessary changes, then select the Add/Save button to save your changes

.

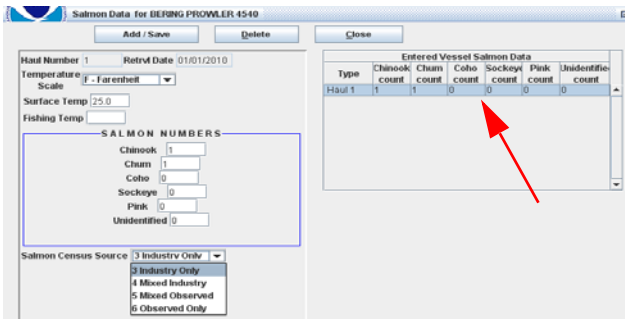


Figure 18-37: Salmon Data Entered List

MARINE MAMMAL DATA FORM

Before adding marine mammal data, you must have already entered a trip or haul or an offload. A marine mammal interaction may be documented for a trip, a haul or an offload. To open the Marine Mammal Data form, select the Marine Mammal Navigation button from the Atlas Main Menu (Figure 18-5). The Marine Mammal Data form will open. (Figure 18-38).

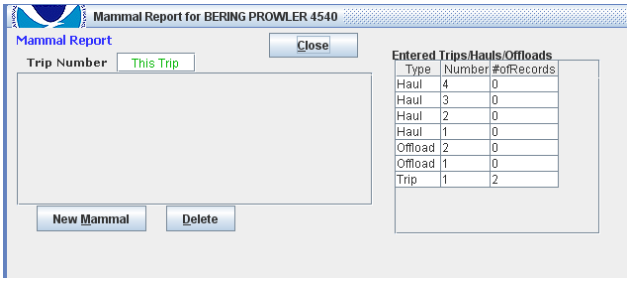


Figure 18-38: Marine Mammal Data Form

Specifics on the Marine Mammal Data Form

To add a new marine mammal find the trip, haul or offload in the entered list of Trips/Hauls/Offloads found on the right hand side of the screen. Once the trip, haul or offload has been located in the entered list, double click on that row in the list. The trip number, haul number, or offload number will appear in the upper left side of the screen. Click on the New Mammal button

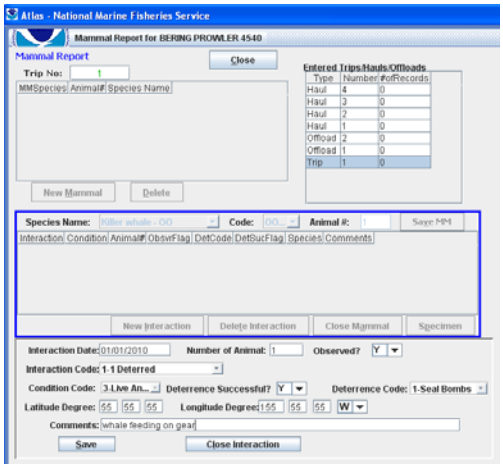


Figure 18-39: Mammal Data Form with Mammal Panel Open

Adding Marine Mammal Data

After selecting the New Mammal button, the mammal data panel will appear (Figure 18-39). Using the drop down list in the species name field, select the name of the marine mammal. When you leave the species name field, the species code field will automatically update. If you change the species code, the marine mammal name will change when you leave the species code field. In the # of animals field, enter the number of animals. After entering the total # of animals, click on the New Interaction button. ***The New Interaction button will not become available until you enter a number greater than 0 in the # of animals field***.

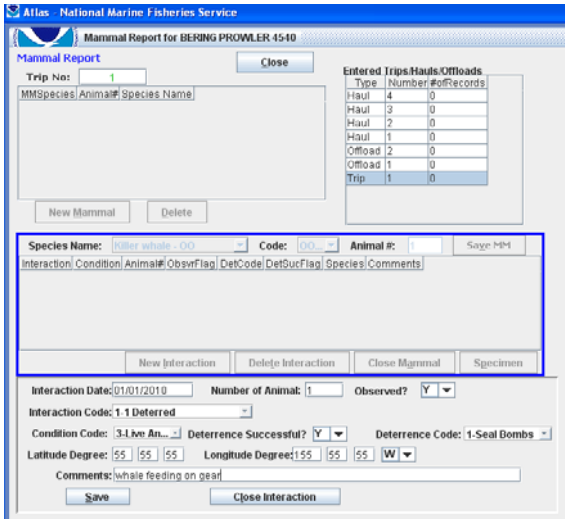


Figure 18-40: Mammal Data Form with Mammal Interaction Panel Open

Adding Mammal Interaction Data

After selecting the New Interaction button, the mammal interaction panel will appear (Figure 18-40). Enter all the specific interaction data in this panel. ***Don't forget the comment field is required. Please try to supply as much information as possible about this interaction and mammal.*** Once you have entered all the interaction data, you must click on the Save button at the bottom of the panel. This will save your interaction information. Your interaction data are viewable in the mammal data panel (Figure 18-41).

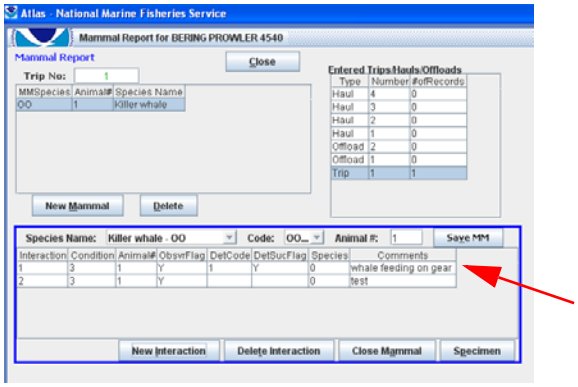


Figure 18-41: Entered Mammal Interaction Data

Editing Mammal Data or Interaction Data

To edit mammal data or interaction data, first go to the list of entered trips, hauls, or offloads found on the right hand side of the screen (Figure 18-38). Find the trip, haul, or offload that contains the data you want to edit and double click on that record. On the left side of the screen in the list of entered mammals (Figure 18-42), double click on the mammal you want to edit.

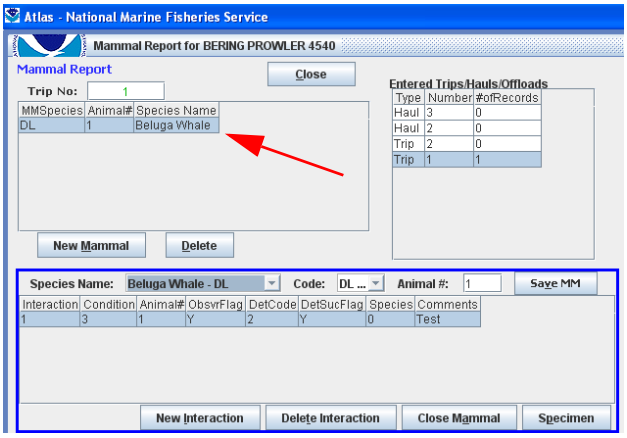


Figure 18-42: Editing Mammal Interaction Data

The mammal interaction records will appear in the mammal data panel (see Figure 18-43). Here you can change the marine mammal species name, code or the # of animals.

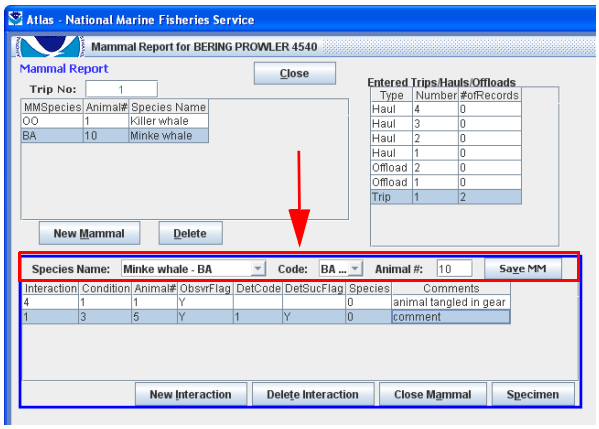


Figure 18-43: Edit Mammal Interaction Data

If you want to edit a specific marine mammal interaction, find that interaction in the entered list (Figure 18-41) and double click on the entry to open up the interaction data in the marine mammal interaction panel.

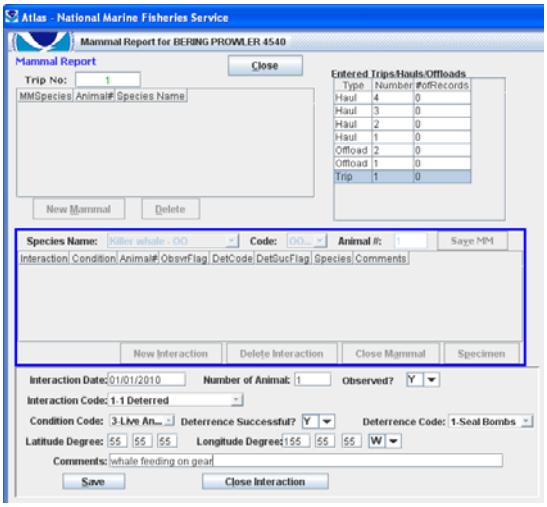


Figure 18-44: Mammal Data Form with Mammal Interaction Panel Open

The marine mammal interaction data will appear in the interaction panel (Figure 18-44) where the data may be edited. After making changes, you must click on the Save button at the bottom of the interaction panel.

Adding Mammal Specimen Data

Before adding mammal specimen data, you must have entered a marine mammal interaction. Once the marine mammal interaction data has been saved, you can view the specific marine mammal interaction in the marine mammal data panel (Figure 18-41). In the marine mammal data panel, select (highlight) the marine mammal interaction record for which you want to enter mammal specimen data. Once the record has been selected, select the Specimen button. The Marine Mammal Data Specimen form will open (Figure 18-45).

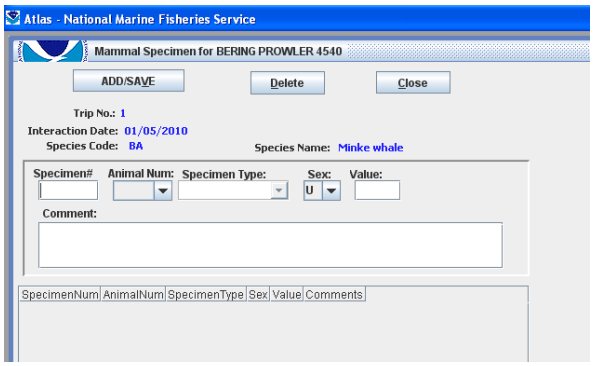


Figure 18-45: Mammal Specimen Data Form

Specifics on the Marine Mammal Specimen Data Form

When the marine mammal specimen form opens, enter all the information in the data entry window. In the comment section, please provide as much detailed information as possible. Once all the data has been entered, click on the Add/Save button.

BIRD DATA FORM

To open the Bird Data Form, select the Bird Data button from the Atlas Main Menu (Figure 18-5). The Bird Data screen will appear (Figure 18-46).

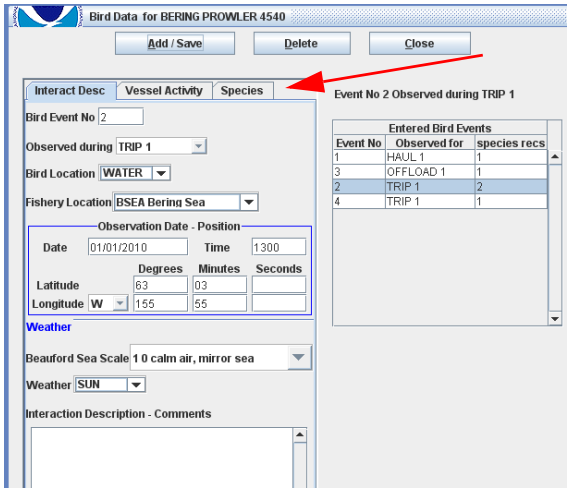


Figure 18-46: Bird Data Form

Specifics on the Bird Data Form

The Bird Data Form will be filled out by any observer assigned to a vessel or plant. The form will be used for recording bird interactions, specimens and sightings of species of interest; see “Species of Interest” on page 16-2. Bird Data may come from one of three places; the trip, haul, or offload.

If you have an interaction with a short-tailed albatross you must fill out all bird forms. On boats with ATLAS, paper bird forms are ***required for short-tailed albatross*** but not for other species. All raw data must be recorded on the Deck Forms. Entry to ATLAS and the paper Bird Interaction, Activity, and Species Form and the paper Bird Specimen and Tag Information Form are both required for short-tailed albatross data.

Adding Bird Interaction Data

After selecting the Bird Data button, the entry form will appear. The screen will be separated by 3 tabs; Interaction Description, Vessel Activity, and Species (Figure 18-47). You can navigate to the different tabs by clicking the tab with a mouse or after reaching the last field in the form use the tab key to move to the next tab. A Bird Event or Bird Interaction must be created prior to adding and saving any other bird related data.

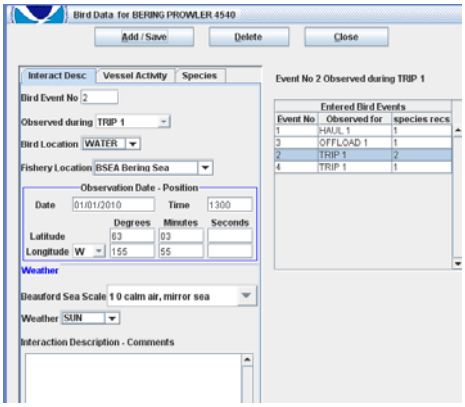


Figure 18-47: Bird Interaction Screen

Each Bird Event must be assigned a unique Event Number and have a Bird Interaction and species entered prior to saving the record in the database.

If the data for an interaction is collected directly from a haul; the date, time and position is not required by Atlas. This information will be inherited from the retrieval position that was entered in haul form. If the interaction is from a trip or offload an exact date time and position must be entered in Atlas. Once the last field has been reached, use the tab key to navigate to the Vessel Activity Tab (Figure 18-48).

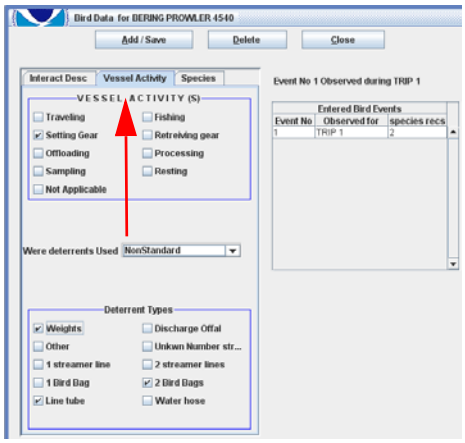


Figure 18-48: Vessel Activity

The Vessel Activity form contains a series of lists. The form will allow you to select multiple activities and deterrent types. Once the last field has been reached, use the tab key to navigate to the Species tab.

Adding Bird Species Data

To enter a species, select the appropriate species code from the drop down list. All other information on this form is optional and is accessed via the drop down lists. Once the species information has been entered, the record may be saved. ***You will NOT be able to save the interaction and vessel activity data until a species is entered on the next tab (Figure 18-49)***. Multiple species may be entered for an interaction. A list of the previously saved species is displayed in the table on the right of the screen (Figure 18-49).

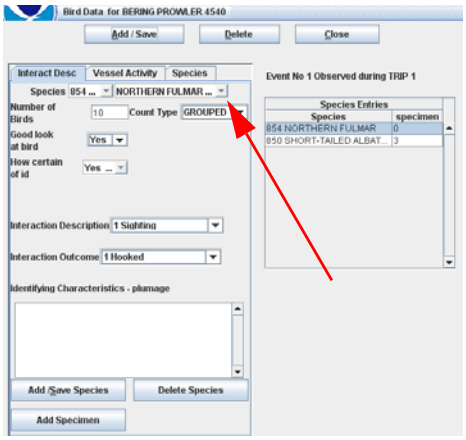


Figure 18-49: Bird Species Form

The bird species form changes when adding data for a short-tailed albatross. If you enter the short-tailed albatross species code the entry form will change when you tab to the next field and an additional set of fields will be displayed on the screen. An entry for the number of birds for each age category is required (Figure 18-50).

.

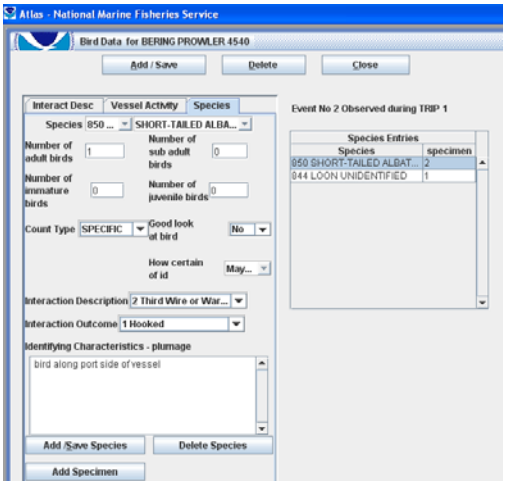


Figure 18-50: Bird Species Form with Short-Tailed Albatross

Once the interaction, vessel activity and species have been entered the record may be saved. To save species data select the Add/Save Species button at the bottom of the page. This will save the species record along with any previously entered interaction and vessel activity data. The cursor will return to the first field of the Species Tab allowing other species to be entered for the interaction. After the last species has been entered, select the Add/Save button at the top of the screen. The cursor will return to the first field of the interaction description tab.

Adding Bird Specimen Data

To add bird specimen data, highlight a species record in the Species Entry Table on the right side of the screen (Figure 18-50). Once the species information has been pulled into the edit screen, click the Add Specimen button at the bottom of the screen.

The Bird Specimen entry form should be open (Figure 18-51). A unique specimen number is required for each specimen collected for a specific bird. If you are entering bird specimen data for a short-tailed albatross, the age of the bird will have to be reentered. This field will not appear for any other species. Enter all the required information and select the Add/Save button at the top of the screen. The new specimen record should be visible in the table on the lower right side of the screen (Figure 18-51).

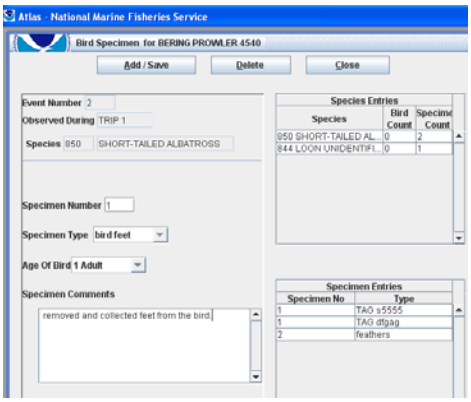


Figure 18-51: Bird Specimen Data

Entering Tagged Bird Information

To enter tagged bird data, highlight a bird from the species table and click the Add Specimen button at the bottom of the screen.Tagged Bird data is considered a specimen type. Select Tagged Bird Information from the specimen type drop down list. The window should change to display a new set of data entry fields. Enter all the required information and select the Add/Save button at the top of the screen (Figure 18-52).

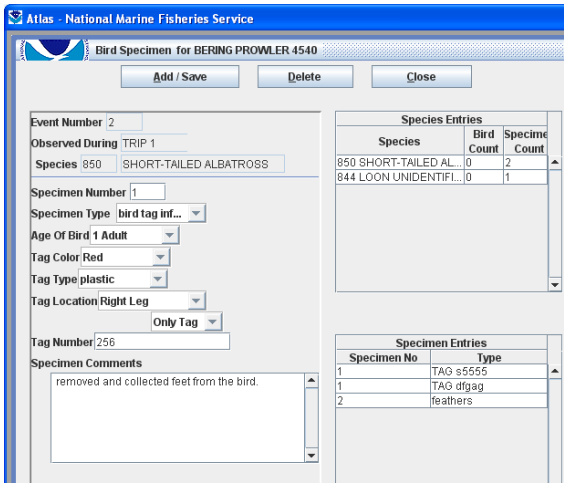


Figure 18-52: Tagged Bird Specimen Form

Text Messages

To open the text message form, select the Text Message Navigation button from the Atlas Main Menu (Figure 18-5). The Text message screen will open (Figure 18-53).

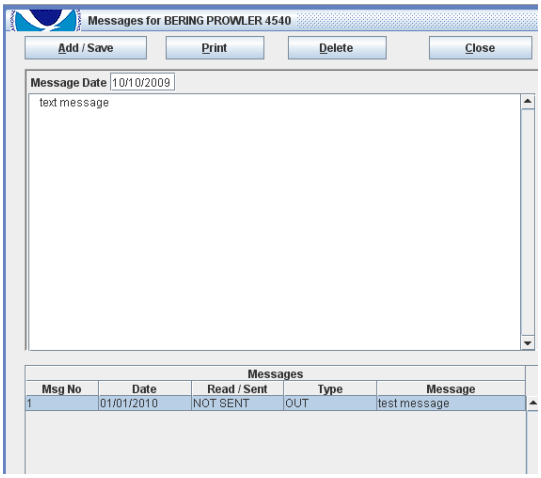


Figure 18-53: Text Message Window

Specifics on the Text Message Form

Text messages are a vital link between the observer and FMA staff. Text messages should only be used for observer related duties and issues, as well as technical problems. The text message form will be used to create an outgoing text message (created by the observer) and to read incoming text messages (created by FMA staff).

Creating An Outgoing Text Message

To create an outgoing text message, click on the Add/Save button at the top of the screen. The message entry window will open. Enter the current date, then begin entering your text message. Once the message has been created, click on the Add/Save button again. Your created outgoing message can be viewed in the list of messages found at the bottom of the screen (Figure 18-54). ***Your created message will be transmitted the next time you prepare and transmit data***.

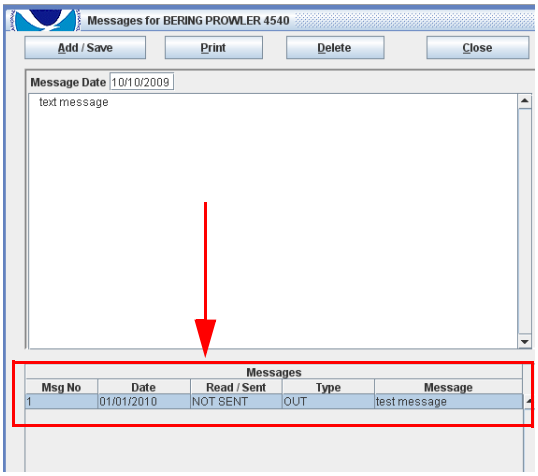


Figure 18-54: Text Message List

Reading An Incoming Text Message

Each time you successfully transmit data to Seattle, any incoming text messages will be picked up. Once the transmission is complete, go to the Text Message form and see if any incoming messages were received. Once the text message form opens, look in the list of messages found at the bottom of the screen. Find the Type column and look for any INCOMING types. Once you have found a new incoming message, double click on that row in the list (Figure 18-54) and the incoming message can be viewed.

Pickup Messages Button

Incoming text messages can be checked using the Pickup Messages button in the Main Screen of Atlas (see Figure 18-5). Click on Pickup Messages and Atlas will open a connection and retrieve any incoming text messages. This button will **NOT** transmit outbound messages or data. Text messages are also received after preparing and transmitting data.

TRANSMITTING DATA

Vessels that are installed with Atlas have the capability to email observer data directly to the FMA Seattle office. Data are emailed from inside of Atlas via a satellite phone on the vessel. Shoreside plant Atlas data are emailed from inside atlas over the plant's email network. Before an observer transmits data from a vessel, they should confirm with vessel personnel that the onboard satellite phone has a strong enough signal to transmit data. To Transmit observer data, click on the Transmit Navigation button from the Atlas Main

Menu (Figure 18-5). The Transmit form will open (Figure 18-55).

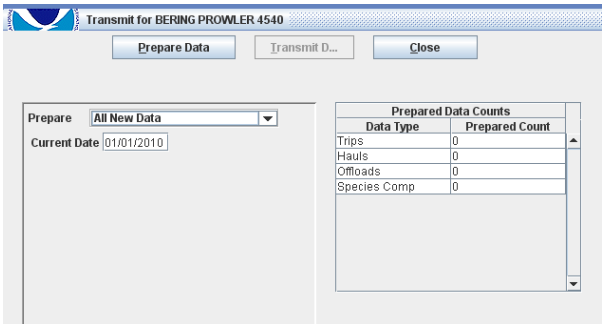


Figure 18-55: Transmit Data Window

It is important to note that you must send complete data only. Sending incomplete data (e.g., haul information without the associated species composition data) can affect how the data are being extrapolated.

Transmit data according to the schedule shown in Figure 18-56.

Vessel Type / Fishery	Transmission Frequency
C/P or mothership trawl All fisheries	Once per day
Longline All fisheries	Once per day
Pot MSCDQ fisheries	Once per day
Pot Non-CDQ fisheries	2-3 times per week
Processing plants All fisheries	Once per day
Trawl catcher vessels All fisheries	Once per day

Figure 18-56: When to Send Data via ATLAS

Specifics on Transmitting Data

Once the transmit screen has opened, you must first select from the Prepare drop down list which data to prepare. There are 5 different data preparation options (Figure 18-57). ***The default option is All New Data and should not be changed unless instructed to do so by FMA staff.***

Prepare Options	Prepare Functions
All New Data	This is the default option. ***You should always use this option unless otherwise instructed.*** This will prepare all new and edited data and any new outgoing text messages.
Hauls by Selected Numbers	Allows user to input a range of haul numbers to send. ***Only use this option if instructed.***
Hauls by Selected Dates	Allows user to input a date range of hauls to send. ***Only use this option if instructed.***
Trips by Selected Numbers	Allows user to input a range of trip numbers to send. ***Only use this option if instructed.***
Trips by Selected Dates	Allows user to input a date range of Trips to send. ***Only use this option if instructed.***
Offloads by Selected Numbers. ***Only appears for plant observers.***	Allows user to input a range of offload numbers to send. ***Only use this option if instructed.***
Offloads by Selected Dates. ***Only appears for plant observers.***	Allows user to input a date range of offloads to send. ***Only use this option if instructed.***

Figure 18-57: Prepare Options

After selecting the prepare options from the drop down list, enter the current date in the current date field.

Once all the fields in the transmit screen have been filled out, select the Prepare Data button at the top of the screen. Your data will be prepared for transmission. During the preparation process, the data you have selected is pulled out of the database and compressed into a file that will eventually be emailed to Seattle. When the data preparation is finished, you will receive a message that your data has been prepared. Also, you can view the Prepared Data Count list (Figure 18-57) on the right hand side of the Transmit Form. This list will give you an idea of the number of records that have been prepared for transmission.

Data Transmission

After the data preparation has finished, you may transmit the data to Seattle. Select the Transmit button at the top of the Transmit screen ***(the transmit screen will not become available until you have prepared data)***. Atlas will find and open an ISP connection to email the data to Seattle (Figure 18-58).

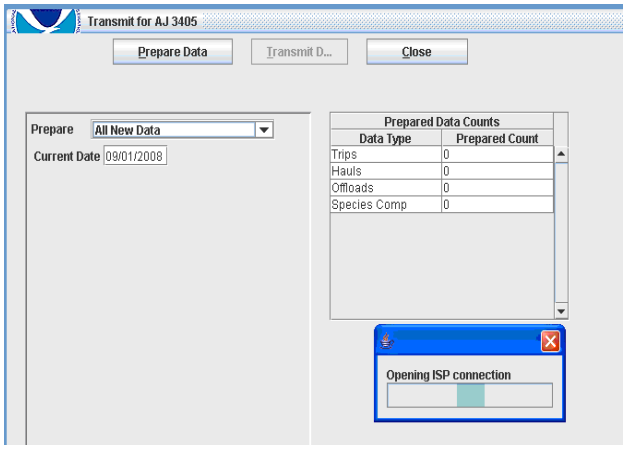


Figure 18-58: Transmission Connection

Once the connection has been opened, the status bar will say "Sending Data to Seattle." After your prepared outbound data are sent, the system checks for incoming text messages. A dialog box will notify you of a successful transmission and the number of incoming messages.

You must monitor the transmission to make sure it is completed. Once the transmission is complete, the status bar will state if the data was sent successfully. Most transmissions only take a few minutes. If the transmission does not complete within 10 minutes, then close out of the Atlas transmit screen and try again. If Atlas is closed down due to an unsuccessful transmission, check to make sure the dial-up connection was terminated. To resend data go back in to the transmit screen, and prepare data again and select the Transmit Data Button.

Transmit Configuration Screen

To open the transmit configuration screen select the Transmit Configuration button in the main menu. This screen provides options for changing the configuration of how data is sent to Seattle via the ship's satellite communication system.

The primary connection method for Atlas will be set by NMFS staff prior to the observer boarding the vessel. Should the default communication system fail or become unreliable, another system may be chosen through this screen. To change from one communication system to another, Click on the desired connection (Figure 18-59). Then click the Add Button at the top of the screen. **Never change the Primary Connection without consulting a NMFS Staff person first!**

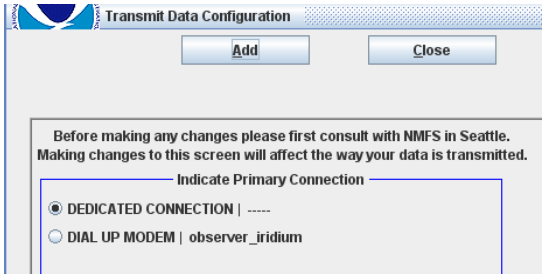


Figure 18-59: Transmit Configuration Screen

Entering and Transmitting Data Using an USB Flash Drive

There are some instances where you will be on a vessel that will not have the ability to transmit Atlas data from sea. If this is the case and you do not have the ability to transmit from sea, all data must be sent via the plant observer or from the NMFS field office. ***Once data have been entered, copy your data to a USB flash drive and the plant observer or a NMFS field agent will transmit the data off the flash drive to the NMFS office in Seattle.*** If there is not an observer assigned to the processor taking your delivery, you must take your flash drive containing your data to a NMFS field office and transmit your data from there. If you are unable to go to a NMFS office, contact NMFS for instruction; see "Contact Addresses" on page A-51.

Data Entry

1. Start the Atlas Software by clicking on the observer Atlas Icon on the desktop.
2. Enter your First and Last Name.
3. Enter your Cruise Number.
4. In the Vessel Permit field click on the drop down arrow and select the name of vessel you are on. Once the name of the vessel is selected, the Permit number will then be filled out.

- If the correct name of the vessel is already there, you can skip this step.

5. Now you can enter your data.

6. Do not use a USB drive that has been used on another boat!

Prepare Data to be Transmitted from the Plant

1. Start the Atlas software by clicking on the Observer Atlas Icon on the desktop.

- ***DO NOT INSERT THE USB FLASH DRIVE YET***

2. Click on the Transmit button on the left side of the screen.

3. Take your USB flash drive (issued as part of your gear) and insert flash drive into USB port.

4. In the Prepare option Box select All New Data.

5. In the Prepare to box select USB Flash Drive.

6. Enter the current date.

7. Click on the Prepare Data button at the top of the screen.

8. Close down the Atlas program.

9. Give USB flash drive to the plant observer to send the data you prepared.

10. Once your data have been transmitted by the plant observer they will give the flash drive back to you.

Transmitting Data from a USB Flash Drive

Some vessels do not have the ability to transmit Atlas data from the vessel, so the data must be transmitted by the plant observer or from a NMFS field office. A NMFS field agent will handle the transmission if you take your data to the NMFS office. Plant observers do the following:

1. Start the Atlas software.

- ***DO NOT INSERT THE USB FLASH DRIVE YET.***

2. Click on the Transmit button on the left side of the screen.

3. Insert the USB flash drive that was given to you by the vessel observer.

- ***Wait at least 20 - 30 seconds for your computer to recognize the USB flash drive.***

4. In the Prepare option Box select All New Data.

5. Enter the current date.

6. Click on the Prepare Data button at the top of the screen.

- ***If you receive a dialog box that says, "No records found to be prepared" click on the OK button.***

7. Click on the Transmit Data button at the top of the screen.

8. You will receive a dialog box that says "Do You want to copy prepared data from a USB Flash Drive to transmit? Click on the Yes box. All data (including your data if you had any) will be transmitted to NMFS in Seattle.

9. You can return the flash drives to the correct vessel observers to be used again.

ARCHIVE/BACKUP

To open the archive/backup form, select the Archive/ Backup Navigation button from the Atlas Main Menu (Figure 18-5). The Archive/Backup screen will open (Figure 18-60).

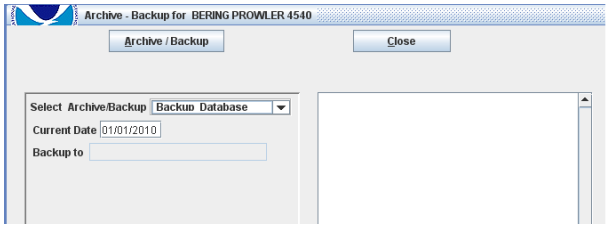


Figure 18-60: Archive/Backup Window

Specifics on the Archive/Backup Form

Before deploying, each observer should have received at least one or two USB flash drives. These flash drives are to be used to perform daily backups on the computer with Atlas. At the end of your cruise, just before disembarking for the last time, you also must perform an archive of the database. When you return for the debriefing process, you must have your flash drives with you.

Backing up the Atlas Database

Backing up the database must be performed on a regular basis. Typically, after you have finished entering data for the day and after you have transmitted data, you should perform a backup. To backup data, select the Backup Database from the drop down list. Enter the current date. Once prompted, insert the flash drive in the USB port on the Atlas computer. It does not matter which USB port is used. Then click on the Archive/Backup button at the top of the screen. Your database will begin backing up. The amount of time to perform the backup can vary depending on how much data are in the database.

Archiving the Atlas Database

Archiving the database must be performed just before the sole or lead observer disembarks the vessel or plant for the last time. ***If you are the second observer and are disembarking you should not archive the database.*** Archiving will delete all your data from the database so that the next observer will have a fresh database with which to work. To archive data, select the Archive Database from the drop down list. Enter the current date. Once prompted, insert the flash drive in the USB port on the Atlas computer. It does not matter which USB port is used. Then click on the Archive/Backup button at the top of the screen. Your database will begin archiving. The amount of time to perform the backup can vary depending on how much data are in the database.

PRINT/COPY

The Print/Copy feature allows the observer to printout their data for the vessel/plant to use or to copy their data to the computer for the vessel/plant to use. Vessel/plant personnel may ask the observer to make a printout or make a copy of their data. Providing data is a courtesy that is recommended but not required. Contact your inseason adviser or NMFS if you have questions or if you feel pressured by vessel/plant personnel. See “Providing Data to the Vessel/Plant” on page 2-5 for more information.

To open the Print/Copy form, select the Print/Copy Navigation button from the Atlas Main Menu (Figure 18-5). The Print/Copy screen will open (Figure 18-61).

Printing Atlas Data

From the Print/Copy form in Atlas, select the haul range of data to print. After selecting the haul range to print, select each form type to print by clicking the box next to each form type. Then select the print button. The data will be printed to the windows default printer. The printout will consist of column names and the data that was entered by the observer. ***Text messages will not be printed out using this print option.***

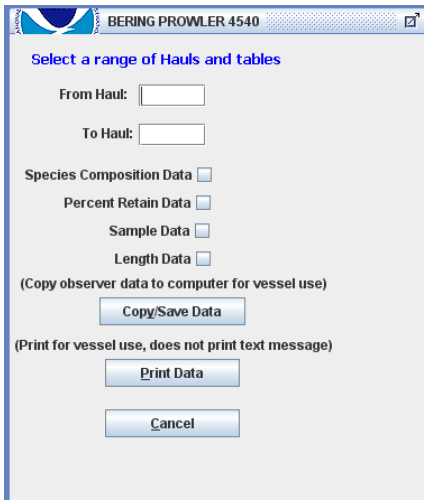
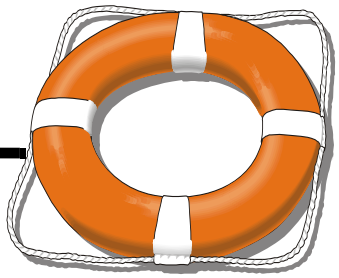


Figure 18-61: Print/Copy Screen

Copying Atlas Data

Copying Atlas data will export the selected data from the Atlas database to a file on the computer with Atlas. Once the file has been copied the vessel can then import this file into other software. The file is in a comma delimited.csv format. From the Print/Copy form in Atlas, select the haul range of data you want to copy. After selecting the haul range to copy, select each form type to copy by clicking the box next to each form type. Then select the copy button. You will receive a windows dialog box asking you where to save the files. Select the folder in which the vessel asks you to save the files. ***Do not change the file name.*** Click save and the data will be copied into a comma delimited file to the computer. Data for onboard use is usually copied into an Excel file, which Atlas uses as a default. ***Text messages will not be copied using the copy option.***

To protect your data remember to always close your ATLAS session whenever you will be away from the computer.



HEALTH AND SAFETY INFORMATION

Table of Contents

PRIORITIES

Your own safety is ***always your top priority***. In this chapter, you will find information on:

- how to familiarize yourself with safety equipment and procedures aboard commercial vessels.
- general safety precautions to take onboard and while you are performing your observer duties.
- how to deal with illness and sickness onboard.
- how to transfer between vessels safely.
- how to respond to emergency situations.
- what procedures to follow if you must abandon ship.

INTRODUCTION

Commercial fishing has ranked among “the most deadly occupations” in the United States since 1992, when the Bureau of Labor Statistics began publishing these data. Each year in Alaskan waters, an average of 34 fishing vessels and 24 lives are lost in the commercial fishing industry. Injury rates aboard commercial fishing vessels are also high. Slippery decks, heavy gear, and an inhospitable environment contribute to the hazardous working conditions.

The safety and survival material presented here and in observer training is only an introduction to these topics. There are many pamphlets, books, and videos that provide more detailed information about safety at sea, including the North Pacific Fishing Vessel Owners Association's ***Vessel Safety Manual,*** and the University

of Alaska's Marine Advisory Bulletin ***Beating the Odds on the North Pacific***. Both are available during training and are carried aboard many vessels.

Safety is a personal responsibility. Take every opportunity to learn as much as you can before an emergency occurs. Most fishing vessels are operated by safety-minded captains who realize the danger of their occupation and consider safety in all they do. Use the knowledge and experience of the vessel's crew for guidance on safety on your vessel. They are concerned about the safety of observers, as guests on their vessel, and will make sure that dangers for you are minimized. No matter how cautious the crew is, it is ***your*** responsibility to keep yourself safe and know how to react in all emergency situations.

BEFORE YOU BOARD

Prior to boarding any vessel, check for the U.S. Coast Guard Commercial Fishing Vessel Safety Examination Decal. ***Do not board a vessel that does not have a current decal.*** If you are reboarding the vessel after being deployed to another, you are expected to review the safety equipment again to ensure there were no changes to the equipment in your absence.You must ensure the decal is valid for every vessel based on the information noted on the face of the decal. If the vessel does not have a current decal, inform the captain that you are not able to board the vessel and immediately inform your employer and NMFS. Document both valid and invalid decal information in your logbook.

Please note that the mothership Ocean Phoenix is an inspected vessel and is not required to have a safety decal.

The Commercial Fishing Industry Vessel Safety Act (CFIVSA) of 1988 mandates certain safety equipment, instructions, and drills aboard vessels that operate beyond the boundary line (a federally designated line between points of land) or that carry more than 16 individuals. The CFIVSA applies to most North Pacific vessels on which observers are deployed (see "Federal Requirements for Commercial Fishing Industry - Vessels greater than 60 ft." on page 19-18).

In mid 1998, NMFS adopted regulations to ensure the adequacy and safety of fishing vessels carrying observers. Under 50 CFR Part 600, owners and operators of fishing vessels that carry observers are required to comply with U.S. Coast Guard safety regulations. A vessel is considered inadequate or unsafe if it does not comply with the regulations regarding observer accommodations or if it has not passed a USCG safety examination or inspection.

This rule applies to all vessels designated to carry an observer as part of any mandatory or voluntary Observer Program under the MSFCMA (Magnuson-Stevens Fisheries Conservation and Management Act), the Marine Mammal Protection Act, or any other U.S. law.

Vessel Safety Checklist

Prior to boarding a vessel for the first time, you must check the vessel for compliance with Coast Guard regulations. ***Complete your "Vessel Safety Checklist" form in your logbook (Figure 19-1 on page 19-3).*** Use the "Issues to Address During A Safety Orientation" section below as a reference for what questions to ask yourself while looking at safety gear. Please remember that all "N" responses on the checklist require a comment in the "additional comments" section.

All items in bold blue text on the Vessel Safety Checklist are considered "No go" items. Do not board the vessel if you circled "N" for any of the "no go items. In addition, if you feel that you should not board the vessel because it is unsafe or inadequate for you to carry out your duties, contact your employer immediately. A vessel that would normally carry an observer, but is deemed unsafe, is prohibited from fishing without an observer. NMFS will require that the vessel pass a USCG safety examination or correct the deficiency that is causing it to be unsafe.

In addition to completing the Vessel Safety Checklist ***you must not board your vessel without an FMA issued immersion suit with an attached strobe light, an FMA issued PLB, and an FMA issued type 3 PFD with an attached strobe light***. If you do not have these items, contact your employer and NMFS staff immediately.

Vessel Safety Checklist

VESSEL NAME: Miss Blue VESSEL PERMIT: 2345

Ensure the USCG Commercial Fishing Vessel Safety decal is not expired based on the information noted on the face of the decal.

Commercial Fishing Vessel Safety
EXAMINATION

VESSEL
- [x] Documented
- [ ] Undocumented

OPERATIONS
- [x] Cold Waters
- [ ] Warm Waters
- [ ] Inside Boundary Line
- [x] Beyond Boundary Line

FROM COASTLINE
- [ ] < 3 NM
- [ ] < 12 NM
- [ ] < 20 NM
- [ ] < 50 NM
- [ ] > 50 NM
- [x] > 100 NM

THIS VESSEL MEETS ALL USCG COMMERCIAL FISHING INDUSTRY VESSEL REGULATIONS FOR OPERATING AREAS AS MARKED

NO. 51865

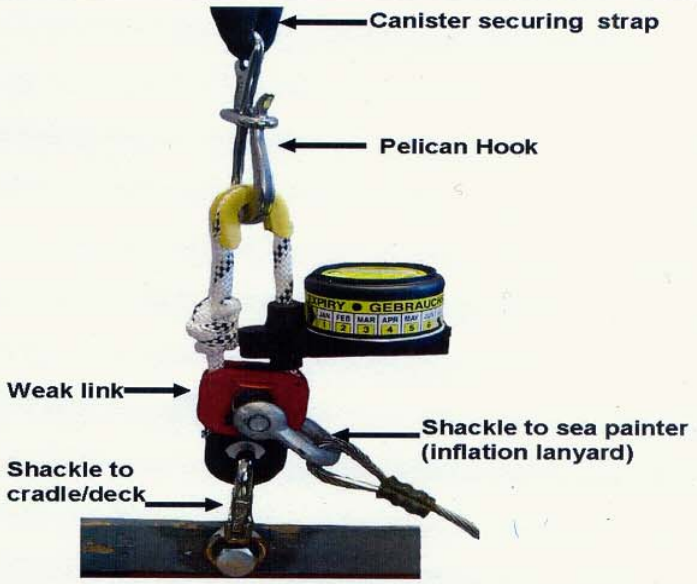
U.S. Department of Homeland Security

EXPIRES
- 2011 [ ]
- 2012 [ ]
- 2013 [x]
- 2014 [ ]

JAN	JUL
FEB	AUG
MAR	SEP
APR	OCT
MAY	(NOV)
JUN	DEC

CG-5587A (Rev. 6/08)

Is the decal valid? (Y) N



SURVIVAL CRAFT:

Number of: 1

Total capacity: 8

# of crew & observer/s on board 7

Sufficient capacity? (Y) N

Survival craft(s) able to float free? (Note: some vessels have their rafts in a float free cradle - this is an approved cradling system, so long as the painter line is properly attached to a weak link.) (Y) N

Service Due decal exp. date: 11 / 2013 (expires on date displayed)

Hydrostatic release exp. date: 11 / 2013 (expires on date displayed)

Your raft assignment: 1

EPIRB: (Visual inspection only. Please leave all testing/handling to crew)

Location(s): Backside of wheelhouse

Battery exp. date: 12/2013 (expires on date displayed)

Hydrostatic release expiration date: 12 /2013 (expires on date displayed)

Located in a float free location?: (Y) N

NOAA Registration Decal:

Exp. date: 8/2013 (expires on date displayed)

Registered to this vessel (name of vessel displayed): (Y) N

Alphanumeric code on decal matches code on EPIRB: (Y) N

Signal tested (or asked to see station log in wheelhouse for most recent test. Signal should be tested monthly): (Y) N

IMMERSION SUIT/PFDS:

Available for everyone on board? (Y) N

Location(s): Storage cabinet in wheelhouse

FIRE EXTINGUISHERS:

Extinguisher(s) found in every main area/corridor? (Y) N

Extinguishers in "good and serviceable condition" (gauge in the green, low amounts of rust, canister in good condition, unobstructed, hoses attached, service tags available)? (Y) N

FLARES: (ask captain for assistance)

Location(s): Box in wheelhouse

Expiration dates checked? (Y) N

(expires on date displayed)

If checked, number of flares: 12

THROWABLE FLOTATION DEVICES:

Number of flotation devices appropriate for vessel size? (Y) N

Easily accessible?: (Y) N

Name of vessel displayed on each? (Y) N

Location(s): 1 onbow, 2 on stern, 2 on wheelhouse

5

Figure 19-1: Example of completed Vessel Safety Checklist

ADDITIONAL SAFETY CHECKS:

Watertight doors - do they close properly? (Y) N

Hatches/passageways - are they unobstructed? (Y) N

Discussed safe places to work on deck and in factory with captain/crew? (Y) N

Discussed refrigerant leak procedures? Y (N)

Type of refrigerant used: None

Discussed reporting/identifying inoperative alarm/fire systems? Y (N)

Did you hear the general alarm? (Y) N

Where will you go during emergencies: Report to wheelhouse

FIRST AID MATERIALS:

Location(s): Wheelhouse

Is there an individual trained in CPR/First Aid on board? (Y) N

Who?: Captain J. Smith

Radios:

How many SSB and VHF radios?: 2SSB / 2VHF

Are emergency call instructions posted? (Y) N

Were procedures for making an emergency call discussed? (Y) N

SAFETY ORIENTATION:

If you did not complete drills upon embarking the vessel, did the captain use this safety checklist to complete the required vessel safety orientation? Y (N)

Did the vessel conduct a safety orientation? (Y) N

Who gave the orientation? J. Smith (captain)

(Detail what was covered in the comment section below)

EMERGENCY DRILLS AND DATE(S) CONDUCTED:

*Only list drills in this section if they are conducted while you are physically onboard the vessel.

Fire 2/2/13

Abandon Ship 2/2/13

Man Overboard 2/2/13

Vessel Flooding/stabilization 2/2/13

General alarm activation 2/2/13

Donning immersion suits 2/2/13

Radio/visual distress signals 2/2/13

Were the drills hands-on involving actual gear? (Y) N

Did you participate in the drills? (Y) N

OBSERVER PERSONAL PROTECTIVE EQUIPMENT:

Personal Locator Beacon? (Y) N

UIN: 2DCE577N14FFBFF

NOAA Registration Decal Expiration Date: 11/2013

Immersion Suit with Strobe Light and Battery? (Y) N

Serial #: 969420

Personal Flotation Device with Strobe Light and Battery? (Y) N

COMMENTS (ALL "N" RESPONSES REQUIRE A COMMENT):

Before I boarded the boat it did all drills on 1/2/13 & the captain showed me the drill log. During my safety orientation all items on this checklist were discussed.

This vessel is a catcher-only ice vessel, so no refrigerant is required or used. The captain showed me the engine room that is equipped with an alarm, but I have no reason to be down there.

Observer Name: J. J. Furstenfeld Cruise #: 17572

Observer Signature: J. J. Furstenfeld Date: 1/4/13

Captain Name: John Smith

Captain Signature (optional): J Smith Date: 1/4/13

*Did the vessel request a copy of the Checklist? Y N *If so, were you able to supply a copy? (Y) N

Blue indicates "no go" items!

Figure 19-1: Example of completed Vessel Safety Checklist

ISSUES TO ADDRESS DURING A SAFETY ORIENTATION

Please reference the Federal Requirements for Commercial Fishing Industry Vessels pamphlet for more specific information.

1. Check for safety inspection documentation. Is the decal valid? Look for a current USCG Commercial Fishing Vessel Safety Examination decal or ask for documentation. Record the authorization number in the space provided. The decal expires on the last day of the month indicated by the hole punch in the month field.***You cannot board vessels which have an expired decal or if the decal will expire while you are aboard. Contact your employer and NMFS immediately if the vessel does not have a valid decal!***

2. Locate the life raft(s). Is there enough life raft capacity for everyone aboard including you? Are you assigned to a particular one? Can the raft(s) float free? Check the service due date(s) displayed on the canister(s). Life rafts are to be serviced annually with the exception of new life rafts which have 2 years before having to be serviced. Check the hydrostatic release. Is it installed correctly? Has it expired? If the raft does not have a hydrostatic release and is rigged in an alternative float free manner, is it equipped with a weak link? Please ask the captain or crew if you have any concerns regarding the rigging of the raft or the hydrostatic release.

3. Where are the Emergency Position Indicating Radio Beacon(s) (EPIRB)? Are they in float-free locations? Check to see if the battery is expired. A sticker with the expiration date displayed will be located either on the actual EPIRB or the protective casing of the EPIRB. Are the hydrostatic releases expired? Check the NOAA registration sticker. This sticker is required of each vessel/EPIRB. Make sure it is registered to the vessel as the name will be noted on the sticker. Make sure the alphanumeric code on the actual sticker matches the registration code on the EPIRB. Check the expiration date on the sticker. The EPIRB tests must be recorded in a station log. Please ask the captain to see the log for the most recent test if one was not conducted for you.

4. Check the location of immersion suits and PFDs. Where are the immersion suits and PFDs located? Are there enough for everyone aboard? Are they accessible at all times? You will be issued an immersion suit with strobe light and a PFD with strobe light as part of your NMFS sampling gear. You must have your NMFS issued immersion suit with strobe light and a PFD with strobe light before embarking on a vessel. NMFS immersion suits are pressure tested per the manufacturer's recommendations. We therefore are certain your NMFS suit has been inspected and tested on a regular basis; we cannot extend this certainty to non-NMFS immersion suits. Keep your suit where you can get to it quickly. Take this opportunity to try your suit on again and check the zipper. Could you put the suit on in 60 seconds? Does the zipper need to be waxed?

5. Where are the flares located? Check the expiration dates. What types of flares does the vessel have?

6. Locate the fire extinguishers. Are they accessible? Are they in good and serviceable condition?" Check to see that the pressure gauge is in the green, there are low amounts of rust, that the overall condition of the canister is good, that it is in an unobstructed location with hoses attached, and that there is a presence of service tags (tags are not a USCG requirement). Did the crew tell you of special extinguishing systems in the engine room or other areas?

7. Check the location of life rings. Where are they? Are they accessible? Is there one on each side of the vessel? Are the lines free of tangles? Is the vessel name on the ring/sling?

8. Where do you go during emergencies? Find the station billet (commonly called the station "bill"), a posted placard describing the role of all hands onboard (including the observer) in an emergency. Familiarize yourself with your role in each type of emergency addressed. As you walk through the vessel, make yourself aware of potentially hazardous areas. Identify the watertight doors, both on the interior and the outside. Can they be secured in case of heavy weather or other emergencies? Are any hatches or passageways blocked or difficult to get to? Ask the crew giving you the orientation to point out doors that must be kept closed during travel, gear retrieval, rough weather or other situations. Discuss safe places to work on deck and/or in the factory with the captain/crew and how to report/identify inoperative alarm/fire systems. What type of refrigerant is the vessel using and what do you do if there is a leak? Did you hear the general alarm? Ask the captain to demonstrate the general alarm. Does

the vessel use different signals for different emergencies? If so, what are they?

9. Where are first aid materials kept? Is there a reference book onboard? Who in the crew has had first aid and CPR training?

10. Where are the SSB and VHF radios located? How many are there? Are emergency call instructions posted nearby? Do you know the procedures for making an emergency call and how to operate the radio during the call? If not, ask the captain to show you how!

11. Did the individual giving you the safety orientation use this safety checklist to complete the required vessel safety orientation? Who gave the orientation? If you did not complete the drills upon embarking the vessel, you must be provided with a safety orientation and the following items need to be addressed along with the date(s) that each drill was conducted:

- survival craft embarkation stations.
- fire/emergency/abandon ship signals.
- immersion suit locations and donning instructions.
- procedures for making a distress call.
- essential actions required of each person in an emergency.
- procedures for rough weather at sea.
- procedures for anchoring.
- procedures for recovering a person overboard.
- procedures for fighting a fire.

Never get underway on a vessel without first receiving a safety orientation. If the captain will not provide you with an orientation before leaving the dock you must disembark the vessel. It is not appropriate to receive the orientation after departing.

12. The vessel may request a copy of the checklist. Please sign it and make a copy from your logbook. ***You must keep the original***! If a copy machine is not available, either duplicate an original color version of the checklist onto a "black and white" version of the checklist and tear that out of the logbook or let the captain know a copy can be mailed to the company, owner, or vessel upon completion of your cruise.

Emergency Drills and Date(s) Conducted

Emergency drills and instruction must be conducted by the vessel ***at least once a month.*** The actual dates the drills are conducted must be documented in your observer logbook on the back page of the Vessel Safety Checklist. Document drills in the Vessel Safety Checklist ***if and only if*** these requirements are met:

- drills are hands on and involve actual gear.
- you are assigned to the vessel at the time of the drills.
- you witness the drills being conducted.

Document any drills that are conducted, but do not meet these criteria, ***in your Daily Notes.***

You should participate in all drills; they are essential to keeping you prepared in the event of a real emergency. There may be a rare case where you cannot participate in or actively witness the drill activity due to safety concerns. In this situation, you most likely will be stationed at your muster location as you would be in the case of an actual emergency (*e.g.*, the wheelhouse). You can still record this drill as being conducted if you get information about it from vessel personnel who participated directly in the drill. The reasons why you could not participate in or witness the drill due to safety concerns must be documented in your Daily Notes.

Embarking, Disembarking and Transferring Between Vessels

Wear a PFD at all times when on skiffs or other small vessels, while transferring between boats and when embarking or disembarking your vessel at the dock. When climbing, do not encumber yourself with heavy backpacks or baggage. Balance is important and both hands must be free during transfers. Use a day-pack and wear foot wear such as Xtra-Tuffs or athletic shoes that provide sure footing. Time your actions with the movement of the boat, starting your climb up a ladder from the top of the up-and-down cycle to avoid being pinched against the ladder by a moving boat.

All baggage should be secured with lines and transferred via rope lines or cargo nets. Observer baskets and luggage have been lost overboard because they were thrown between ships without lines attached.

If you use a cargo net, transfer basket, or cage to board a vessel, make sure that a line is attached to the conveyance from both points for greater control and to reduce swinging. Maintain a crouched position to avoid back injury. Be sure to wear your hard hat in addition to your PFD when using this mode of transfer. Keep your arms, elbows, and fingers inside the conveyance when transferring.

Boarding Vessels at the Dock

It is the expectation of the observer program that you will wear a PFD anytime you embark or disembark a vessel. Many larger vessels provide a gang plank with a safety net for boarding. This is not often the case with smaller vessels. Dock space at plants and other docking areas is minimal. As a result there is not always room for every vessel to secure their lines to the dock. When this happens vessels will tie to other vessels that are secured to the dock; this is called rafting. It is common to see vessels rafted two or more deep at the plants or docking areas. ***Boarding vessels that are tied to the dock or are rafted is extremely dangerous!*** Falling between the dock and vessel, or between one vessel and another, can result in serious injury or death. The distance between the vessel and the dock or between vessels that are rafted can vary widely with the weather, tides, and currents.

Ensure your safety when boarding vessels by:

- always wearing some type of personal flotation device when crossing between boats and the dock,
- always insuring someone is around to watch you before attempting to cross. You should clearly communicate your intentions to dock personal or other crew members and ask that they watch you until you are safely aboard your vessel or on the dock, and
- not boarding when it is not safe. Consider conditions such as icy and slippery decks and/or ladders, poor weather, darkness, wind, tides, currents and/or distances greater than you can safely manage.

Transfers at Sea

You will normally board and disembark vessels at the dock, but transfers at sea sometimes may be necessary. Transfers between vessels are potentially hazardous, especially in rough weather. You must assume responsibility for deciding whether or not to transfer based upon your own evaluation of the sea conditions, transfer vessel, visibility, and distance to travel. An ADF&G crab observer and two crew members died when their small transport skiff overturned in rough water.

Never transfer via a small boat if you cannot see your destination. Do not transfer at dusk, in darkness, or in any other low visibility conditions. If boarding a small skiff or inflatable boat, make sure that the engine has been started and warmed up, and that there are oars stowed as a backup. Do not transfer when the sea state is two meters or more. Always be cautious, you cannot be forced into transferring against your better judgment by an anxious or impatient captain. Under “Vessel Responsibilities,” 50 CFR §679.50(g), an operator of a vessel required to carry one or more observers must:

- Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.
- Notify observers at least three hours before observers are transferred, provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.
- Provide an experienced crew member to assist observers in the small boat or raft in which any transfer is made.

In some situations observers will be asked to transit on an unassigned vessel between ports. This is a common occurrence between Dutch Harbor and Akutan when there are flight delays. In these situations you must ensure the vessel you are transiting with has all the required safety gear. Before leaving on the vessel use your safety checklist as a guide to review the safety equipment. The most common areas of concern are the

number of survival suits available and life raft capacity. If the vessel is missing any of the required safety equipment you should not transit with the vessel.

First Days Onboard

When you board a vessel, regulations mandate that you receive a safety orientation. This may be as simple as crew members showing you around, but may include watching videos, donning immersion suits, or conducting drills. In addition to the required orientation, drills and instruction must be conducted involving each individual ***at least once a month***. You should participate in any drills and instruction. For information on recording safety drills in your logbook see “Emergency Drills and Date(s) Conducted” on page 19-6.

Memorize the exit route from your cabin, the factory, the galley, and other locations where you spend a fair amount of time. Keep your immersion suit where you can get to it quickly.

Personal Health and Safety

Fishing vessels and processing plants have many potentially dangerous areas. Be aware of your surroundings at all times and keep your eyes and ears tuned to what is going on. Your work hours and environment will be different than what your body is accustomed to. Drinking plenty of water and eating enough food are critically important in maintaining your health in this new environment.

General Safety Precautions

Staying safe aboard a vessel includes more than safety equipment. Follow these guidelines to avoid injury and strain during your work activities:

- Wear a personal flotation device whenever you are working on deck, transferring at sea, or disembarking or boarding your vessel.
- Never board or disembark a vessel alone! Always be sure someone is there to watch that you are safely on or off the vessel.
- Avoid loose clothing or apparel with strings. Remove all jewelry prior to going out on deck or into the factory. Long hair should be tied back. These items could be caught in moving equipment.
- Don't run aboard ships, particularly up stairwells. Hold handrails in stairwells and on ladders. Slipping, tripping, and falling are the most common causes of observer injury.
- Step carefully over the combing rising from the bottom of metal doors and passageways, and beware of low overheads in vessel stairwells and on watertight doors.
- Lift correctly! When lifting, get as close as possible to the object, keep your back straight, and use your legs. On a moving vessel, this is critical because unexpected movements can strain your back. Don't be afraid to ask for assistance in moving heavy objects, such as full baskets.
- Fatigue and sleep deprivation suffered by the crew and yourself are threats to your safety. Be aware of the physical state of those around you—whether the person is on watch or in control of the gear. Fatigued individuals make mistakes that could affect you. Monotonous work, such as longline tally sampling, is difficult to do accurately and safely when you are tired. Follow the example of the crew and catch up on sleep when there are breaks in fishing.
- Eat well. Vegetarians (due to common meat-and-potato menus) and diabetics (due to odd eating schedules) need to be especially concerned about getting a proper diet. Dietary supplements or vitamins may be helpful if this is a concern for you.
- If you are not feeling well, use extra caution and reduce your time spent working.

Working on Decks

- Wear a hard hat, personal flotation device and boots when on deck.
- Do not stay outside on the deck during rough seas. One observer was swept forward over a trawler's winches by waves sweeping up the stern ramp. When you are outside, remain in full view of a second party at all times.
- Watch for slick spots where the deck is wet, oily or frozen.

- Beware of trawl cables under strain, they can give way and have maimed and killed fishermen. Whenever a cable is subjected to tension, stand where a backlash will not hit you. If your sampling station is on deck, stop working and go to a safe place while trawl nets are being set or retrieved.
- Explain to the deck boss that you need to watch the haul-back to monitor for marine mammals and will need to go out on deck for codend measurements once the winches have stopped. Ask for advice on a safe place to stand. When nets are being hoisted off the deck, stand clear. Heavy nets have fallen near observers when the suspending cables parted.
- Watch for moving pots and, if possible, face the pot launcher while you work. Stay away from the bouy line when the crew is launching pots. Crewmen have been caught in a loop, or the "bite," of the line and pulled overboard.
- Wear eye protection on longliners if you are near the moving hooks. Use a gaff to collect fish to protect your hands and keep your body further away from the moving line. Know the location of the emergency stop switch for the hydraulic hauling block (if your vessel is equipped with one).

Working in Factories

Factory processing areas are crowded with machinery, electrical lines, and conveyor belts. The maze of equipment often makes it difficult to get to your sampling area. Climbing over, under and around machinery on oily and wet floors, especially in rough weather, is extremely hazardous. Look carefully before stepping or grabbing for handholds.

When collecting samples off conveyor belts, do not try to pry out fish caught between two connecting belts, or grab for fish caught under a diverter board. Your finger or hand may get mangled in the machinery. If you need to retrieve these fish, make sure the belt is stopped first. Ask the crew to shut down the belts for you. In case of an emergency, know the location of the emergency shut off switch or stop button for the belts or hydraulics in your work area.

Whenever you are in the factory, be aware of factory offal wash out around the scuppers and bilges. This rushing water can affect your balance. Lastly, watch for low beams, belts, hoses, and other equipment; observers frequently hit their heads in unfamiliar factories.

Some factories have sanitation rules, including "foot dips" with cleaning solution and brushes, that observers must follow. Please be aware of these rules and be sure to follow them.

Seasickness

One of the least pleasant aspects of going to sea is the possibility of seasickness. An individual's susceptibility to seasickness is highly variable. If you've experienced motion sickness in cars, planes, or amusement park rides, you may experience seasickness during your cruise. Most people feel some level of discomfort when they first go to sea.

Seasickness results when the signals your brain receives from the inner ear balance mechanism contradicts what your eyes are seeing. For example, inside the cabin of a rocking boat, the inner ear detects changes in linear and angular acceleration as the body bobs with the boat. But since the cabin moves with the passenger, the eyes register a relatively stable scene. Agitated by this perceptual incongruity, the brain responds with stress-related hormones that can lead to headache, dizziness, nausea and vomiting. Its effect can be magnified by strong smells (like diesel fumes or fish, which are part of daily life at sea).

Seasickness usually occurs in the first 12-24 hours after sailing. For most people, seasickness dissipates when the body becomes acclimated to the ship's motion (getting one's "sea-legs"). In rare cases, an individual may stay ill beyond the first couple of days at sea, regardless of sea state. If this occurs, dehydration may become life threatening if it leads to shock.

The "Coast Guard cocktail" can help prevent seasickness. Mix 25 mg of Promethazine with 60 mg of Pseudoephedrine. Reduce the Pseudoephedrine to 25 mg if you feel jumpy.

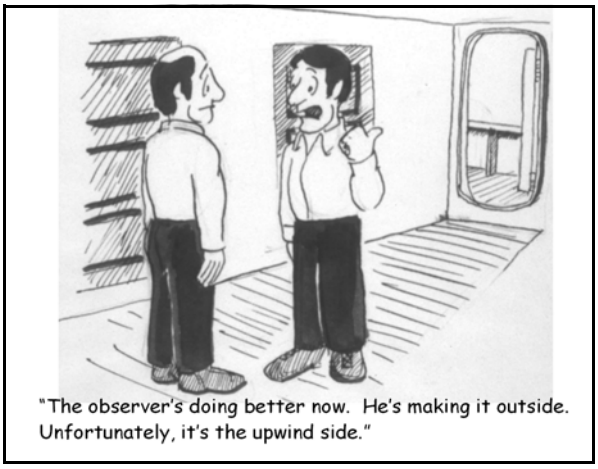
Take seasickness medication ***before*** you go to sea. There are several over-the-counter or prescription medications available to minimize seasickness. Antihistamines such as Dramamine (generic name

dimenhydrinate) or Bonine (generic name meclizine) are effective and are available over-the-counter. These drugs cause drowsiness. A two part, prescription-only drug called "Coast Guard cocktail" is Promethazine, a seasick-preventing antihistamine coupled with Pseudoephedrine, which prevents drowsiness. Transderm Scop is another prescription-only motion sickness drug. It is a dime-sized adhesive patch that is worn behind the ear and delivers a continuous dose of scopolamine. Each patch lasts for 72 hours. The main side effects of the patch are dry mouth and occasionally blurry vision, but there is less drowsiness. Acupressure wristbands and eating crystallized ginger are other remedies used with varying success.

Seasick medications must be taken before the symptoms begin. Most take several hours to be absorbed in your system and may not work if you are already vomiting. Even if you doubt you will get seasick, you might want to take the medication before you board as a precaution.

If you should get seasick, take comfort in the fact that recovery is only a matter of time. All that is usually required for a complete recovery is some patience. Here are a few tips and considerations regarding seasickness:

- Continue eating foods such as crackers, dry toast, dry cereal, etc. Avoid food that is greasy, sweet or difficult to digest. Keeping something in your stomach may suppress nausea and eliminate painful "dry heaves."
- Keep drinking fluids. Seasickness and related medications cause dehydration and headaches. Drink low-acid juices, clear soups and water. Avoid citrus juices, milk and coffee.
- Focus on the horizon to eliminate the visual conflict in your brain. If you must be inside, try to stay toward the middle or aft of the vessel.
- Keep working. Most people find that being busy on deck keeps their minds off their temporary discomfort. Also, the fresh air on deck may help speed recovery.
- Carry a plastic bag. This simple trick allows some peace of mind and eliminates some of the panic of getting sick. If you vomit over the side of a boat, be aware of the direction of wind and waves. Going to the leeward side will ensure that an unpleasant experience doesn't become any worse!
- Above all, don't be embarrassed or discouraged. If you are sick, chances are that others are sick too. No one is immune to seasickness.



Fish and Mammal Poisoning

Bacteria from fish may lead to infection in cuts, scrapes or punctures. To prevent this "fish poisoning," wash your hands thoroughly after sampling in hot, soapy water. Change your gloves often to keep them dry and discard any torn gloves. Treat ***all*** minor cuts, especially those on your hands, with an antiseptic such as Betadine to avoid infection from fish slime.

Be cautious whenever wading through fish on deck or in the factory. Fish spines, especially on rockfish, can penetrate rubber boots and cause painful wounds to the feet.

If a wound becomes red or swollen, soak it for 1/2 hour in very hot, soapy water at least three times a day. Dry and bandage the wound. Antibiotics are commonly prescribed for fish poisoning. Vessels very often carry antibiotics onboard should they be needed. Never leave an infection untreated! The threat to your health can become much more serious than simply a pair of inoperative hands.

Take extra precautions against infection when collecting specimens from marine mammals. Because these mammals have similar biological systems to our

own, organisms which infect them can infect us. “Seal finger” is a fungal infection of the hands which can easily be contracted by a scratch or bite.

Fatigue

Lack of sleep is as much a part of observing as observer baskets and rain gear. Sleep deprivation can cause serious problems. When you are tired, you are less likely to make good decisions or pay attention to hazards.

The only way to recover from sleep deprivation is to sleep uninterrupted for five to twelve hours. You may be able to get this amount of rest during offloads, weather days or while the vessel is steaming. During regular fishing operations, there are steps you can take to minimize the effects of sleep loss.

- Rotate your tasks. Try alternating weighing, measuring, tallying and doing paperwork. You are less likely to become bored and feel tired when doing a new task.
- Increase your physical activity. Just doing a few jumping jacks or push-ups helps increase circulation and oxygen intake which makes you feel more alert.
- Allow for at least four hours of uninterrupted sleep each day. Supplement this with power naps. These should be either 20 or 90 minutes in duration so as not to disrupt your REM sleep.
- Have a small carbohydrate snack, such as an apple, muffin or cereal. Proteins will give you sustained energy throughout the day, but may exacerbate drowsiness because it is harder to digest.
- Use caffeine sparingly. This stimulant may mask the symptoms of sleep deprivation, but may also inhibit you from napping or falling asleep at the end of your busy day.
- If possible, avoid antihistamines, motion sickness medication and other drugs that may sedate you.

ILLNESSES AND ACCIDENTS

You must contact the NMFS each day an illness or injury prevents you from sampling for a whole day. If you are on a vessel or at a plant with ATLAS, send a message to your inseason advisor. If you are not on a vessel or at a plant with ATLAS, use an available means of communication (phone, fax, e-mail, radio) as soon as possible. Additionally, you must contact your employer if an illness or injury prevents you from sampling for more than three days!

If you become ill onboard, such as coming down with a severe cold or flu or seasickness that inhibits your work, you must inform your employer and NMFS of your situation. If your illness gets worse or continues to affect your work for more than three days, your assignment may need to be changed to protect your health.

Inform NMFS and your employer if an on-going illness and/or injury consistently impacts your sampling.

By regulation, each vessel must have at least one person onboard certified in first aid and CPR. If you are hurt onboard, contact your employer and NMFS. If the accident is serious, the captain will contact the USCG who will respond as necessary.

EMERGENCIES ONBOARD

Each person onboard plays an vital role in responding to emergencies at sea. The Vessel Safety check list, safety orientation, and participating in required drills should help prepare you for any emergencies which may occur.

Marine Casualties

The term marine casualty or accident includes any accidental grounding, or any occurrence involving a vessel which results in damage by or to the vessel, its apparel, gear, or cargo, or injury or loss of life of any person; and includes among other things, collisions, strandings, groundings, founderings, heavy weather damage, fires, explosions, failure of gear and equipment and any other damage which might affect or impair the seaworthiness of the vessel.

The following incidents must be documented in your logbook and discussed inseason or during your debriefing interview:

- fire
- flooding
- man overboard (MOB)
- collision
- grounding
- loss of power

- loss of steering
- any crew injury beyond regular first aid
- gas leaks (ammonia and freon)
- lack of safety drills if onboard for at least 30 days

Notify your inseason advisor promptly regarding marine casualties, even those that are not immediately threatening. You are required to complete a written statement for each incident of a marine casualty. These written statements are usually prepared during final debriefing. The more details you have documented in your logbook, the easier completing these statements will be.

Man Overboard

Everyone has an active role in a man overboard emergency. If you witness someone falling over, you must both notify the person at the vessel controls and keep the victim in sight. According to the station bill, crew members are assigned specific tasks such as donning an immersion suit to be the rescue swimmer, launching a life boat, or throwing a life ring. As an extra set of eyes, the best role for you is to keep your eyes on and your arm pointing to the victim to aid the person at the controls.

Cold-Water Near Drowning

Cold-water near drowning is a phenomenon that has been observed in cold waters such as the seas surrounding Alaska. Although the victim may appear to be dead, victims have been revived using CPR even after being immersed in cold water for up to one hour. If you are involved in rescue or recovery effort, keep in mind that persons that have been in the water might be revived with treatment.

CPR is an exhaustive activity that requires more than one caregiver. You are not required to be certified to apply CPR to a victim. It has been said that bad CPR is better than no CPR. Keep in mind that although a victim looks dead, s/he may be revived by this technique.

Fire

A fire needs heat, fuel and oxygen. Remove any one of these components to stop a fire. Ships carry large quantities of fuel and offer few places to go in the event of fire. Station bills give specific duties responding to a fire onboard including who is in charge of the fire fighting team, and what equipment each person is responsible to gather. It is wise to know where fire extinguishers and exits are located in every area of the vessel, especially those areas in which you spend time. Fire extinguishers only have short bursts of fire retardants, so back-up extinguishers should be located and brought to the fire as soon as the fire is discovered. To effectively use a fire extinguisher, fire in short bursts in a low, sweeping motion. Keep your body low so as to avoid smoke inhalation and heat. Do not attempt to fight anything but the smallest fire (a wastebasket, for example) on your own; sound the alarm immediately before you take action. After a fire, thorough inspection must be made of the area including adjacent walls and rooms, to be sure the fire did not spread and will not flare up again.

Flooding

When a vessel is taking on water the crew usually has time to try and solve the problem. Malfunctioning pumps or leaks in through hull fittings are not uncommon, and can usually be fixed with equipment onboard. If the flooding condition worsens, the Coast Guard can drop pumps to a vessel via aircraft. Observers have a limited role in these types of vessel emergencies but should be prepared to assist if needed.

Abandon Ship

The worst possible emergency requires you to give up your shelter—the vessel. Never abandon the ship unless you are sure that being onboard the vessel is more dangerous than being in the water. Lives have been lost because ships have been abandoned too soon during fires or flooding. Knowing the nearest exits, mustering areas, life raft locations, immersion suit locations, EPIRB locations, and the emergency equipment available become critical factors in helping you survive an abandon ship emergency.

SENDING A MAY DAY

A may day call is for a life threatening emergency. The emergency frequencies are VHF Channel 16 and 2182.0 kHz or 4125.0 kHz on single side band radios. VHF radios are for short range and SSB radios are for long range communications (see Appendix V for more information on radios). Vessels are required to monitor these emergency frequencies at all times. Most radios have a red button that changes to the emergency

frequency immediately. Near the radios, there will be a placard posted that describes MAYDAY calls. Be familiar with what constitutes a proper MAYDAY call:

- MAYDAY MAYDAY MAYDAY (say three times)
- Vessel name (said three times)
- Location
- Nature of emergency
- How many persons onboard
- Vessel description
- What radio frequency is being used

SAFETY EQUIPMENT

Personal flotation Devices (PFDs)

No matter how careful you are, you cannot guarantee that you won't end up in the water. NMFS requires that all observers check out a PFD and additional strobe light during their gear issue.The Observer Program has several different versions of type III USCG approved PFDs to choose from to ensure a good fit. NMFS also has Mustang suits available for use on longliners which offer additional insulation for long tally periods on deck and during the winter months.

The best PFD is the one you wear!

If NMFS-provided PFDs don't work for you, consider purchasing one. Mustang, Stormy Seas, and other manufacturers make comfortable, versatile PFDs that are incorporated into rain gear, jackets, belts or vests. Let NMFS know your needs. The PFDs that NMFS provides can change based on your feedback!

Immersion Suits

Immersion suits (often called survival suits) have helped save hundreds of lives because they provide flotation and excellent hypothermia protection. The vessel to which you are assigned is required to carry an immersion suit for all persons aboard. You will be issued a suit by NMFS as part of your safety gear.

Proper fit is vital for an immersion suit to protect you effectively. Try on your immersion suit prior to every cruise! The Observer Program has several brands and sizes with enough options for you to find the very best fitting suit possible. When trying on your suit, wear normal work clothes that you will be wearing at sea.

A strobe light is provided by the Observer Program along with your immersion suit. The strobe light ***must*** be attached to your suit by a lanyard about 30 inches long allowing you to hold it above your head without obstruction.

You should never embark on a vessel without a NMFS issued immersion suit with an attached functional strobe light.

Quick Donning Technique

Practice putting on your immersion suit. The Observer Program requires trainees to don the suit in ***one minute*** or less, but the faster you are in an emergency, the better! Practice putting on your suit in different situations, such as in the dark.

1. Sit down and work your legs into the suit. If you take your boots off, bring them with you, you'll need them on shore. Or, slip plastic bags over your boots, allowing your feet to slide easily into the suit.

2.Roll up onto your knees. Put your weak arm into the suit first, then pull the hood over your head. If you have long hair, tuck it into the hood well. If you wear glasses, decide whether you are going to put them in a pocket or wear them.

3. Hold the suit below the zipper with one hand and grab the zipper lanyard with your other hand. Lean back to straighten the zipper and pull up. Secure the face flap. ***Do not inflate the air bladder until you are in the water***

4. Jump into the water only as a last resort. Ease yourself into the water if at all possible. If jumping, protect your head by placing your inboard arm over your head. Cross your feet to protect from floating debris. Inflate your air bladder once in the water. It provides additional flotation and keeps your head out of the water.

Life Rafts

Your assigned vessel must have enough life rafts or life boat capacity for all aboard. 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 (see Figure 19-3).

Rafts with Alternative Float Free Arrangements

Not all vessels will carry a life raft that is secured to the vessel via a cradle and hydrostatic release. These rafts are classified as having an alternative float free arrangement. The rafts must still be in a float free location, provide sufficient capacity for the entire crew, be serviced at the appropriate intervals, and the painter line must still be secured with a weak link.

Rigid Life Boats

Another alternative to a traditional life raft is a life boat. These rigid capsule like life boats serve the same purpose as a life raft. They must still be located in a float free location and have sufficient capacity for everyone onboard. If your vessel is equipped with a rigid life boat be sure the master of the vessel briefs you on its use prior to embarking.

Valise Life Rafts

Smaller vessels may also use a Valise life raft to achieve the needed capacity for everyone onboard. A Valise raft is a raft that is stored in a bag rather than a canister and is not required to be stored on deck and rigged to deploy automatically. They are required to be easily accessible in an emergency and be serviced annually. Valise rafts are common on smaller vessels that must increase their raft capacity for additional crew such as the observer.

If you have any concerns regarding the survival craft on your vessel contact FMA staff or the USCG. Contact information can be found on page A-51.

EPIRBS

The vessel will have at least one EPIRB (Emergency Position Indicating Radio Beacon) mounted in a float-free bracket that will be automatically activated in the event of sinking. The signal is received by satellite and will identify the sender. It is important to know where the EPIRB is mounted and how to activate it manually. In the event 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 (Figure 19-2). Be sure to locate the EPIRB(s) on your vessel and read the directions on how to activate them.

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EMERGENCY ASSIGNMENTS				
POSITION	ABANDON SHIP	FIRE	PERSON OVERBOARD	FLOODING
	Go To & Bring	Go To & Bring	Go To & Bring	Go To & Bring
Captain	Wheelhouse, radio maneuver vessel	Wheelhouse, radio maneuver vessel	Wheelhouse, radio maneuver vessel	Wheelhouse, radio maneuver vessel
1st Mate	Life raft, immersion suit	Fight fire	Throw ring, lookout	Plug hole, pump
Deckboss	Life raft, immersion suit	Assist in fire fighting	Wheelhouse, radio maneuver vessel	Assist plugging hole and pumping
Deckhand	Communicate, EPIRB, count crew	Communicate, boundary person, remove hazards, get survival gear	Communicate, assist where needed	Communicate, assist where needed, secure hatches
Observer	Debarkation station, immersion suit	Wheelhouse, immersion suit	Lookout, assist where needed	Debarkation station, immersion suit

Figure 19-2: Example of a Station Bill

Personal Locator Beacons, PLBs

You will be issued a Personal Locator Beacon, a small hand held personal EPIRB, along with your sampling equipment. The PLBs are GPS equipped units that, when activated, send your exact GPS coordinates along with the 406 alphanumeric signal to the SARSAT/ COSPAS Mission Control Center. When the signal is received, the Mission Control Center mobilizes the USCG and provides them with information on the person issued the PLB along with your exact coordinates. This information can drastically decrease rescue times. ***You must never embark on a vessel without your PLB.***

In the case of a serious life threatening emergency your PLB should be activated immediately. Once your PLB is activated in an emergency, do not turn it off until you have been rescued or the emergency is resolved.

If you accidentally activate your PLB you must:

- Turn off the PLB.
- Tell the Captain.
- Report the false alarm to the USCG at 1-800-323-7233 or via radio. You will be asked for the PLB's unique alphanumeric code, date, time and location.
- Call your employer.

Once the emergency that caused you to activate your PLB is resolved, you should contact your employer immediately and inform them of the situation.

If your PLB has been activated for any reason it must be returned to a FMA office and you will be issued another one. All PLBs must be returned to the manufacturer following activation to receive a fresh battery.

Survival Kits

A personal survival kit can take up very little space in an immersion suit, yet greatly enhance your ability to survive. Think of the seven steps to survival and choose items that may help you. Items such as a knife, dental floss (a strong multi-purpose line), plastic garbage bags, matches, signal mirrors, a compass, hard candy, or bouillon cubes are small items that fit in a zip-lock bag and could save your life. Vessels may have an emergency bag stored and a person named in the station bill to bring it.

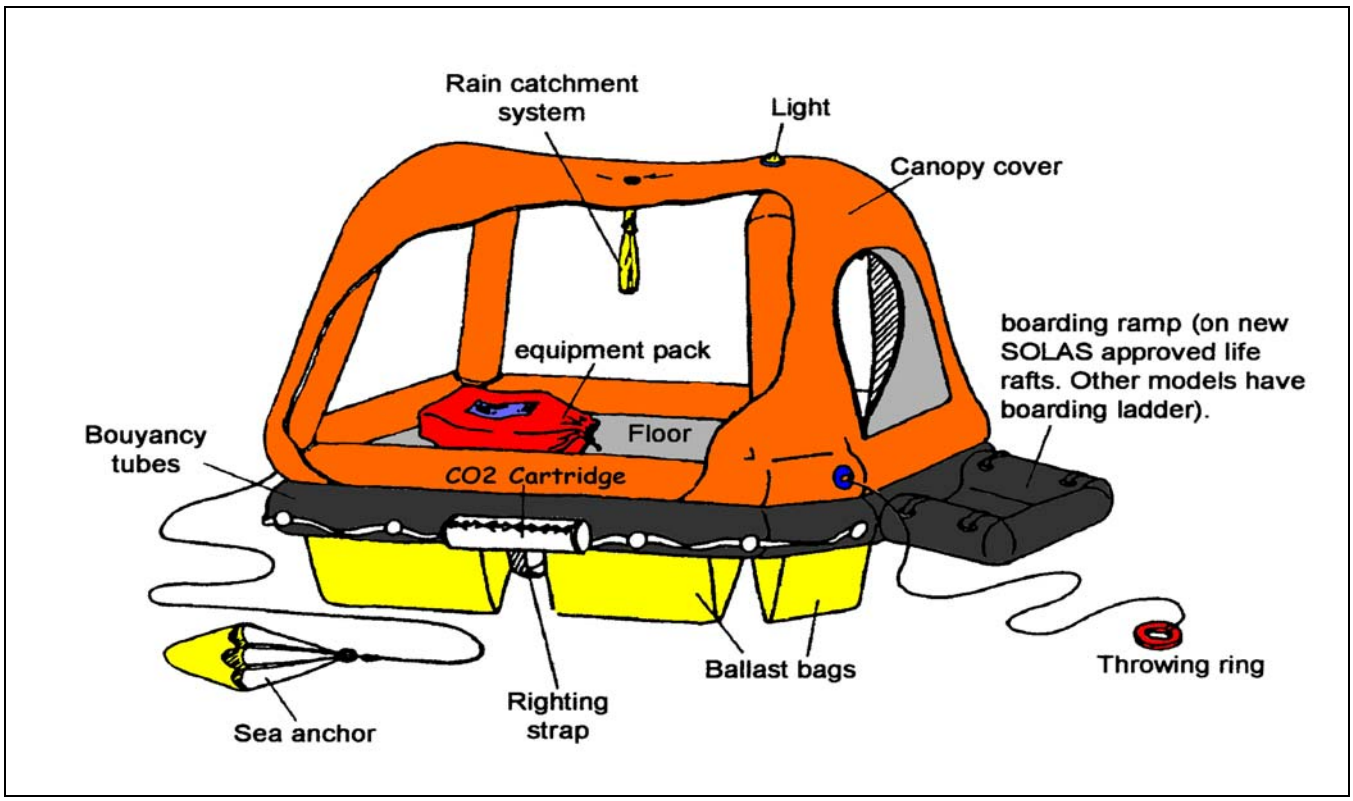

Figure 19-3: Life Raft and Equipment

THE SEVEN STEPS TO SURVIVAL

The Seven Steps to Survival were assembled by the USCG from personal experiences of those who survived emergency situations. Committing the seven steps to survival to memory should be one of your goals in learning how to survive at sea. Every time your situation changes—boarding a raft, reaching land, etc.—the seven steps begin again.

1. Recognition

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.

2. Inventory

Stop and assess the situation. Decide what you have that will help you survive and what are the hindrances. Inventory equipment, weather, your skills, injuries, and your mental condition. Doing so will help you to make good decisions that will help you survive.

3. Shelter

Your biggest enemy in Alaska is the cold. Shelter can be clothing, an immersion suit, a raft, or an overturned vessel or anything that protects you against the loss of your body heat. Water takes heat away from your body 25 times faster than air, so shelter should keep you as dry as possible. High heat loss areas, including the head and neck, need to be protected most. The added buoyancy of a PFD helps keep your head and neck out of water, therefore conserving heat. In a shore survival situation, the seven steps start over again and shelter is your first priority after you inventory the situation. It takes hours to construct adequate shelter on shore and you must do so as soon as possible.

4. Signals

Anything that attracts attention and conveys a message is a signal. Radios, EPIRBs, and flares are signals carried by vessels. Immersion suits have lights attached. If abandoning ship, anything that can be tossed overboard may help an aircraft spot your position. ***Anything that makes you bigger, brighter, or different from your surroundings is a signal***, so attempt to gather items which float from a sinking ship.

In a shore survival situation, three of anything (fires, buoys, immersions suits on the beach) is an internationally recognized distress signal.

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, so it is advised to try to gather drinkable water before abandoning ship, if time permits. Have a strategy for gathering extra water in an emergency. ***Never drink sea water or urine.***

6. Food

You can go without food much longer than without water. Never eat food without water! Your body requires water to digest food. Life rafts have limited food rations. In a shore survival situation, many types of edibles can be found near shore. Almost any animals or green plants in the intertidal zone are edible, but avoid mussels or clams, they may cause paralytic shellfish poisoning.

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—anything that keeps your mind active and focused.

SUMMARY

You will learn much about sea safety and survival from the vessel personnel, who probably have many years of sea experience among them. ***Ultimately, the responsibility is upon you to survive.*** It is easy to think "this will never happen to me" and "the skipper will know what to do," but those thoughts may cost you your life. Take the time to learn as much as you can, and consider what your actions will be in emergency situations. Visualize yourself and your actions in emergency scenarios in the factory, on deck, in your bunk, or anywhere you spend time. Having thought about an emergency will make your actions more automatic, and the time saved may save your life. Your life is worth far more than any data you could collect in the fishery.

FEDERAL REQUIREMENTS FOR COMMERCIAL FISHING INDUSTRY - VESSELS GREATER THAN 60 FT.	
General Requirements	
Documentation & Official Number 46 CFR 67-69	• Must be measured and documented, documentation must be onboard • Hailing/home port, and official number must be displayed in 4 inch letters on both bows. • Official number must be 3 inch letters and attached to integral interior structure member.
Operator License 46 U.S.C. 8304	• The master, mate, and engineers on the vessel of 200 gross tons or more must have appropriate USCG license and operate within the limitations of the licenses.
Commercial Fishing Vessel Safety Inspection Requirements 50 CFR 679.50, 33 CPR Chapter I, 46 CFR Chapter I, 46 CFR 28.710, 46 CFR U.S.C. 3311	• Must have a valid Commercial Fishing Vessel Safety Decal issued within the past 2 years that certifies compliance with regulations found in 33 CFR Chapter I and 46 CFR Chapter I. • Must have a valid certificate of compliance issued pursuant to 46 CFR 28.710 • Must have a valid certificate of inspection pursuant to 46 U.S.C. 3311.
Navigational Requirements	
Compass 46 CFR 28.230	• Each vessel must be equipped with an operable magnetic steering compass with a compass deviation table at the operating station.
Electronic Position Fixing Devices 46 CFR 28.260	• Vessels 79 feet or more in length must be equipped with an electronic positioning fixing device such as SAT NAV, GPS, LORAN, OMEGA, or RDF that is capable of providing accurate fixes for the area of operation.
Navigation and Anchor Lights	• Must be used from sunset to sunrise and when there is limited visibility.
Navigation Information 46 CFR 28.225	• Current corrected charts of the appropriate areas and scale for safe navigation. • Current corrected copy (or applicable extract) of the U.S. Coast Pilot, USCG Light List, National Ocean Service Tide Tables and National Ocean Service Current Tables.
Anchor and Radar Reflectors 46 CFR 28.235	Vessels operating with more than 16 individuals onboard: • Each vessel must be equipped with appropriate anchor(s) and chain(s), cable, or rope. • Nonmetallic hull vessels must be equipped with a radar reflector unless it is a vessel rigged with gear that can provide a radar signature at six miles.

Radar and Depth Sounding Devices 46 CFR 28.400	Vessels with 16 or more individuals that have had their keel laid or major conversion on or after September 15, 1991: • Each vessel must be fitted with a general marine radar system for surface navigation with a radar screen mounted at the operating station. • Each vessel must be fitted with a suitable echo depth sounding device.
Communications Requirements	
Communications Equipment 46 CFR 28.245, 46 CFR 28.375, 33 CFR 26.03, 47 CFR 80	• Each vessel must be equipped with VHF radiotelephone communication equipment operating within 156-162 Mhz band. • If a vessel is operating more than 20 miles from the coastline in waters near Alaska it must also be equipped with radiotelephone communication equipment operating within the 2-27.5 Mhz band. A cellular telephone or satellite communication system, servicing the area of vessel operation, is also acceptable to meet the requirements of this paragraph. • A radio transceiver installed onboard before Sept. 15, 1991, operating on 4-20 Mhz band may continue to be used to meet the requirements for vessels operating more than 100 miles from the coastline in Alaskan waters. • All communications equipment must be operable from the vessel's operating station and must comply with FCC requirements, including a Ship Radio Station License. • Each vessel must be equipped with an emergency source of power that is independent of the main power supply, outside of the main machinery space, and capable of providing power to communications equipment for at least 3 continuous hours.
Emergency Requirements	
Personal flotation Devices (PFD) 46 CFR 28.105, 46 CFR 28.110, 46 CFR 28.135, 46 CFR 28.140	• CG approved immersion suit with 31 square inches of retroreflective tape on the front and back of each side. • Must have CG approved PFD light. • Must be marked with the name of the vessel, owner of device, or the individual to whom it is assigned.
Ring Buoy 46 CFR 28.115 & 46 CFR 28.135	• Vessels less than 65 feet must have 1 orange Ring Life Buoy at least 24 inch in size, with 60 feet of line, and marked with name of vessel. • Vessels greater than 65 feet must have 3 orange Ring Life Buoys at least 24 inch size with 90 feet of line, marked with the name of the vessel.
Safety Protection Device (SPD)	• Vessels less than 65 feet must have a whistle that is audible for 1/2 minute. • Vessels over than 65 feet must have a whistle that is audible for 1 minute.

Survival Craft 46 CFR Tables 28.120 (a)	• Between shore & 12 miles off coastline - inflatable buoyant apparatus. • Between 12-20 miles off coastline - inflatable liferaft. • Between 20-50 miles off coast line - inflatable liferaft with SOLAS B pack. • Beyond 50 miles off coastline - inflatable liferaft with SOLAS A pack.
Stowage of Survival Craft 46 CFR 28.125	• Each inflatable liferaft that is required to be equipped with a SOLAS A or B equipment pack must automatically inflate if the vessel sinks. • Each inflatable liferaft must be kept readily accessible for launching or be stowed so they will float free if the vessel sinks. • Each hydrostatic release unit in a float free arrangement must have a CG approved number starting with 160.062.
Launching of Survival Craft 46 CFR 28.310	Vessels with 16 or more individuals that have had their keel laid or major conversion on or after September 15, 1991: • A gate or other opening must be provided in deck rails, lifelines, or bulwarks adjacent to the stowage location of each survival craft which weighs more than 110 pounds, to allow the survival craft to be manually launched.
Embark Stations 46 CFR 28.395	Vessels with 16 or more individuals that have had their keel laid or major conversion on or after September 15, 1991: • Each vessel must have at least one designated survival craft embark station (more if necessary) that is readily accessible from each accommodation space and work space. • Each embark station must be arranged to allow the safe boarding of survival craft.
Means of Escape 46 CFR 28.390	Vessels with 16 or more individuals that have had their keel laid or major conversion on or after September 15, 1991: • Each space used by an individual on a regular basis or which is generally accessible to an individual must have at least two widely separated means of escape. At least one of the means of escape must be independent of water tight doors. Means of escape include normal exits and emergency exits, passageways, stairways, ladders, deck scuttles and windows.
Visual Distress Signals 46 CFR 28.145	• Vessels operating more than 3 miles from shoreline are required to carry 3 parachute flares, 6 hand flares, and 3 smoke signals. • Vessels operating within 3 miles of the coastline are required to carry night and day visual distress signals. Night signals can be one electric distress light or 3 CG approved flares. Day signals can be either one distress flag or 3 CG approved smoke signals.
EPIRB 46 CFR 28.150 & 46 CFR 25.26	• Vessels operating beyond coastal waters are required to have an FCC type accepted category 1, float-free, automatically activated, 406 Mhz EPIRB. • Each EPIRB must be marked with vessel name and type II retroreflective material (46 CFR 28.135).

General Alarm 46 CFR 28.240	• A general alarm system (suitable for notifying individuals onboard) is required with a contact marker at the operating station. The general alarm must be capable of notifying individuals in any accommodation or work space. Under certain circumstances (defined at CFR 28.240), a public address system that is audible in all work spaces meets regulatory requirements. • In noisy work spaces, a flashing red light is required. • The general alarm system must be tested prior to getting underway and at least once each week while underway.
Emergency Instructions 46 CFR 28.265	• As applicable, emergency instructions are required for: survival craft embarkation stations and personnel assignments; fire, emergency, and abandon ship signals; immersion suit location and donning information; procedures for making distress calls; list of each individual's emergency and specially established procedures. Specific details and posting requirements are found at 46 CFR 28.265.
Instruction, Drills, and Safety Orientation 46 CFR 28.270, 46 CFR 28.275	• The master or individual in charge of each vessel must ensure that drills are conducted and instruction is given to each individual onboard at least once a month. • No individual may conduct the drills or provide the instructions required by this section unless that individual has been trained in the proper procedures for conducting the activity. • Drills and instructions are to include: abandoning the vessel, fire fighting, man overboard recovery, stabilizing vessel after unintentional flooding, launching survival craft, and recovery of life and rescue boats, donning immersion suits, PFD's, fireman's outfits and breathing apparatus, radio and visual distress calls and signals, activating the general alarm and reporting of inoperative alarms and fire detection systems. • Drills must be conducted onboard the vessel as if there were an actual emergency and must include participation by all individuals onboard. • Viewing of videotapes followed by discussion led by a person familiar with the subjects can be used for instruction requirements but not as a substitution for drills or for the safety orientation. • The master must ensure that all individuals who have not received the above instruction or participated in the drills receive a safety orientation before the vessel may be operated. This safety orientation must explain the emergency instructions required by 46 CFR 28.265 and cover the specially established procedures. listed above.

High Water Alarms 46 CFR 28.250	• Alarms are to be both visual and audible and installed at the operating station. • Alarms are to indicate high water in each of the following normally unmanned areas: a space with a through-hull fitting below the deepest load water line, a machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from sea water piping within the space, a space with a non-watertight closure such as a space with a non-water tight hatch on the main deck.
Bilge Systems 46 CFR 28.255	• All vessels must be equipped with a bilge pump capable of draining any watertight compartment, other than tanks and small buoyancy compartments, under all service conditions. • If a portable bilge is used to meet this requirement, a suitable suction hose and discharge hose must be provided that will reach the bilges of all watertight compartments it must serve and ensure overboard discharge. The portable pump must be capable of dewatering each space at a rate of at least 2 inches of water depth per minute.
Casualties and Injuries 46 CFR 28.080, 46 CFR 28.090	• If any of the following incidents occur, the master or other vessel representative must, as soon as possible, contact the nearest USCG Marine Safety Office and submit written report CG-2692 within five days: • groundings, • loss of main propulsion or primary steering, • loss of life, • injury which requires professional medical treatment beyond first aid and renders the victim unfit to perform vessel duties, • any damage over $25,000, any occurrence affecting the seaworthiness of the vessel such as; fire, flooding, or the failure of or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment or bilge pumping systems.
Injury Placard 46 CFR 28.165	• A placard, at least 5 X 7" stating the requirements of reporting injuries to vessel operator or agent as defined by US law, 46 U.S.C. 10603 must be posted in prominent place.
First aid Equipment and Training, 46 CFR 28.210	• Each vessel must have onboard a first aid manual and medicine chest of a suitable size in a readily accessible location. • Vessel with more than 2 individuals must have at least 1 individual certified in first aid and at least 1 individual certified in CPR or 1 individual certified in both. • Vessels with more than 16 individuals onboard must have at least 2 individuals certified in first aid and at least 2 individuals certified in CPR. Individuals certified in both may be counted against both requirements. • Vessels with more than 49 individuals onboard must have at least 4 individuals certified in first aid and at least 4 individuals certified in CPR. Individuals certified in both may be counted against both requirements.

Fire Control Requirements	
Fire extinguishers 46 CFR 28.155 & 46 CFR 28.160 & 46 CFR 25.30	• Vessels over 65' are required to have USCG approved fire extinguishers in each of the following locations: Pilot house, service spaces, galleys, paint lockers, accessible baggage and storage rooms, workshops and similar spaces, engine room, auxiliary engine room, auxiliary spaces, and generator spaces. • NOTE: Specifics on the type of extinguishers, number per location, and legal description of spaces where extinguishers are required can be found at 46 CFR 28.155 & 46 CFR 28.160 & 46 CFR 25.30.
Fire Pumps, Fire Mains, Fire Hydrants, and Fire Hoses. 46 CFR 28.316	Vessels with 16 or more individuals that have had their keel laid or major conversion on or after September 15, 1991: • Vessels >36' must be equipped with a self-priming, power driven fire pump connected to a fixed piping system. • Specific requirements regarding locations and specifications for fire mains, fire hydrants, and fire hoses can be found at 46 CFR 28.316.
Fireman's Outfits and Self-contained Breathing Apparatus 46 CFR 28.205	• Vessels equipped with refrigeration units using ammonia must be equipped with at least 2 self-contained breathing apparatus with spare air bottles for each. • If the vessel has more than 49 individuals onboard, at least 2 firemen's outfits, stowed in widely separated locations, are required. A fireman's outfit consists of one pressure demand open circuit MSHA/NIOSH approved self-contained breathing apparatus with a 30 minute air supply and a full face piece, one lifeline with a belt or suitable harness, one flashlight, a rigid helmet, boots, gloves, protective clothing, one fire axe, and a spare air bottle.
Miscellaneous Requirements	
Guards for Exposed Hazards 46 CFR 28.215	• Suitable hand covers, guards, or railings must be installed on or near machinery that can cause injury to personnel, such as gearing, chain or belt drives, and rotating shafting. This is not meant to restrict necessary access to the fishing equipment such as winches, drums, or gurdies. • Internal combustion engine exhaust pipes within reach of personnel must be insulated or otherwise guarded to prevent burns.
Watertight and Weathertight Integrity 46 CFR 28.560	• Each opening in a deck or a bulkhead that is exposed to weather must be fitted with a weathertight or watertight closure devise.
Pollution Prevention 33 CFR 151, 33 CFR 155	• Vessels are required to post oil pollution and garbage placards, and to have a written solid waste management plan that describes procedures for collecting, processing, storing, and discharging garbage, and the designated person in charge of carrying out the plan. Restrictions on dumping can be found at 33 CFR 151, 33 CFR 155.
Sexual Abuse Act of 1986 46 CFR U.S.C. 10104	• It is the responsibility of the master to report to the USCG any complaints of sexual offenses, including aggravated sexual abuse, sexual abuse, sexual abuse of a minor or ward, or sexual contact per 46 CFR U.S.C. 10104.

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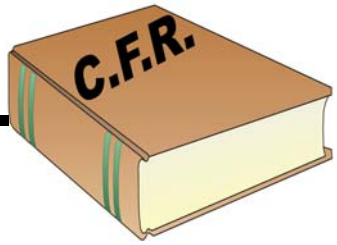


REGULATIONS AND COMPLIANCE

Table of Contents

INTRODUCTION

This chapter contains information that will assist you to fulfill your role monitoring for and documenting compliance infractions and suspected violations (see "Deployment Responsibilities" on page 2-2). You will find reference materials regarding how to handle potential violations inseason, how to effectively document and communicate potential violations, and information to inform and support you both during and following deployment.

OBSERVER ROLE IN REGULATORY COMPLIANCE

Observers are required to report accurately any observations of suspected violations of regulations relevant to the conservation of marine resources or their environment. The observer's role in monitoring compliance is quite different from the role of a NOAA Fisheries Office of Law Enforcement (OLE), Alaska Division (AKD) Special Agent. Observers are not enforcement agents and are not empowered to issue citations, or take enforcement action.

Observers must not advise the crew of regulations, interpret regulations, waive regulatory requirements or enforce regulations.

Observers are responsible for monitoring activities aboard the vessel, documenting potential violations in their logbook, and completing written statements. Observers are instructed to inform the captain of potential violations when feasible or document why they did not inform the captain of a potential violation.

In the past, some observers have misinterpreted their role by either exceeding their assigned duties or by demonstrating an apathetic lackadaisical attitude regarding compliance. Either of these patterns of behavior may be damaging to the resource and other observers and could place your certification in jeopardy. If you have any questions regarding your role in fisheries compliance, contact a Fisheries Monitoring and Analysis Division (FMA) staff member.

Regulatory information can be found throughout the observer manual in nearly all the sections. Follow the guidance in this section regarding documenting and reporting potential violations. This chapter contains excerpts of regulations specific to your work as an observer. However, this Manual does not contain the entire text of any regulation. ***Vessel owners and operators can access the full text of the regulations at http://fakr.noaa.gov.***

If vessel personnel have a question regarding the intent, scope or applicability of a regulation, refer them to an AKD field office or a FMA staff member, see "Contact Addresses and Numbers" on page A-51.

STEPS TO TAKE IF YOU SUSPECT A VIOLATION

Gathering facts and documenting a suspected violation is part of your routine duties, see "Responsibilities and Priorities" on page 2-2. Common sense and good judgment should prevail if you suspect that a violation has occurred. Your role is straightforward: identify, inform and document. The actions you take will depend upon the type of suspected violation, the circumstances under which it occurred, and the actions and demeanor of vessel or plant personnel. In any situation, you have resources available to help you deal with violations at sea. Your inseason advisor, other NMFS staff, fisheries enforcement, Alaska State Troopers, contractor, advocate organizations, and others are trained to assist you by answering questions and offering advice on how to handle a situation. See "Contact Addresses and Numbers" on page A-51.

Identify

Routine observation of all activities aboard a vessel is your first step in identifying compliance infractions. You may notice an obvious violation, such as a crew member presorting halibut or discarding plastic bags overboard. Other violations may need some research. You may need to double check your measurements, calculations, methods, scale calibrations, logbook entries, or production figures. Ask the captain, plant manager, or other personnel to clarify any questions you have. By asking questions you may determine that no violation occurred. You can contact FMA staff or AKD personnel to see if a particular action is a violation.

Inform

If you think a violation has occurred, notify the vessel's captain (or the plant manager) as soon as possible. Informing the captain of potential violations is expected by the FMA unless the captain or manager has failed to respond to previous reports, or you feel that it may lead to a potential harassment situation. In these cases, you must document your reasons for not reporting the incident in your Daily Notes section of your logbook. Please refer to the following "Document" section for information on how to document a potential violation.

Effective communication requires some familiarity with the regulations, good judgment, and tact. If you do witness a potential violation, organize the facts and approach the captain or plant manager in a calm and reasonable manner. Informing the captain provides the opportunity to correct problems and prevent future violations.

The captain/plant manager's response may shape how the violation eventually is handled. In most cases, the problem will be remedied immediately. If your statements are ignored and the violations continue, good documentation is required for AKD to deal with the problem. You are in the best position to advise NMFS on the circumstances of the violation and the apparent intent of the captain/ manager.

If the problem you have witnessed continues, you may contact the FMA, AKD, and/or your contractor for help. If you feel the situation has interfered with your ability to complete your duties or caused a hostile work environment, report the situation immediately to the FMA, and/or AKD. Depending on your circumstance, NMFS and your contractor may be able to assist you directly. You are the best judge of your situation.You may choose to write a message to your inseason advisor and include information regarding how NMFS might help you. Otherwise, for your safety and privacy, the FMA and AKD may wait to take action until you have disembarked the vessel or completed debriefing.

Document

As part of your daily routine you should document the events of the day in your Daily Notes. Include events even if you are not sure they should be included your notes.When in doubt, document! Good documentation is beneficial to all parties involved, it is important for a smooth debriefing, helps with writing statements, and aides in any potential investigations.

Your debriefer may not be the only person who reads your Daily Notes. Your logbook is a legal document, could be used in a legal proceeding and could be subject to a Freedom of Information Act request. If you write a statement during debriefing it will be much easier if you have taken the time to document the violation as outlined below. Considering the importance of your logbook and other types of documentation you must take ***special care to safeguard them against loss and tampering***. As with all other information you collect ***documentation of potential violations must be kept confidential.***

When do I document?
Document a potential violation at the time you recognize it. Document the series of events in chronological order with as much attention to detail as possible. You may not recognize a potential violation until later. It is never too late to document. If you are documenting an event after the fact include estimated dates/times, with as much information as you can recall. In cases of harassment or intimidation, sometimes seemingly insignificant events or annoyances escalate over time, resulting in delayed documentation.

Where do I document?
Most potential violations will be documented in the Daily Notes section of your logbook, but can also be documented in any other section of your logbook, or on any appropriate data sheet. For example, potential violations witnessed in the factory or on deck may be most appropriate documented on your Deck Forms. In your Daily Notes make a note of the event, and reference your Deck Forms for specific information. With any investigation of a potential violation, objective and detailed documentation is critical. Keep in mind any documentation may be used as evidence in an investigation.

How do I document…

...a potential fishing violation?

As an observer you are considered a witness to violations. Document objective observations of any potential violation. These observations should be thorough and factual. Objective documentation is critical to clearly conveying what you observed or witnessed. Subjective comments must be left out.

Remember, good documentation contributes to your credibility. Your logbook is not a personal document. Do not document your conclusions or use your logbook to blow off steam. Personal opinion statements such as "the deck boss is a slob" are irrelevant to whether a fisheries violation has been committed.

...harassment/interference or intimidation?

If you are experiencing harassment or intimidation document the situation similarly to how you would document a fishing violation but include how the situation affected you, how it made you feel, and how it impacted your work. Accurately describe the interactions including events leading up to and following the interaction. It is not only appropriate, but also critical, to document your thoughts and feelings. Document any mitigating and/or aggravating circumstances, actions that made the situation worse, or anything that helped to remediate the issue.

All written comments in your logbook must be in ink, and events should be recorded in chronological order.

All logbook entries of suspected violations should contain the following basic elements:
Who: Identify the vessel or plant by name, permit number and vessel type.

- Identify the individuals and witnesses involved by first and last name, position (captain, engineer, deckhand, etc.) and function or duties.
- Identify who was notified and how they handled the potential violation.

What: Describe the events and circumstances in narrative form.

- Include what made you suspicious.
- Detail what was discovered when you looked into the matter.
- Describe what occurred (or did not) as a result of your discussions with the captain and crew.
- Use direct quotes whenever possible.
- Record each instance of a suspected violation.

When: Identify the exact or approximate time of the suspected violation - hour, day, month, year.

- Document the haul or delivery number if appropriate.

Where: Identify your vessel's position or the plant location at the time of the suspected violation.

- Include the latitude and longitude. If a vessel's exact position is not known, use the closest approximation from the last haul or non-fishing day position.
- Describe where the suspected violation occurred. Draw a diagram identifying the area specifically, if applicable.

Why and How: Try to determine why the suspected violation occurred. Document your own observations and conversations with the crew members. Be as objective as possible and cite factors which may provide mitigating or aggravating information. Consider the following questions:

- Could the problem be due to a mistake, such as a mathematical or transcription error?
- Were there circumstances beyond the control of vessel or plant personnel such as severe weather, mechanical breakdowns, or injuries?
- Was the suspected violation intentional? On whose orders, or with whose knowledge, do you think it was done, and why? Describe any effect the possible violation had on your ability to perform your observer duties.
- If you felt harassed or intimidated as a result, describe how the actions made you feel, any mitigating or aggravating circumstances such as any events leading up to the harassment/intimidation, and the events following the harassment/intimidation. A series of interactions may gradually escalate to the point where you start to consider it harassment or intimidation. If you are able to address the problem while deployed and the harassment stops, it is still important to document the events. Many times harassment or intimidation is not recognized until much later; it is never too late to document and report.

When documenting fishing violations, notes should be matter of fact. When documenting instances of harassment or intimidation, it is critical that you express your feelings and emotions surrounding the incident.

DEBRIEFING

If you have witnessed a suspected violation discuss this with your debriefer. You may be asked to clarify your notes, or to complete a written statement describing what you saw. Your statement should not contain repeated details from other documentation. The statement should contain the basic elements of the violation, details not in your Daily Notes, and references to other documentation. References should include page numbers, dates, and/or haul numbers.

Copies of your logbook pages and any other documentation must be included with your final written statement(s) during debriefing.

Completing Written Statements

If you submit a statement, it will be forwarded to an AKD special agent. Provide the FMA with a reliable phone number or mail address so they may reach you. Your responsibility as a groundfish observer regarding suspected violations may require a phone call with a special agent.

Most of the time, when you inform the vessel command of a potential violation, they will take steps to change that behavior. Therefore, most complaints submitted by observers fall into the "voluntary compliance" category. The majority of these complaints will not result in an enforcement action against the fishing company.

More egregious violations may be dealt with by a Summary Settlement or other civil or criminal prosecution. The Summary Settlement system allows NMFS Enforcement agents and officers to levy fines up to $5000 on an individual or a vessel company for certain violation types. This form of enforcement action does not have to go through the court system; it is similar to a traffic ticket. More serious violations can end up in civil or criminal prosecutions involving attorneys. These prosecutions rarely end up in court trials or hearings. You are required to cooperate with AKD and NOAA Fisheries General Counsel while this process is underway.

If your written statement is not acted upon by AKD, it will still be added to a database. Over time, this allows enforcement to determine if there is a pattern of behavior. If a pattern of behavior is established, the eventual result may be prosecution. Without complete, objective documentation of a suspected violation, AKD has no background to pursue an investigation. Your detailed notes are the best source of the facts and the intent of the incident.

OBSERVER INFORMATION

All observer information must be kept confidential, this includes proper handling and use of observer data both inseason and after debriefing. Observers must not post observer information on the internet, including but not limited to social networking sites and

other file sharing sites. Observer information must not be used for personal research projects, publishing articles, or any other unofficial purpose(s).

Observer information is defined at 16 USC 1802 §3-Definitions (32): …any information collected, observed, retrieved, or created by an observer or electronic monitoring system… including fish harvest or processing observations, fish sampling or weighing data, vessel logbook data, vessel or processor specific information (including any safety, location, or operating condition observations), and video, audio, photographic, or written documents.

REGULATIONS APPLYING TO OBSERVERS

Federal groundfish observers are not exempt from laws or regulations. Observers who falsify data, accept bribes, harass other observers, or conspire with someone to do the same may face charges. Observers who violate the Standards of Observer Behavior (see see "Standards of Observer Behavior" on page 2-3) may face suspension, decertification, and/or other disciplinary action. The collection of reliable data is essential to the effective conservation, management, and scientific understanding of the fishery resources of the United States. As such, false data reports and observer misconduct issues are dealt with seriously.

REGULATIONS PROTECTING OBSERVERS

NMFS strives to promote a safe and harassment-free work environment to protect observers and ultimately contribute to the collection of high quality data. Your employer and vessel/plant owners and operators have the regulatory responsibility to protect you and your data.

It is unlawful to do any of the following:

1. Forcibly assault, resist, impede, intimidate, sexually harass, bribe or interfere with an observer.
2. Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or other sorting or discarding of catch before sampling.
3. Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.
4. Prohibit or bar by command, impediment, threat, coercion, or by refusal of reasonable assistance, an observer from collecting samples, conducting product recovery rate determinations, making observations or otherwise performing the observer's duties.
5. Harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile, or offensive environment. In determining whether conduct constitutes harassment, the totality of the circumstances, including the nature of the conduct and the context in which it occurred, will be considered. The determination of the legality of a particular action will be made from the facts on a case-by-case basis.
6. Fish for or process fish without observer coverage required under §679.7 Subpart E.
7. Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

Harassment and Assault

The most serious crimes against observers are assault, harassment, sexual assault, and rape. These are criminal offenses. The resulting cases are the highest priority of the AKD. If you find yourself in one of these situations, take care of yourself first. On a vessel, your most immediate support may come from a crew member, inseason advisor, or another observer. For your safety and that of future observers, you must inform the captain or plant manager, your employer, and NMFS. After you have made a report, a team will be assigned to support and help you. See see "Victim Impact and Support" on page 20-6. If you are still at sea, this team will take precautions to ensure your situation does not become worse. If necessary, immediate actions will be taken to ensure your safety. Contacts for AKD and other support can be found in "Contact Addresses and Numbers" on page A-51 of this manual.

Second to your safety is the preservation of evidence. This may include gathering physical evidence of the harassment, assault, or sexual assault. While this may be painful and unpleasant, these actions are necessary to bring the perpetrator to justice. Initially, you may have difficulty remembering details of the crime or you may feel you could have done something to prevent it. These are normal feelings. Remember, it's not your fault. There is no such thing as harassable, assaultable, or rapable behavior.

Sexual Harassment

Sexual harassment is a form of sex discrimination that violates Title VII of the Civil Rights Act of 1964. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitutes sexual harassment when submission to, or rejection of, this conduct explicitly or implicitly affect an individual's employment, unreasonably interferes with an individual's work performance, or creates an intimidating, hostile, or offensive work environment.

Sexual harassment can occur in a variety of circumstances, including, but not limited to the following:

- The victim as well as the harasser may be a man or a woman. The victim does not have to be of the opposite sex.
- The victim does not have to be the person harassed, but could be anyone affected by the offensive conduct.
- Unlawful sexual harassment may occur without economic injury to the victim.
- The harasser must know the conduct is unwelcome.

While some behavior is clearly offensive, in most cases, it is necessary for the victim to directly inform the harasser that the conduct is unwelcome and that it must stop.

A determination of whether alleged conduct constitutes sexual harassment, and the legality of a particular action, will be made from the facts, on a case by case basis. For more information on sexual harassment or any other form of harassment or discrimination consult the Equal Employment Opportunity Commission (EEOC) Website at ***www.eeoc.gov.***

Unalaskans Against Sexual Assault & Family Violence is a support service in Dutch Harbor. If you need to speak to someone confidentially, they can be contacted at 1-800-47U-SAFV.

Standing together Against Rape (STAR) is an Alaska based advocacy organization that provides confidential support for victims of sexual assault and harassment. You may contact STAR 24 hours a day at 1-800-478-8999, 1-907-276-7273,email at *star@ak.net or www.staralaska.com.*

Intimidation

Intimidation is another form of harassment. It is an emotional response to someone's actions toward you. Most common is a captain or crew member directing anger toward you through body language and/or verbally. Some people are affected very little, while others are affected immediately and for some time afterward.

In some cases, you may be able to ignore or defuse this type of behavior. If you do experience an incident that upsets you or causes you to avoid the public areas of a vessel or plant, the person's behavior may have intimidated you. You have a right as an observer to work in an environment free from this kind of harassment.

Blacks Law Dictionary defines intimidation as: Unlawful coercion; extortion. Websters II defines intimidate as: 1. To make timid: Frighten. 2. To inhibit or discourage by or as if by threats. Timid: 1. Shrinking from difficult or dangerous circumstances: Fearful.

Victim Impact and Support

Harassment, assault, and sexual assault disrupt the lives of employees, families, co-workers, and many others. Victims may feel shock, depression, guilt, loss of trust, fear, anger, frustration, humiliation, and embarrassment. They may experience a loss of self-esteem, motivation, and privacy. It is normal for victims of crime to minimize the traumatizing event or events to blame or doubt themselves.

You are not to blame! No matter what choices you make, it does not give someone the right to assault you or treat you in a way that is clearly unwelcome. The person who chooses to commit an act of violence or control is solely responsible for their crime.

You are not alone. After you have reported the crime, a specially trained team will be assigned to support and help you and to answer your questions. This team may include NMFS Enforcement, FMA staff members, your employer, an advocate, a medical professional, the vessel company and captain, a legal professional, and/or others.

Confidential help is also available. Standing Together Against Rape (STAR) is an Alaska based victim advocacy organization that provides confidential support for victims of all sorts of crime including assault, sexual assault, workplace harassment, and rape. They provide immediate crisis support, support at the hospital if an exam is necessary, law enforcement accompaniment, court and medical accompaniment, individual crisis counseling, support groups, information, and referral. ***You may contact STAR 24 hours a day at 1-800-478-8999 or 1-907-276-7273, email at star@ak.net, or www.staralaska.com***.

Victim Rights

During the law enforcement investigation, you will be informed of the status of your case if you request. Your case agent will remain your principal contact. If you have questions, be sure to contact him or her as soon as possible. A federal investigation can be complex and lengthy. Remember, your interests are important. It is normal to have questions. Your case agent is there to help.

Below is a list of rights given to victims under the Crime Control Act of 1990:

- The right to be treated with fairness and with respect for your dignity and privacy.
- The right to be reasonably protected from the accused offender.
- The right to be present at all public court proceedings related to the offense, unless the court determines that testimony by the victim would be materially affected if the victim heard other testimony at trial.
- The right to confer with the attorney for the Government in the case.
- The right to restitution.
- The right to information about the conviction, sentencing, imprisonment, and release of the offender.

What to Do if You Experience Harassment

If you experience harassment in any form, address it directly and document it completely. If you can, approach the harasser early, before the situation becomes volatile. This will require you to be assertive, professional and diplomatic. However, by taking this step you will protect yourself as well as observers that will follow you. You may even prevent future trouble for the harasser, captain and/or vessel owner.

Report any cases of harassment to the FMA or NOAA Fisheries Alaska Enforcement Division as soon as possible. We are unable to help you with problems we are unaware of.

Take some time to think about how you will react. If possible, follow these steps:

1. Say no. Tell the harasser that his/her comments, actions or advances are unwanted and unwelcome and that you want them stopped. Make sure that your verbal and non-verbal messages to stop are clear. You are the judge of whether another person's actions negatively affect you.
2. Don't fight fire with fire. Keep your behavior professional and avoid being baited into arguments.
3. Document the incident(s) from the very beginning. Even if you are unsure at first if you are experiencing harassment, record the details. They provide you with the full story if the situation escalates. In your logbook, describe the situation including your attempts to end the harassment and the response you receive.
4. If the problem continues, report it to the captain. Tell the full story, explain if your work has been affected, and request that he or she take steps to end the problem. Most captains will take steps to help you. Document the captain's actions.
5. If the harassment is sudden and severe or is not addressed by the captain, or if the problem is with the captain, report the offense to NMFS

and your employer. They will work together to help you while considering your privacy. At your request, arrangements can be made for you to leave the vessel and seek help.

6. If you are concerned for your immediate safety on board, use your ATLAS text messages or other forms of communication to alert your inseason advisor, AKD, or employer of the problem. "Contact Addresses and Numbers" on page A-51 for emergency contacts.

PARTIAL SUMMARY OF FEDERAL GROUNDFISH FISHING REGULATIONS FOR THE U.S. EEZ OFF ALASKA.

This summary of regulations is intended to provide observers with a working knowledge of regulations as they apply to groundfish observer duties. Full regulations are presented in the Code of Federal Regulations (50CFR 600 and 679) which implement the Fisheries Management Plans (FMP) for the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) areas. Additional information on these regulations and current information on news releases, fishery closures, restricted area maps and regulations may be obtained through the Alaska Regional (AKR) Office, http://www.fakr.noaa.gov.

Supplementary changes to regulations are available at NMFS offices. Substantive supplementary changes to groundfish, marine mammal, safety, and marine pollution regulations are published in the Federal Register. Copies of the various CFRs are available in local libraries and in state or federal court buildings.

The summary in this Manual does not supersede, amend, or detract from federal regulations or law as printed in the Federal Register or the Code of Federal Regulations. This summary does not, nor is it intended to, create any rights, substantive or procedural (enforceable at law by any party in any matter, civil or criminal) and it may not be relied on for any such purpose. This summary is for general informational purposes only. ***This is not a complete summary, nor is it quoted verbatim from federal law.***

Overview of Federal Groundfish Regulations

Federal fisheries regulations in the BSAI and GOA are developed by the North Pacific Fisheries Management Council, approved by the U.S. Department of Commerce and administered by the National Marine Fisheries Service. In addition to fisheries regulations, commercial fishers are required to comply with many other regulations, such as those authorized by the Marine Mammal Protection Act and the Endangered Species Act.

The regulations contained in this section of your manual are enforced by the NOAA Fisheries Office of Law Enforcement (OLE), Alaska Division (AKD) and the U. S. Coast Guard. AKD Special Agents also work closely with FMA staff and with federal, state, and local law enforcement agencies.

Groundfish regulations in the BSAI and GOA are designed to conserve groundfish stocks and to protect established halibut, herring, crab and salmon fisheries. Regulatory tools used to manage the fisheries include fishing area designations, fishing seasons, gear limits, catch quotas and bycatch quotas.

50 Code of Federal Regulations (CFR) Part 679 contains Federal Regulations for Fisheries of the Exclusive Economic Zone off the Alaska coast. The Part is made up of several Subparts, each Subpart is split into Sections, notated by the symbol §. Each Section is further split into Paragraphs that we most frequently reference. Each Paragraph has several levels of designation as described below:

Level 1	(a), (b), (c), etc.
Level 2	(1), (2), (3), etc.
Level 3	(i), (ii), (iii), etc.
Level 4	(A), (B), (C), etc.
Level 5	(1), (2), (3), etc.
Level 6	(i), (ii), (iii), etc.

PROHIBITED SPECIES §679.21

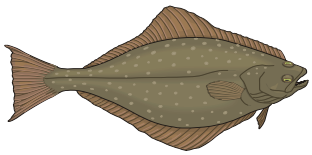
Prohibited species include:

- Pacific salmon (all species)
- Steelhead trout
- Pacific halibut
- Pacific herring
- Tanner crab (all species)
- King crab (all species)

- Any groundfish species in any area where the total allowable catch of that species is zero or any groundfish species declared prohibited by a notice of closure.

The operator of each vessel engaged in directed fishing for groundfish in the GOA or BSAI must minimize its catch of prohibited species. After allowing sampling by an observer, the operator of each vessel must sort its catch as soon as possible after retrieval of the gear and return all prohibited species or parts thereof to the sea immediately with a minimum of injury regardless of its condition. It is prohibited to retain or posses prohibited species except as permitted under the prohibited species donation program provided in 679.26 of this part, or as authorized by other applicable law requiring retention for observers.

HALIBUT §679.7



With respect to halibut caught with hook-and-line gear deployed from a vessel fishing for groundfish, except for vessels fishing for halibut as prescribed in § 300.62, the following actions are prohibited:

- Fail to release the halibut outboard a vessel's rails.
- Release the halibut by any methods other than:
  1. Cutting the gangion;
  2. Positioning the gaff on the hook and twisting the hook from the halibut;
  3. Straightening the hook by using the gaff to catch the bend of the hook and bracing the gaff against the vessel or any gear attached to the vessel;
- Puncture the halibut with a gaff or other device.
- Allow the halibut to contact the vessel, if such contact causes, or is capable of causing, the halibut to be stripped from the hook.

If fishing Pacific halibut under an IFQ, the minimum legal size that can be retained is 82 cm. Discarding legal sized halibut is considered high-grading, which is a violation.

CRAB §679.7

It is prohibited to have on board at any particular time, 20 or more crab of any species which have a carapace width of more than 1.5 inches (38 mm) at the widest dimension during the following situations:

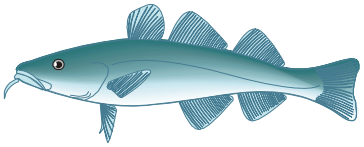
- When participating in a non-CDQ directed fishery for pollock using trawl gear in the BSAI.
- When participating in a directed fishery for pollock using trawl gear when directed fishing for pollock with non pelagic trawl gear is closed in the GOA.

BSAI PROHIBITED SPECIES DONATION (PSD) PROGRAM§679.26

The operator of a vessel and manager of a shoreside processor must not discard any salmon or transfer or process any salmon under the BSAI salmon PSD program until the number of salmon has been determined by an observer and the collection of any data or samples has been completed.

Operators of vessels and managers of shoreside processors that are required to retain salmon under the PSD program must designate and identify to the NMFS-certified observer a crew person or employee to be responsible for sorting, retention, and storage of salmon. Upon the request of the NMFS-certified observer, the designated crew person or employee is also responsible for counting salmon under the direction of the observer.

IMPROVED RETENTION/IMPROVED UTILIZATION (IR/IU) §679.27



The owner or operator of a vessel must comply with the IR/IU program set out in this section while fishing for groundfish in the GOA or BSAI, fishing for groundfish in waters of the State of Alaska that are shoreward of the GOA or BSAI, or when processing groundfish harvested in the GOA or BSAI.

The following species are defined as “IR/IU species” for the purposes of this section:

- Pollock (GOA and BSAI)
- Pacific cod (GOA and BSAI)

- Shallow-water flatfish species complex (GOA only)

Product from an IR/IU species may not be discarded at sea, unless such discarding is necessary to meet requirements of this part. If retention is required, any action intended to discard or release an IR/IU species prior to being brought on board the vessel is prohibited. This includes, but is not limited to, bleeding codends and shaking or otherwise removing fish from longline gear.

IR/IU species may be used as bait provided that the deployed bait is physically secured to authorized fishing gear. The retention and utilization requirements do not apply to incidental catch of dead or decomposing fish or fish parts that were previously caught and discarded at sea.

Minimum Retention
For catcher vessels (any gear type):

- If directed fishing for an IR/IU species is open, must retain on board all fish of that species until lawful transfer.
- If directed fishing for an IR/IU species is prohibited, must retain on board all fish of that species up to the maximum retainable amounts (MRA) for that species until lawful transfer.
- If retention of an IR/IU species is prohibited must retain on board no fish of that species.

For catcher/processors and motherships:

- If directed fishing for an IR/IU species is open, must retain on board a primary product from all fish of that species brought until lawful transfer.
- If directed fishing for an IR/IU species is prohibited, must retain on board a primary product from all fish of that species the vessel up to the point that the round-weight equivalent of primary products equals the MRA amount for that species until lawful transfer.
- If retention of an IR/IU species is prohibited, must retain on board no fish or product of that species.

GROUNDFISH OBSERVER PROGRAM §679.50

The purpose of the Groundfish Observer Program is to allow observers to collect Alaska fisheries data deemed by the Regional Administrator to be necessary and appropriate for management, compliance monitoring, and research of groundfish fisheries and for the conservation of marine resources or their environment.

Observer Use of Equipment

Vessels and shoreside processors must facilitate transmission of observer data by allowing observers to use the vessel's communication equipment and personnel, on request, for confidential entry, transmission, and receipt of work-related messages, at no cost to the NMFS-certified observers or the United States.

Vessel Responsibilities

An operator of a vessel required to carry one or more observers must:

Accommodations and Food
Provide at no cost to observers or the United States, accommodations and food on the vessel for the observer(s) that are equivalent to those provided for officers, engineers, foremen, deck bosses or other management level personnel of the vessel.

Safe Conditions
Maintain safe conditions on the vessel for the protection of the observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

Have on board:

- A valid Commercial Fishing Vessel Safety Decal issued within the past 2 years that certifies compliance with regulations found in 33 CFR Chapter I and 46 CFR Chapter I; or
- A certificate of compliance issued pursuant to 46 CFR 28.710; or
- A valid certificate of inspection pursuant to 46 U.S.C. 3311.

Transmission of Data
Vessels required to carry at least one observer at all times or operating in certain fisheries must have NMFS-supplied software installed on fully functional and operational computer hardware and communications equipment. The equipment must have the capability such that all tasks and components of the NMFS supplied software including data entry and storage, communications, and transmissions can be executed effectively aboard the vessel.

Vessel Position
Allow observers access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

Access
Allow observers free and unobstructed access to, the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

Prior Notification
Notify observers at least 15 minutes before fish are brought on board, or fish and fish products are transferred from the vessel, to allow sampling the catch or observing the transfer, unless the observers specifically request not to be notified.

Records
Allow observers to inspect and copy the vessel's daily fishing logbook, daily cumulative production logbook, product transfer forms, and any other logbook or document required by regulations. Observers are also allowed to inspect and copy printouts or tallies of scale weights, scale calibration records, bin sensor readouts, and production records.

Assistance
Provide all other reasonable assistance to enable observers to carry out their duties, including, but not limited to, assisting observers in measuring decks, codends, and holding bins; providing the observers with a safe work area adjacent to the sampling collection site; when requested by observers, assisting in collecting bycatch, assisting in collecting and carrying baskets of fish; and allowing observers to determine the sex of fish when this procedure will not decrease the value of a significant portion of the catch; collecting all seabirds that are incidentally taken on the observer-sampled portions of hauls using hook-and-line gear or as requested by an observer during non-sampled portions of the hauls.

Transfer at Sea (Outside 3 nm)

- Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.
- Notify observers at least 3 hours before observers are transferred, such that the observer can collect personal belongings, equipment, and scientific papers.
- Provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.
- Provide an experienced crew member to assist observers in the small boat or raft in which any transfer is made.
- For transfers inside of 3 nm, see see “Safe Conditions” on page 20-10.

Shoreside Processor and Stationary Floating Processors Responsibilities

The manager of the processor facility must:

Safe Conditions
Maintain safe conditions at the shoreside processing facility for the protection of observers by adhering to all applicable rules, regulations, or statutes pertaining to safe operation and maintenance of the processing facility.

Operations Information
Notify the observers, as requested, of the planned facility operations and expected receipt of groundfish prior to the receipt of those fish.

Access
Allow observers free and unobstructed access to the shoreside processor's holding bins, processing areas, freezer spaces, weight scales, warehouses, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

Document Access
Allow observers to inspect and copy the shoreside processor's Daily Cumulative Production Logbook, transfer logbook, and any other logbook or document required by regulations; printouts or tallies of scale weights; scale calibration records; bin sensor readouts; and production records.

Assistance
Provide all other reasonable assistance to enable the observer to carry out his or her duties, including, but not limited to, assisting the observer in moving and weighing totes of fish, cooperating with product recovery tests, and providing a secure place to store baskets and sampling gear.

OBSERVER PROVIDER RESPONSIBILITIES

Observer provider companies are responsible to provide all logistics at the site of processing facility and to provide all logistics to place and maintain observers aboard fishing vessels or at the site of the processing facility. This includes all travel arrangements, lodging and per diem, and any other services required.

Each observer deployed to a shoreside processing facility shall be provided with a working cell phone or pager for notification of upcoming deliveries. If accommodations are more than 1 mile from the assigned shoreside processing facility the observer will be provided with motorized transportation. Therefore, it is your employer’s responsibility to ensure that you have adequate transportation to the plant from your lodging.

If you are unable to perform your duties as an observer because there is no reliable transportation to the plant, please contact a FMA office. If your accommodations are inadequate, contact FMA and let your employer know about the problem.

Observer providers must:

1. Provide an observer's salary, benefits and personnel services in a timely manner.

2. Ensure that the following deployment conditions are met, unless alternative arrangements are approved by the FMA:

- Observers must not be deployed on the same vessel or at the same shoreside processor for more than 90 days in a 12 month period.
- A deployment cannot exceed 90 days.
- A deployment cannot include assignments to more than four vessels and/or shoreside processors.
- An observer provider must not move an observer from a vessel or floating or shoreside processor before that observer has completed his or her sampling or data transmission duties.

3. Maintain communications with observers. Each observer provider must have an employee on call 24 hours a day to handle emergencies involving observers or problems concerning observer logistics.

4. Ensure that observers complete debriefing as soon as possible after the completion of their deployment and at locations specified by the Regional Administrator.

5. Ensure all data, reports, and biological samples from observer deployments are complete and submitted to NMFS at the time of the debriefing interview.

6. Ensure that all sampling and safety gear are returned to the FMA and that any gear and equipment lost or damaged by observers is replaced according to NMFS requirements.

7. Provide to the FMA copies of “certificates of insurance.” Report harassment, safety, or observer performance problems within 24 hours after the observer provider becomes aware of the problem.

8. Assign observers without regard to any preference based on observer race, gender, age, religion, or sexual orientation.

9. Verify that a vessel has a valid USCG safety decal before an observer may get underway. The certificate may be inspected by the observer.

10. For each observer employed by an observer provider, either a written contract or a written contract addendum must exist that is signed by the observer and observer provider prior to the observer's deployment that contains the following provisions:

- Drug and alcohol policies.
- Inseason data submission requirements.
- Requirement to complete in-person mid-deployment data reviews as assigned.
- Requirement to inform the provider of new mental illness or physical ailments or injury that prevent the performance of duties.

BYCATCH MANAGEMENT FOR SALMON TAKEN IN THE BS POLLOCK FISHERIES §679.21 AND §679.28

Regulations in this section apply to vessels directed fishing for pollock in the BS, including pollock CDQ, and processors taking deliveries from these vessels.

Operators of vessels and managers of shoreside processors and shoreside floating processors (SFP) that are required to retain salmon under paragraph (c)(1) of this section must designate and identify to the observer aboard the vessel, or at the shoreside processor or SFP, a crew person or employee responsible for ensuring all sorting, retention, and storing of salmon occurs.

CPs and Motherships

Operators of catcher/processors or motherships must sort and transport all salmon bycatch from each haul to an approved storage location adjacent to the observer sampling station.The vessel operator must ensure no salmon of any species pass the observer sample collection point as identified in the scale drawing of the observer sample station. The vessel operator must ensure that the sorting line is attended at all times by vessel personnel. ***Any incident of vessel crew leaving the sorting line unattended will result in a potential violation of the requirement to sort all salmon.***

Observers must be allowed free and unobstructed access to the salmon sorting and storage areas. The salmon storage location must remain in view of the observer from the observer sampling station at all times during the sorting of the haul. Your ability to monitor these areas from your sample station may involve the use of one or more cameras viewable on a monitor at your sample station. See "Electronic Monitoring on CPs and Motherships in the BS Pollock Fishery §679.28" on page 20-14. If one of these cameras fails, document this as a potential violation and contact NMFS.

If, at any point during sorting of the haul or delivery for salmon, the salmon are too numerous to be contained in the salmon storage location, all sorting must cease and the observer must be given the opportunity to count the salmon in the storage location and collect scientific data or biological samples. ***Sorting of catch must not resume until all scientific data collection and biological samples are complete.***

Once the observer has completed all counting and sampling duties for the counted salmon, the salmon must be removed by vessel personnel from the approved storage location, in the presence of the observer. Before sorting of the next haul may begin, the observer must complete the count of salmon and the collection of scientific data or biological samples from the previous haul.

Catcher Vessels

Operators of BS pollock catcher vessels delivering to shoreside processors or stationary floating processors must retain all salmon caught as bycatch. They must then deliver all salmon in a refrigerated saltwater tank (RSW) to the processor receiving the vessel's BS pollock catch. Any unsorted discard at sea from a pollock catcher vessel is a potential violation of the salmon retention requirement.

Shoreside Processors or Stationary Floating Processors

Shoreside processors and stationary floating processors must comply with the Catch Monitoring and Control Plan (CMCP) requirements in §679.28(g)(7)(vii) for the receipt, sorting, and storage of salmon from deliveries of catch from the BS pollock fishery. They also must ensure no salmon of any species pass beyond the last point where sorting of fish occurs, as identified

in the scale drawing of the plant in the CMCP. They must sort and transport all salmon of any species to the salmon storage container identified in the CMCP. The salmon must remain in that salmon storage container and within the view of the observer at all times during the offload. If, at any point during the offload, salmon are too numerous to be contained in the salmon storage container, the offload and all sorting must cease and the observer must count the salmon and collect scientific data or biological samples. The counted salmon then must be removed from the area by plant personnel in the presence of the observer.

At the completion of the offload, the observer must count the salmon and collect scientific data or biological samples. Before sorting of the next offload of catch from the BS pollock fishery may begin, the observer must complete the count of salmon and the collection of scientific data or biological samples from the previous offload of catch from the BS pollock fishery. ***Sorting of catch must not resume until all scientific data collection and biological samples are complete.***

Electronic Monitoring on CPs and Motherships in the BS Pollock Fishery §679.28

The owner or operator of a catcher/processor or a mothership must provide and maintain an electronic monitoring system that includes cameras, a monitor, and a digital video recording system for all areas where sorting of salmon of any species takes place and the location of the salmon storage container described at paragraph (d)(7) of this section. These electronic monitoring system requirements must be met when the catcher/processor is directed fishing for pollock in the BS, including pollock CDQ, and when the mothership is taking deliveries from catcher vessels directed fishing for pollock in the BS, including pollock CDQ. The video data must be maintained and made available to NMFS staff, or any individual authorized by NMFS, upon request. These data must be retained onboard the vessel for no less than 120 days after the date the video is recorded. The system must provide sufficient resolution and field of view to observe all areas where salmon could be sorted from the catch, all crew actions in these areas, and discern individual fish in the salmon storage container. The system must be operating at all times when fish are flowing past the sorting area and salmon are in the storage container; and be securely mounted at or near eye level. NMFS staff, or any individual authorized by NMFS, must be able to view any earlier footage from any point in the trip and be assisted by crew knowledgeable in the operation of the system.

Amendment 80 Catch Monitoring Requirements §679.28 and §679.93

All Amendment 80 vessels fishing for groundfish using trawl gear in the BSAI or GOA must comply with regulatory catch monitoring requirements. See "Regulations Specific to Non-AFA Trawl Catcher/Processors Fishing in the BSAI" on page 5-35.

Bin Monitoring requirements as determined in §679.28 (i) state that the Vessel must comply with bin monitoring Option 1(limited tank access) unless an alternate bin monitoring option has been inspected and approved by NMFS. Most vessels comply with Option 3 (video bin monitoring) and are required to have on board a current copy of the inspection report approval letter. Option 2 (line of sight) is rarely approved by NMFS.

To get approval for an alternate bin monitoring option (Option 2 or Option 3) the vessel owner or operator must request, and NMFS must approve, one of the alternate bin monitoring options. The approved bin monitoring option is described in the bin monitoring inspection report approval letter issued from NMFS to the vessel owner or operator. The bin monitoring inspection report approval letter is issued once a year and is valid for 12 months. A copy of the inspection report approval letter must be retained on board the vessel and made available to authorized personnel upon request.

Failure of Approved Bin Monitoring Option

In the event of bin monitoring equipment alteration or failure the observer must immediately notify their inseason advisor, document the situation in their Daily Notes, and should inform vessel personnel of the potential issue. Observers cannot approve any alternate bin monitoring option contrary to the vessels bin monitoring inspection report approval letter.

It is not appropriate to use line of sight in combination with, or as a substitute for, any video bin monitoring option requirement in the event that part or all video monitoring equipment fails.

The observer(s) should work with their inseason advisor and NMFS staff to clearly identify the problem. If the vessel operator is not able to come immediately back into compliance with the vessel's approved bin monitoring option, the vessel must be notified that they must comply with bin monitoring Option 1. The vessel operator must comply with Option 1 until resumed compliance with the video monitoring approval is determined by NMFS. NMFS staff will determine if the vessel is in compliance with bin monitoring requirements and advise accordingly. It is important that the observer document all potential bin monitoring issues, all notification given to the vessel, and all communications with NMFS staff about the situation.

TRAWL GEAR DEFINITIONS §679.2

Non pelagic trawl means a trawl net other than a pelagic trawl.

Pelagic trawl means a trawl that:

1. has no discs, bobbins, or rollers;

2. has no chafe protection gear attached to the foot rope or fishing line;

3. has no flotation other than floats capable of providing up to 200 pounds (90.7 kg) of buoyancy to accommodate the use of a net-sounder device; (note: floats on or in the codend are permitted);

4. has no more than one fishing line and one foot rope for a total of no more than two weighted lines on the bottom of the trawl between the wing tip and the fishing circle; and has no metallic component except for connectors (*e.g.*, hammerlocks or swivels) or a net-sounder device aft of the fishing circle or weights on the wing tips.

Breast line means the rope or wire running along the forward edges of the side panels of a net, or along the forward edge of the side rope in a rope trawl.

Fishing circle means the circumference of a trawl, intersecting the center point on the fishing line and perpendicular to the long axis of a trawl.

Fishing line means a length of chain or wire rope in the bottom front end of a trawl to which the webbing or lead ropes are attached.

Foot rope means a chain or wire rope attached to the bottom front end of a trawl and attached to the fishing line.

Headrope means a rope bordering the top front end of a trawl.

GROUNDFISH POT REQUIREMENTS§679.2

Each pot used to fish for groundfish must be equipped with a biodegradable panel at least 18 inches in length that is parallel to, and within 6 inches of, the bottom of the pot, and which is sewn up with untreated cotton thread of no larger size than No.30. Each pot used to fish for groundfish must also be equipped with rigid tunnel openings that are no wider than 9 inches and no higher than 9 inches, or soft tunnel openings with dimensions that are no wider than 9 inches.

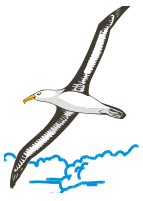
MARKING OF LONGLINE AND POT GEAR§679.24

All longline marker buoys carried aboard or used by any vessel regulated under this part shall be marked with the following:

- the vessel's name; and
- the vessel's Federal fisheries permit number; or
- the vessel's ADF&G vessel registration number.

The required markings are to be in characters at least four inches high by one half inch wide, in a contrasting color, and visible above the water line. These markings are to be maintained in good condition, so they are clearly visible.

SEABIRD AVOIDANCE GEAR AND METHODS FOR LONGLINERS §679.24



Seabird avoidance measures apply to the operators of vessels using hook-and-line gear as follows:

1. IFQ and CDQ Pacific halibut

2. IFQ sablefish

3. Groundfish in the U.S. EEZ waters off Alaska (3-200 nm).

Larger vessels (greater than 55 ft LOA) must deploy a minimum of two streamer lines while setting hook-and-line gear. For stern-setting vessels, streamer lines must be deployed one on each side of the main groundline. The streamer lines will be deployed prior to the first hook being set. At least one streamer line must be deployed before the first hook is set and both streamers must be fully deployed within 90 seconds.

An exception to this standard would exist in conditions of wind speeds exceeding 30 knots, where it would be acceptable to fly a single streamer from the windward side of the vessel. In winds exceeding 45 knots, the deployment of streamer lines are discretionary. If you suspect a violation, record the wind speed in knots if possible and/or the "Beaufort Sea State Descriptions" on page 16-7.

Streamer Line Specifications

1. Streamer lines must be a minimum of 300 ft long.
2. Streamers must be spaced every 16.4 ft.
3. Streamers must be of brightly colored plastic tubing, polyester line or material of an equivalent density.
4. Individual streamers must hang to 0.25 m above the waterline in the absence of wind.

Other Seabird Avoidance Requirements

- Directed discharge (through chutes, pipes, or other similar devices) of residual bait or offal from the stern of the vessel while setting gear is prohibited.
- Embedded hooks must be removed from offal discharge.

Always record weather and sea conditions if you witness or suspect a seabird avoidance gear violation.

REGULATIONS CONCERNING SHARK FINNING 50CFR§600.1203

The Magnuson Act prohibits the act of shark finning. Shark finning is defined as "taking a shark, removing a fin or fins..., and returning the remainder of the shark to the sea". Note: It is illegal to possess shark fins without the corresponding carcass.

REGULATIONS CONCERNING TAKING OF MARINE MAMMALS 50CFR§ 216 AND §229

Definitions §216.3

Marine mammals means those specimens of the following orders, which are morphologically adapted to the marine environment, and whether alive or dead, and any parts thereof, including but not limited to, any raw dressed or dyed fur or skin: Cetacea (whales and porpoises), Pinnipedia (seals and sea lions), other than walrus.

Take means to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill, any marine mammal. This includes, without limitation, any of the following:

- The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal, no matter how temporary;
- tagging a marine mammal; or
- the negligent or intentional operation of aircraft or vessel, feeding or attempting to feed a marine mammal in the wild, or the doing of other negligent or intentional acts which result in the disturbing or molesting of a marine mammal.

Feeding is defined as "offering, giving, or attempting to give food or nonfood items to marine mammals in the wild. It includes operating a vessel or providing other platforms from which feeding is conducted or supported. It does ***not*** include the routine discard of bycatch during fishing operations or the routine discharge of waste or fish by-products from fish processing plants or other platforms if the discharge is otherwise legal and is incidental to operation of the activity."

It is unlawful and harmful to intentionally feed or attempt to feed any marine mammal in the wild.

Prohibited Uses, Possession, Transportation, and Sales §216.13

It is unlawful for:

- Any person to use any port, harbor or other place under the jurisdiction of the United States for any purpose in any way connected with the prohibited taking or unlawful importation of any marine mammal or marine mammal product; or
- Any person subject to the jurisdiction of the United States to possess any marine mammal taken in violation of the MMPA or these regulations, or to transport, sell, or offer for sale any such marine mammal product made from any such marine mammal.

Collection of Certain Marine Mammal Parts §216.26

- Bones, teeth or ivory (hard parts) of marine mammals may be collected from a beach or from land within 1/4 of a mile of the ocean. (***NOTE: The Endangered Species Act contains additional restrictions prohibiting the collection of endangered species parts***).
- Unless authorized by exemption, no person may collect or retain any part of a marine mammal that is retrieved in the commercial fishing gear. (***NOTE: Observers are not authorized to collect walrus parts from fishing gear***).
- No person may purchase, sell, or trade for commercial purpose any marine mammal part collected or imported under this section.

Marine Mammal Fishery Interaction Regulations §229

Except as noted below, it is unlawful to take any marine mammal incidental to commercial fishing operations.

In addition, it is unlawful to (1) take any California sea otter; or (2) intentionally lethally take any Steller sea lion, any Alaskan sea otter, any cetacean, any depleted species (including the Pribilof Island population of Northern fur seal), or any endangered or threatened marine mammal. If the use of firearms or other means to deter marine mammals results in an injury or mortality of a marine mammal, the taking is presumed to be intentional lethal taking.

- Marine mammals killed during fishing operations which are readily accessible to crew members must be brought aboard the vessel for biological processing, if feasible and if requested by the observer. Marine mammals designated as biological specimens by the observer must be retained in cold storage aboard the vessel, if feasible, until retrieved by authorized NMFS personnel.
- Any marine mammal incidentally taken must be immediately returned to the sea with a minimum of further injury and may only be retained if authorized by an observer, by condition of the Exemption Certificate, or by a scientific research permit in possession of the operator.

Reporting Requirements:

Vessel owners or operators engaged in any commercial fishery must report all incidental mortality and injury of marine mammals in the course of commercial fishing operations to the Assistant Administrator, or appropriate Regional Office, by mail or other means, such as fax or overnight mail specified by the Assistant Administrator. Reports must be sent within 48 hours after the end of each fishing trip during which the incidental mortality or injury occurred, or, for non-vessel fisheries, within 48 hours of an occurrence of an incidental mortality or injury. ***An observer's report to NMFS does not replace this notification requirement!***

Regulations Concerning Steller Sea Lions §679.22 and §223.202

These regulations apply to all human activities, including commercial fishing, near Steller (northern) sea lions at-sea and near some of the islands where they breed.

- Shooting at or near any Steller sea lion for any reason is prohibited in U.S. waters. Fishermen may use other means which do not result in injury or death to the animal to deter sea lions from interfering with their gear.

- Fishing vessels are not permitted to enter within 3 nautical miles of Steller sea lion rookery sites west of 150° W longitude. Trawling cannot be conducted within 10 nautical miles of Steller sea lion rookery sites during any part of the year. Trawling cannot be conducted within 20 nautical miles of the rookeries on Akun, Akutan, Sea Lion Rock, Ugamak, Seguam, and Agligadak rookeries from January 20 to April 15.
- This section does not prohibit a vessel in transit from passing through listed straits, narrows, or passageways, if the vessel proceeds in a continuous transit and maintains a minimum of 1 nautical mile from the rookery site. Longline and pot vessels may fish within the 10 and 20 mile boundaries, but may not enter inside of 3 nautical miles. Detailed maps and lists of these areas are available from NMFS in Juneau or on the web at http://www.fakr.noaa.gov.

The Secretary of Commerce is empowered to place observers on any fishing vessel in order to monitor the accidental capture of sea lions in fishing gear. No more than 675 sea lions may be killed accidentally each year during fishing operations west of 141° W longitude.

Violations of laws protecting Steller sea lions are subject to severe civil and criminal penalties including vessel forfeiture, fines of up to $25,000, and imprisonment for up to one year for each violation.

These regulations are due to the designation of the Steller sea lion as threatened throughout its range under the Endangered Species Act on April 5, 1990; and the designation of the western stock (west of 144° W) as endangered on June 4, 1997. These designations are based on declines of 63% since 1985 and 82% since 1960 in observed counts on certain Alaskan rookeries that are in the primary range of the species.

These closures are intended to further reduce any effects that groundfish trawling may have on the Steller sea lions, particularly to their foraging success. The 10 nautical mile closure is based on the average distance traveled by foraging female Steller sea lions during the summer reproductive period. Maintenance of the buffer zones in the non-breeding season is primarily intended to protect juvenile sea lions. Juvenile sea lions are likely to be the most susceptible to prey depletion, since they are less adept predators than adults. These young animals are also less likely to swim far from their rookery of birth, particularly during their first year. Thus, near shore zones proximal to rookeries are likely to be important feeding areas throughout the year.

OBSERVER PROCEDURES DURING COAST GUARD BOARDING

The U.S. Coast Guard (USCG) makes periodic boardings of fishing vessels to check for fisheries and safety violations. If the Coast Guard boards your vessel, introduce yourself. After that, remain in the background and let the boarding party know where you can be found. Do not join in any discussions between boarding party members and vessel personnel. The Coast Guard or NMFS agent has certain objectives to accomplish in every boarding. If your assistance is needed, they will ask for it.

If the boarding party has questions or requests your assistance, be cooperative. Most Coast Guard officers are not biologists and you may be of assistance in identifying species of fish and invertebrates in bins, processing areas or freezer holds.

Make sure your logbook and paperwork are in order in case the boarding party wishes to inspect them. ***Do not give away your original forms or your logbook!*** Make copies as needed. If your vessel has no copy machine ask if copies can be made on board the Coast Guard vessel. If this is not a possibility, the Coast Guard may make handwritten copies or you may refer them to the FMA for copies of inseason data.

If you have information on suspected or actual violations, or other problems, you may or may not wish to relay them to the boarding party. Use your judgement to decide if a potential violation would best be reported to the boarding party or saved for debriefing. If a vessel is issued a ticket immediately based on your report, you may be in an awkward position after the Coast Guard leaves. The Coast Guard is aware that observers may or may not choose to advise them of witnessed violations dependent on the situation.

If you have no information for the boarding party but someone in the boarding party wishes to question you, find a private location for your conversation. On occasion, an uninformed boarding party member may

ask you questions in front of vessel personnel. Should this happen, defer the questions until you can speak in private. If that doesn't work, ask if they will accept a written statement from you. If you are questioned in private, answer all questions completely and honestly.

Your role in a Coast Guard boarding is as a source of objective information for the boarding party. The boarding party will conduct their own inspections and investigations, and they may or may not require your assistance. You should cooperate fully, and not hamper the investigation.

Coast Guard Role in Homeland Security

The U.S. Coast Guard was given additional duties after the September 11, 2001 terrorist attacks. They are now required to obtain information on all vessels that could transport foreign nationals into the country. Prior to entering a port, each vessel must submit the full name, date of birth, nationality, passport number or mariner's documentation number and position or duty on the vessel, as applicable, of each crew and passenger. Observers have reported being asked for their social security numbers rather than passport numbers. The FMA has an agreement with the USCG that any picture ID, such as a driver's license or your observer ID badge, will suffice and that social security numbers are not needed. Bag searches may also occur and if there are any problems please contact NMFS and your observer provider.

Transportation Workers Identification Credentials (TWIC)

Certain ports and facilities require an additional level of identification and security clearance known as a TWIC (Transportation Workers Identification Credentials) card for unescorted access. If you are asked for a TWIC card when accessing areas to board your vessel, present your observer ID badge and accept an escort. If you have problems contact any FMA staff member for assistance.

Observer Health and Safety §600.746

An observer is not required to board, or stay aboard, a vessel that is unsafe or inadequate as described in this section.

A vessel is considered inadequate or unsafe for purposes of carrying an observer and allowing operation of normal observer functions if it does not comply with the applicable regulations regarding observer accommodations or if it has not passed or would not pass a USCG safety examination or inspection.

A vessel that has passed a USCG safety examination or inspection must display one of the following:

- A current Commercial Fishing Vessel Safety Examination decal, issued within the last 2 years
- A certificate of compliance issued pursuant to 46 CFR 28.710; or
- A valid certificate of inspection pursuant to 46 U.S.C. 3311.
- Upon request by an observer, a NMFS employee, or a designated observer provider, a vessel owner/operator must provide correct information concerning any item relating to any safety or accommodation requirement prescribed by law or regulation. A vessel owner or operator must also allow an observer, a NMFS employee, or a designated observer provider to visually examine any such item.

Pre-Trip Safety Check

Prior to each observed trip, the observer is encouraged to briefly walk through the vessel's major spaces to ensure that no obviously hazardous conditions exist. In addition, the observer is encouraged to spot check the following major items for compliance with applicable USCG regulations: Personal flotation devices/immersion suits, ring buoys, distress signals, fire extinguishing equipment, emergency position indicating radio beacon (EPIRB), and survival craft.

This pre-trip safety check is in addition to completing the Vessel Safety Checklist in the observer logbook. More information on vessel safety regulations and a detailed safety checklist can be found in the Health and Safety chapter, beginning on page 19-1.

Corrective Measures

If a vessel is inadequate or unsafe for purposes of carrying an observer and allowing operation of normal observer functions, NMFS may require the vessel owner or operator either to:

- Submit to and pass a USCG safety examination or inspection; or
- Correct the deficiency that is rendering the vessel inadequate or unsafe before the vessel is boarded by the observer.

The requirements of this section apply both at the time of the observer's boarding, at all times the observer is aboard, and at the time the observer is disembarking from the vessel.

A vessel that would otherwise be required to carry an observer, but is inadequate or unsafe for purposes of carrying an observer and for allowing operation of normal observer functions, is prohibited from fishing without observer coverage.

MARINE POLLUTION (MARPOL) REGULATIONS

The International Convention for the Prevention of Pollution From Ships (MARPOL) and five annexes are international agreements that were designed to halt at-sea disposal of wastes. MARPOL Annex V specifically prohibits the at-sea disposal of all plastics. It also eliminates the discharge of other types of vessel generated garbage to specific distances from land. The at-sea disposal restrictions apply to commercial and publicly owned vessels of all sizes and classes.

Vessels complying with MARPOL Annex V have three options for dealing with wastes: 1) non-plastics can be disposed of at sea within the legal restrictions, 2) they can incinerate wastes onboard the vessel, or 3) they can hold the wastes for shoreside disposal at port.

Plastic debris has been a concern of the NMFS since the early 1980's. Studies conducted in the North Pacific have linked debris generated by commercial ground fishing vessels with detrimental impacts to fish, seabirds, and marine mammals. Fur seals and Steller sea lions have been shown to be vulnerable to entanglement in netting, rope, and packing strap discards. Entanglement in debris is thought to contribute to mortality of individuals through starvation, suffocation, infection in resulting wounds, exhaustion, bleeding, drowning, and possibly increased predation. Studies conducted by the NMFS, National Marine Mammal Laboratory indicate entanglement may be contributing to the decline in northern fur seal population. In addition to entanglement in netting and plastic wastes, other species are also affected by ingestion. Stomach analysis of some seabirds and fish have found indigestible plastics.

VESSEL OPERATOR OBLIGATIONS

Regulations require U.S. recreational and other vessel operators, if their vessel is 26 feet or more in length, to affix one or more placards to their vessel. These placards warn against the discharge of plastic and other forms of garbage within the navigable waters of the United States, and specify discharge restrictions beyond three miles from shore. The placard must also note that State and local regulations may further restrict the disposal of garbage.

Placards

Operators shall ensure that one or more placards are displayed in prominent locations and in sufficient numbers so that they can be observed and read by the crew and passengers. Each placard must be at least 9 inches wide and 4 inches high, made of durable material, and lettered with letters at least 1/8 inch high.

Waste Management Plans

The regulations require U.S. recreational and other U.S. vessel operators, if their vessel is 40 feet or more in length and engaged in commerce or equipped with a galley and berthing, to carry a Waste Management Plan if the vessel operates, or is certified to operate, beyond three nautical miles from shore.

The Waste Management Plan must be in writing and describe procedures for collecting, processing, storing, and properly disposing of garbage in a way that will not violate regulatory requirements. It must also designate the person who is in charge of carrying out the plan.

Marina Obligations

Ports and terminals that conduct business with a commercial vessel must be capable of receiving garbage from the vessel when it docks. Recreational boating facilities, capable of providing wharfage or other services for ten or more recreational vessels, must also provide adequate garbage reception facilities for any vessel that routinely calls. If a marina or terminal does not want to be directly involved in garbage collection and disposal, local firms may be retained to provided the service at the marina or terminal. Vessels must be conducting business with the facility or marina in order to qualify for the service. Terminals and marinas would not be expected to provide reception services to a vessel whose sole reason for docking was to offload its garbage. The marina or terminal can charge vessel operators reasonable fees for providing the reception service.

Reporting Violations

Vessels denied the ability to offload their garbage wastes at marinas or other terminals should contact the closest U.S. Coast Guard Captain of The Port or Marine Safety Office. Any US citizen may report observations of dumping in violation of Annex V at these same offices. NOTE: Observers reporting a potential MARPOL V violation will complete a questionnaire or written statement during the debriefing process.

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INSEASON ADVISING, MID-CRUISE AND FINAL DEBRIEFING

Table Of Contents

PRIORITIES

- Maintain communication with your inseason advisor. Respond to inseason questions and error reports.
- Schedule and attend, with all your data, a mid-cruise debriefing with FMA staff.
- Complete, organize and prepare all your data and specimens for final debriefing.
- Schedule a final debriefing through your employer.
- Complete a vessel survey for each vessel of your deployment.
- Participate in a final debriefing interview with FMA staff.
- Complete any needed corrections and resubmit your data.
- Turn-in your PLB.
- Clean and turn-in your sampling gear.

INTRODUCTION

The success of the Groundfish Observer Program depends on the quality of data collected by observers. The data submitted both in electronic and paper format serves as the backbone of fisheries management in the North Pacific as well as provides insight into the entire ecosystem. The importance of these data requires that observers consistently follow program guidelines and employ scientifically valid methods to collect the data. In order to ensure these methods are consistent with our training, and the data collected are sound, FMA requires that observers communicate with an inseason advisor if your vessel is equipped with ATLAS, and participate in both a mid-cruise and final debriefing.

The mid-cruise debriefing will assess your work while in the field. Following your cruise, you will participate in a "final debriefing" with an FMA staff member and prepare a final report for each vessel assignment. A conscientious attitude in collecting the data as well as at-sea completion and checking of the data and good inseason communication will improve the quality of the data and expedite this process.

At Sea Preparation

The final debriefing does not take place until the end of your last assignment, but there are many things you can do to prepare for this process. This section provides many suggestions on how to check and organize your data. ***Reading and following this section while at sea will simplify and expedite your debriefing.***

Inseason communication: Work with your inseason advisor (if you are on a vessel with ATLAS) to improve and assure data quality.

Mid-cruise: Schedule and attend a mid-cruise debriefing with FMA staff.

Data check: While you are at sea, check your data on a regular basis. Your debriefing will be finished faster if your data set is complete and accurate. Consult your manual continuously while doing paperwork and be sure the forms are filled in properly. The examples in the manual represent a complete "set" of data and show how forms are interlinked as well as the correct format for each.Please see Figure 21-1 for forms required by assignment.

Logbook: Maintaining entries in your logbook while deployed is a requirement. See "Observer Logbook Entries" on page 2-11 for specific information on logbook entries.

Observers who have witnessed potential fisheries violations may be instructed during debriefing to complete a written statement describing the event. Refer to "Steps to Take if You Suspect a Violation" on page 20-2 for more information.

INSEASON ADVISORS

Most vessels and plants equipped with ATLAS have assigned FMA staff acting as inseason advisors. ***However, if you are on a vessel where you have to transmit your ATLAS data from a shoreside processing plant you do not have an inseason advisor.*** Inseason advisors are available to answer sampling and data recording questions. They will review your data submitted via ATLAS and request corrections. If you are uncertain about something send a message to your inseason advisor. Remember that your inseason advisor is not a substitute for the manual. Always refer to your manual before asking questions.

Remember that the tone of text messages can often be misinterpreted. Error reports and questions should not be viewed as negative as they are sent to help you collect the best possible data.

Inseason Messages

Observers Responsibilities:

- Send a message to your inseason advisor as soon as you board the vessel.
- Both the lead and the second observer must communicate with the inseason advisor.
- Once you have developed a sample design, a complete description of it needs to be sent to your inseason advisor for review.
- Contact your advisor immediately if you have an injury or illness; see "Illnesses and Accidents" on page 19-11 and explain how it is impacting your sampling efforts.
- Inform NMFS and your employer if an ongoing illness and/or injury consistently impacts your sampling.
- Contact your advisor immediately if there is a marine casualty; see "Marine Casualties" on page 19-11.
- Read all manual pages your inseason advisor requests and respond with any remaining questions.
- Address error reports immediately and re-send data once corrections have been made.
- Proofread your messages before sending them.
- Be precise and detailed when asking a question or describing your methods.
- Notify your advisor when your partner or the target species changes.

Your inseason messages are part of the data and a permanent record for your cruise and constitutes a legal document. Do not use inappropriate language or discuss vessel personnel in a derogatory manner.

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Paper Forms	Non-ATLAS Vessels	ATLAS	
		Vessels	Plant
Trip Data Form	YES	YES	Not completed at plants
Plant/Vessel Offload Form	C/Vs only	C/Vs only	YES
Vessel Haul Form	YES	YES	Not completed at plants
Observer Haul Form	YES	YES	Not completed at plants
Hook Count and Spacing Form	Longline only	Longline only	Not completed at plants
Raw Data Deck Forms	Yes	Yes	Yes
Species Composition Paper Form	Yes	Entered in ATLAS only	Not completed at plants
Length and Specimen Form	Yes	Entered in ATLAS only	Entered in ATLAS only
Species ID Form	Yes	Yes	Yes
Research Project Forms, Tagged Fish Forms	Yes	Yes	Yes
Marine Mammal Interaction and Specimen Form	Yes	Entered in ATLAS only	Entered in ATLAS only
Marine Mammal Sighting Form	Yes	Paper form only	Paper form only
Bird Interaction, Activity and Species Form	Yes	Entered in ATLAS and recorded on paper forms for short-tailed albatross	Entered in ATLAS and recorded on paper forms for short-tailed albatross
Bird Specimen and Tag Information Form	Yes	Entered in ATLAS and recorded on paper forms for short-tailed albatross.	Entered in ATLAS and recorded on paper forms for short-tailed albatross.

Figure 21-1: Forms Required by Assignment

Inseason Advisor Responsibilities:

- Responds to any safety concerns immediately.
- Ensures the sample design(s) you have described are valid according to program protocols.
- Send error reports at least once a week.
- Respond to any questions within one work day.

Inseason Questions and Messages

When you ask a question:

- Please first refer to your manual for the answer to your question. If you still cannot find the answer or the answer is not clear, send the question to your inseason advisor and include where you have looked for the information.

- If you do not hear from your inseason advisor within two business days of sending your initial message, contact the FMA (“Contact Addresses and Numbers” on page A-51). This allows for confirmation that ATLAS messaging is working.
- If you have not received an answer to a question you sent or received an incomplete answer, please ask your advisor again to ensure the question is received or understood by your advisor. If you do not receive the information you need to perform your duties, contact the FMA (“Contact Addresses and Numbers” on page A-51).

Keep in mind that FMA staff may not have time to answer non work related questions.

Responding to Questions From Your Advisor
It is important to respond promptly to all directions or questions given to you by your inseason advisor or other FMA staff. When you receive a message from your inseason advisor you should:

- Immediately send a message asking for clarification if you do not understand any part of the message. Be specific regarding the parts of the message that are unclear to you.
- Address questions or corrections as soon as possible.
- Make corrections in a timely manner while keeping in mind your sampling workload. Some data corrections must be done immediately. If the change needs to be done immediately you will be told so in the message.
- Not following directions or answering questions in a timely manner can negatively impact data quality. Failure to respond promptly to directions may be considered “not meeting expectations” and will be reflected in your final evaluation.
- Poor communication with inseason advisors may result in poor inseason management of the fishery, a long debriefing, and loss of data.

First Days Messages
Be sure to alert your inseason advisor when you first board the boat. The first message should be sent prior to sampling.

Examples of First Messages to Inseason Advisor:
“Just boarded. Testing ATLAS. I will send everything else later.”

“Hello! We are settling in pretty well here. We completed the Safety Checklist and the captain ran a hands-on man-overboard drill. We store our survival suits and PLBs in our stateroom. We have arranged that whoever is off duty will grab the suits and PLBs if the alarm goes off and meet the observer on duty in the wheelhouse. I’ll send you a sample design as soon as we get settled, though it looks like we’ll be doing systematic spatial.”

Once you have been on the vessel for a few days please send a complete description of your sample design:

“We are using a systematic spatial design. The haul is divided into 9-12 equal units based on the vessel estimate. Our population is everything in the codend. The RNT is used to select the first sample within the first 3 units. From here every 3rd unit is sampled (ex: the vessel estimate is 45 mt, gives us 9 units of 5 mt each, RNT=1, we sample 0-5 mt, 15-20 mt, 30-35 mt, and so on). Since we sample 5 mt and we divide the population into 5 mt units, our sample unit is weight. We may need to modify this for small hauls, but we haven’t had any yet. To get our pollock subset from within our sample we divide the sample size into 1mt units and use the RNT to select one. We then divide the selected ton into twenty 50 kg units and select one with the RNT and collect a basket of fish from the selected unit. We use the pollock subset to collect sex length fish (if there are too many fish in the basket, we basket dump the entire basket into 2 baskets side by side and use the RNT to select one of those 2 baskets to get approximately 20 fish). We clear the sorting belt, have fish run onto it and collect all bycatch. We check to see the belt is clear before letting fish flow for the factory again. We used the RNT to select a haul for otoliths (haul 3). The RNT will be used to select fish for S/L/W and otoliths (lining up the fish on the observer table and assigning them numbers) from the sex length fish. If we have hauls with 2 predominant species subsamples will be collected in a manner similar to our subset collection. Thanks! Wally and Polly.”

Describing your sample design in a text message can be tricky, as is understanding it. Take your time and be thorough! There will be less confusion and questions and improper methods can be addressed immediately.

Inseason Error Report Messages

Your inseason advisor will routinely review your data to get a feel for how things are going for you. They will look at sample designs, sample sizes, and composition data and make suggestions or ask questions as needed. Many times you will receive a message that simply says:

"How are things going out there? Looked at your data and everything looks pretty good. Let me know if you need anything. Keep up the good work. Thanks, Ed"

Inseason advisors will usually run an error report at least once per week. The following is an example of a typical error report message:

"Hi Polly and Wally, H(aul) 836-3 (haul 836 sample 3) and 838-4 have brittle starfish without a weight. Remember everything must be weighed on trawlers. If these were too small to register a weight on the MCP, enter 0.01 kg. H822 is coded as random systematic, but only one sample was taken. This may be fine, but just checking. Missing lengths for H831 and 834. H838-301 has a starfish in the subsample, but none in the parent sample. Are you sure you were able to collect all the starfish from your sample? It is not likely and if you cannot be positive you've collected all the bycatch from a sample, you need to be taking samples where everything is weighed on the MCP. It's the same situation for H838-301 and 401 eelpout, H838-501 pollock, H838-501 g.sculpin. H835-1 northern rocksole lengths should likely be a census. Thanks, Joe"

MID-CRUISE

This preliminary debriefing, occurring early on in your deployment, provides the opportunity for both the observer and FMA staff to assess the data collected up to that time, the methods employed, and any difficulties that you have encountered in your assignments. This is also an opportunity to discuss future vessel assignments and discuss any questions that have come up since your last training or briefing. A mid-cruise is helpful for all observers and a short time spent in the field office could save you invaluable amounts of time at your final debriefing. Be sure to pick up a copy of an error report for your data and a salmon genetics salmon query if you have collected genetics specimens.

Where Do I Go for my Mid-Cruise Debriefing?

If you are in Kodiak, Dutch Harbor or Anchorage during working hours it is preferred, but not necessary, to call in advance to schedule an appointment. You may stop by the field office and let a staff member know that you are there for a mid-cruise debriefing, but making an appointment is best to ensure a staff member is available to meet with you. The field offices are staffed Monday through Friday from at least 9:00 a.m. to 5:00 p.m. The Kodiak and Dutch Harbor offices are staffed with variable hours on Saturday and Sunday. In order to successfully complete the mid-cruise, you must bring:

- Your logbook
- All data collected to date. If you are the second observer bring several Deck Forms you completed (you may bring copies if needed)
- Your completed species ID forms
- Your weighing scales for a mid-point check, ***even if you have not used them yet***
- A list of questions that have come up during any of your assignments. This is the greatest opportunity during the season for you to discuss these issues and obtain answers!

FMA staff are occasionally available in other ports (*e.g.*, Akutan, Sand Point, King Cove) for mid-cruise debriefings. Your employer will have contact information for these FMA staff if they are available at these ports.

FMA offices are often staffed outside of regular business hours. If you can't make it in during the times listed, call ahead. Staff will usually be able to accommodate your schedule. See "Contact Addresses and Numbers" on page A-51.

What Do I Do if the Office Is Closed?
If your vessel is in town during off hours or on weekends, or you are passing through Anchorage, you should contact the office for a mid-cruise. Leave a message stating your name, vessel, estimated duration in town, how you can be contacted and the estimated time and date that you will be available for a mid-cruise.

Am I Required To Have a Mid-cruise Debriefing?
All observers on their first and second contract are required to have a mid-cruise debriefing. All other observers, ***unless specifically exempted from a mid-cruise during their previous evaluation***, must complete an in-person, mid-deployment data review if they travel through a location where FMA staff are available. This debriefing is not an option and must be completed in order to fulfill your responsibilities as an observer. If you are unsure if a mid-cruise debriefing is necessary, ask your employer or stop in to the field station.

When Do I Have a Mid-cruise Debriefing?
Observers need to report for their mid-cruise debriefing early on in their assignment. Observers on catcher only vessels (trawl, longline and pot) should schedule this debriefing after the first couple of deliveries while those on catcher processors should report during their first offload.

What Do I Do If I Can't Get To a FMA Field Office?
On rare occasions, observers are unable to arrange a meeting time. In this case, and only as a last resort, answer the following questions and fax them to one of the field offices or the main office in Seattle or send via ATLAS text to your advisor (see "Contact Addresses and Numbers" on page A-51). ***You must go to a field office for a follow-up mid-cruise if possible.***

1. Describe in detail how the observer estimate was made and how often you are making observer estimates. Describe the collection technique you used to get fish for density. What was the average density value and predominant species in the catch? Were there any problems with the certified flowscale? If no observer estimates were made, explain why. If you are on a longline or pot vessel, describe your methods for verifying gear (total number of hooks or pots).

2. Give a detailed description of your sampling design. Describe your sampling area, how you collected samples, and if there were any difficulties. What methods did you employ to ensure the least amount of sample bias using random sampling techniques?

3. Did you obtain sexed length frequencies? Please describe methods used and any difficulties you encountered sexing fish. Also describe how halibut viabilities/injury assessments and lengths were collected. If none were collected, please explain why.

4. Include gear verification and hook count methods.

5. Describe anything that has affected your ability to effectively conduct your work. Have you been able to complete any research projects or other assignments?

FINAL DEBRIEFING

The final debriefing occurs after the completion of your last vessel assignment. Most likely, this will take place in the Seattle or Anchorage FMA office, though field debriefings are sometimes possible. The debriefing process consists of the following parts: completion of electronic vessel report for each vessel, a debriefing interview, gear check-in, a data check, correction of errors, submission of corrected data, filling out the post-debriefing questionnaire, and a final check-out. The time to complete this process is variable. Beginning with the debriefing interview, observers should expect to spend approximately two to five days to complete the debriefing process.

Completing the debriefing process is a critical part of your duties as an observer!

- ***Do NOT make plane reservations or other commitments until you are sure that your data have been finalized.***
- ***You are not done with the process until your debriefer releases you from debriefing.***
- ***Failure to complete the debriefing process as scheduled is grounds for decertification.***

At the end of the debriefing, you will receive an evaluation of your work and performance. This evaluation will include a list of specific points covering a variety of aspects pertinent to your overall deployment, as well as comments addressing overall effort in completing duties, level of documentation of

activities, and any issues of note encountered during your debriefing. The evaluation will also include a recommendation (see "Briefings" on page 21-8) for your next briefing requirement.

Scheduling

Once you have disembarked from your last vessel, your employer will contact the FMA Office and schedule an appointment for the electronic survey. After you have completed a survey for each vessel and/or plant to which you were assigned, you will be scheduled for a debriefing interview. FMA staff will do its part to make sure your debriefing is as thorough as necessary and completed in a reasonable amount of time. Each observer can help expedite this process by being prepared for debriefing and keeping their employer and FMA informed of any difficulties in attending and completing the debriefing process. Remember, ensuring the data are of high quality is the main purpose of the debriefing process.

Checking and Submitting Data

Be sure that all your data submissions are complete and have been transmitted. Failure to do this could delay your debriefing.

All of your data forms should be filled out at sea and completed prior to your debriefing interview. Keeping up with your work becomes especially important if you are deployed on more than one vessel or plant. Keep in mind that some corrections will affect data on other forms and those must be corrected as well. Cross reference the data on all forms to be sure that the correct data is recorded on each form type. Also, ***if you were on more than one ship and/or plant, the data from each need to be kept separate.*** Do not mix the data forms together; number the pages separately for each vessel/plant and form type.

Refer to the data check lists at the end of each sampling chapter. Completing these checks will help you to fix mistakes prior to your final debriefing. These lists are not all inclusive! Refer to the respective section in each chapter for more instructions. ***Correcting mistakes before debriefing improves data quality, demonstrates professionalism, and speeds the debriefing process.***

Survey

The survey is completed before the scheduled interview. This survey is done for each vessel and/or plant of your deployment and serves as the most detailed and accurate description of your cruise. The survey is in multiple choice format with some of the questions requesting further comment. ***Detailed answers to these questions are important.*** These data are used by many different groups including future observers, fishery managers, your debriefer and other NMFS staff. Any comments that are unclear or incomplete will be reviewed and corrected during the interview. Responses in the survey will explain and support the respective data collected as well as provide a detailed and accurate description of each assignment. Once again, thoroughness in this step will expedite debriefing! After completion of the survey(s) and data checks, you check in with FMA staff and leave all your data, your printed survey(s), and logbook at the debriefing office.

Interview

The interview will be scheduled after you complete the vessel survey and submit your data, or soon thereafter, as debriefing staff become available. During the interview, your debriefer (who has already reviewed your survey) will ask you to clarify or elaborate on any issues not fully addressed in the vessel survey. In addition, each set of data forms will be checked for completeness, accuracy, and format.

At this time, both you and the debriefer discuss your time at sea, your sampling methods, and the resulting data. The most important aspects of the interview are honesty and willingness to discuss problems and difficulties. Tell your debriefer if you feel you could not sample adequately. This facilitates discussion of sampling methodology and ways data collections might be improved. Your feedback makes staff aware of vessel specific sampling difficulties and can help the next observer deployed on that vessel. The interview is designed to be a productive process beneficial for both the observer and the debriefer. Professional conduct through cooperation, candor, and effort is expected of all observers.

The data you transmitted to Seattle from the field will also be available to your debriefer. An error report of the data is produced and checks of the data are performed by the debriefer. The main purpose of the

computer error check is to compare data between form types, search for missing data, and flag questionable entries. This report will be reviewed during the interview and all corrections will be made at that time. In addition, all forms will be checked and compared with the electronic data.

Any specimens collected during the cruise must also be prepared and submitted during the debriefing process. Salmon scales need to be mounted for confirmation of species. Otolith vials must be scanned into the database. All tagged salmon snouts need to be salted (if not already). Any tagged fish are submitted with the corresponding tagged fish form. Specific instructions for these tasks will be given to you at the FMA office.

Research project data are also submitted at this time. Observers who completed stomach projects or research projects may be asked to meet briefly with the data user.

Evaluations

An observer's work and performance are evaluated after each cruise. This evaluation serves two purposes. First, it provides a summary of the work performed, your effort, and the quality of the data. Second, it serves as a training tool for future deployments by identifying areas of needed improvement and giving recommendations and suggestions. ***The areas of greatest importance are compliance throughout the deployment with established protocols and an understanding of sampling concepts.***

The evaluation is based on many factors:

- sampling methods employed.
- documentation and communication.
- preparedness for debriefing.
- problem solving skills.
- overall effort.

Based on this evaluation, you are given a score for each of your assignments. Observers who receive a score of 1 have met the expectations of the FMA. This means that proper sampling methods were applied and protocols for data collection were followed. Observers who receive a score of 1 will receive a written evaluation which describes the work that was done and may include some suggestions to apply during a subsequent cruise.

A score of 0 on any vessel signifies the expectations of the FMA have not been met. Based on the severity of the problems, there are several different courses of action. You will receive a written evaluation detailing the area(s) of your work or performance that were unacceptable. The purpose of this evaluation is to provide you with a tool to improve performance on future cruises.

Observers who are unable to meet our sampling and data recording requirements may be recommended for decertification. The decision to recommend decertification is made by debriefers and other program staff. Most cases of decertification involve conduct and behavior that affects performance or safety, falsification of data, or errors resulting in significant amount of unreliable data, or a significant loss of data.

If you are recommended for decertification, we will follow NMFS' regulations governing the decertification process. The decertification process provides you the opportunity to present your arguments and perspective on any action we propose to take, and to appeal decisions. It is designed to provide you a fair hearing on any issues that could result in your certification being revoked. A copy of the CFR which includes all Observer Program regulations and procedures can be obtained from any FMA staff member.

BRIEFINGS

Observers must attend a briefing before each subsequent deployment. Briefings assigned are either 1, 2 or 4 days in length, depending on previous work and performance:

- **4-Day:** Each observer must attend one annual 4-day briefing prior to the first contract in each calendar year. In addition, observers who have subsequently demonstrated conceptual errors and/or difficulty in fish identification must attend a four day briefing. This briefing covers changes in sampling protocol, regulations, data forms, etc. Time is allocated for reviewing fish and bird identification and observers must successfully pass a species identification test in order to be recertified. Other topics include enforcement and random sampling techniques. This briefing is an opportunity to ask questions, familiarize yourself once again with the manual, and review recommendations from your last evaluation.

- **2-day:** This briefing is for observers who may need some review but do not need the detail provided in a 4-day briefing.
- **1-Day:** One day briefings are designed for observers in good standing who have shown no conceptual errors or difficulties in species identification. This briefing covers recent changes in sampling protocol and regulations, reviews sampling priorities and provides the opportunity for observers to ask vessel and/or fishery specific questions.

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TABLE OF CONTENTS FOR APPENDICES

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Appendix A: Species Codes for Fishes and Invertebrates

Code	Common Name	Scientific Name
106	Alaska Plaice	*Pleuronectes quadrituberculatus*
610	Anchovy, Northern	*Engraulis mordax*
55	Anemone, Sea - unidentified	Actiniaria
43	Ascidians, Sea Squirt, Tunicate	Ascidiacea
204	Atka Mackerel	*Pleurogrammus monopterygius*
48	Barnacles	Cirripedia
770	Barracudina - unidentified	Paralepididae
289	Bigscale - unidentified	Melamphaeidae
27	Brachiopod, Lampshell - unidentified	Brachiopoda
54	Bristleworm (Polychaete unidentified)	Polychaeta
32	Bryozoans	Bryozoa
604	Capelin	*Mallotus villosus*
44	Chiton - unidentified	Polyplacophora
29	Clams, Mussels, Oysters, Scallops	Bivalvia
215	**Cod - unidentified**	**Gadidae sp.**
211	Cod, Arctic *	*Boreogadus saida*
203	Cod, Black (Sablefish)	*Anoplopoma fimbria*
202	Cod, Pacific	*Gadus macrocephalus*
209	Cod, Pacific Tomcod	*Microgadus proximus*
208	Cod, Saffron	*Eleginus gracilis*
214	Codling - unidentified (See also Flatnose, Pacific)	Moridae
32	Coral - unidentified	Anthozoa
833	Coral, Red Tree	*Primnoa willeyi*
1	**Crab - unidentified (Family Unknown)**	**Decapoda**
11	Crab, Box	*Lopholithodes foraminatus*
39	Crab, Decorator	*Oregonia gracilis*
12	Crab, Dungeness	*Cancer magister*
841	Crab, Fuzzy	*Acantholithodes hispidus*
7	Crab, Hair (Horsehair)	*Erimacrus isenbeckii*

* If you encounter these species, please bring a specimen back to NMFS.

Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
15	Crab, Hermit - unidentified	*Paguridae*
2	Crab, King - unidentified	*Lithodes & Paralithodes*
6	Crab, King, Blue	*Paralithodes platypus*
8	Crab, King, Brown (Golden)	*Lithodes aequispina*
16	Crab, King, Couesi	*Lithodes couesi*
13	Crab, King, Red	*Paralithodes camtschatica*
14	**Crab, Lithodid unidentified (Brown, Couesi or Golden)**	***Lithodes* sp.**
840	Crab, Lyre - unidentified	*Hyas* sp.
17	Crab, *Paralomis multispina*	*Paralomis multispina*
38	Crab, *Paralomis verrilli*	*Paralomis verrilli*
842	Crab, Rhinoceros	*Rhinolithodes wosnessenskii*
31	Crab, Scaled	*Placetron wosnessenskii*
3	Crab, Tanner - Unidentified	*Chionoecetes* sp.
19	Crab, Tanner, Angulatus	*Chionoecetes angulatus*
4	Crab, Tanner, Bairdi	*Chionoecetes bairdi*
47	Crab, Tanner, Bairdi/Opilio Hybrid	*Chionoecetes* hybrid
5	Crab, Tanner, Opilio	*Chionoecetes opilio*
18	Crab, Tanner, Tanneri	*Chionoecetes tanneri*
23	Crab, Telmessus	*Telmessus cheiragonus*
53	Crinoids - unidentified	Crinoidea
144	Dab, Longhead	*Limanda proboscidea*
679	Daggertooth	*Anotopterus pharao*
899	Decomposed Fish	
799	Dragonfish - unidentified	Stomiidae
690	Dreamer - unidentified	Oneirodidae
250	Eelpout - unidentified	Zoarcidae
91	Egg Case, Skate	
34	Eggs, Snail	Gastropoda
601	Eulachon (Candlefish)	*Thaleichthys pacificus*
901	**Fish - unidentified**	**Osteichthyes**

* If you encounter these species, please bring a specimen back to NMFS.

Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
100	**Flatfish - unidentified**	**Pleuronectiformes**
210	Flatnose, Pacific (Codling)	*Antimora microlepis*
141	Flounder, Arrowtooth	*Atheresthes stomias*
145	Flounder, Bering *	*Hippoglossoides robustus*
149	Flounder, Kamchatka/Arrowtooth - unidentified	*Atheresthes* sp.
147	Flounder, Kamchatka	*Atheresthes evermanni*
142	Flounder, Starry	*Platichthys stellatus*
215	**Gadid - unidentified**	**Gadidae sp.**
102	Greenland turbot	*Reinhardtius hippoglossoides*
390	Greenling - unidentified	*Hexagrammos* sp.
80	Grenadier, (Rattail) - unidentified	Macrouridae
82	Grenadier (Rattail), Giant	*Albatrossia pectoralis*
430	Gunnel - unidentified	Pholidae
77	Hagfish - unidentified	Myxinidae
206	Hake, Pacific	*Merluccius productus*
101	Halibut, Pacific	*Hippoglossus stenolepis*
767	Hatchetfish- unidentified	Sternoptychidae
611	Herring, Pacific	*Clupea pallasi*
350	Idiotfish (Shortspine Thornyhead)	*Sebastolobus alascanus*
902	Invertebrate - unidentified	Invertebrata
33	Isopod - unidentified	Isopoda
35	Jellyfish - unidentified	Scyphozoa
900	Kelp - miscellaneous	
75	Lamprey - unidentified	Petromyzontidae
785	Lancetfish, Longnose	*Alepisaurus ferox*
700	Lanternfish - unidentified	Myctophidae
52	Leech - unidentified	Hirudinea
696	Lightfish (Bristlemouth)	Gonostomatidae
45	Limpet - unidentified	
603	Lingcod	*Ophiodon elongatus*
144	Longhead dab	*Limanda proboscidea*

* If you encounter these species, please bring a specimen back to NMFS.

Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
525	Lumpsucker - unidentified	Cyclopteridae
204	Mackerel, Atka	*Pleurogrammus monopterygius*
786	Mackerels and Tunas	Scombridae
774	Manefish	*Caristius macropus*
289	Melamphid - unidentified	Melamphaeidae
900	Miscellaneous - unidentified (rocks, mud, garbage, etc)	
810	Molas	Molidae
29	Mussels, Clams, Oysters, Scallops	Bivalvia
25	Nudibranch (Sea Slug)	Nudibranchia
60	Octopus - unidentified	Octopoda
61	Octopus, Pelagic	Vampyromorpha
297	Opah	*Lampris guttatus*
295	Oreo, Oxeye	*Allocyttus folletti*
29	Oysters, Clams, Mussels, Scallops	Bivalvia
301	Pacific Ocean Perch	*Sebastes alutus*
762	Paperbones, Scaly - unidentified	Notosudidae
830	Peanut worms	Sipuncula
450	Poacher - unidentified	Agonidae
201	Pollock (Walleye Pollock)	*Theragra chalcogramma*
54	Polychaete - unidentified (Bristleworm)	Polychaeta
765	Pomfret - unidentified	Bramidae
750	Prickleback - unidentified	Stichaeidae
205	Prowfish	*Zaprora silenus*
280	Ragfish	*Icosteus aenigmaticus*
99	Ratfish, Spotted	*Hydrolagus colliei*
80	Rattail, (Grenadier) - unidentified	Macrouridae
82	Rattail (Grenadier), Giant	*Albatrossia pectoralis*
90	Ray, (Skate) - unidentified	Rajiformes
300	**Rockfish - unidentified**	**Scorpaenidae**
353	Rockfish, Aleutian Scorpionfish *	*Adelosebastes latens*
306	Rockfish, Black	*Sebastes melanops*

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
316	Rockfish, Blue *	*Sebastes mystinus*
302	Rockfish, Bocaccio	*Sebastes paucispinis*
351	Rockfish, Broadbanded Thornyhead *	*Sebastolobus macrochir*
332	Rockfish, Brown*	*Sebastes auriculatus*
314	Rockfish, Canary	*Sebastes pinniger*
346	Rockfish, China	*Sebastes nebulosus*
327	Rockfish, Copper *	*Sebastes caurinus*
345	Rockfish, Dark (was Dark Dusky)	*Sebastes ciliatus (*was *S.* sp. cf. *ciliatus)*
311	Rockfish, Darkblotched	*Sebastes crameri*
330	Rockfish, Dusky (was Light Dusky)	*Sebastes variabilis (*was *S. ciliatus)*
317	Rockfish, Gray *	*Sebastes glaucus*
313	Rockfish, Greenstriped	*Sebastes elongatus*
323	Rockfish, Harlequin	*Sebastes variegatus*
352	Rockfish, Longspine Thornyhead	*Sebastolobus altivelis*
303	Rockfish, Northern	*Sebastes polyspinis*
301	Rockfish, Pacific Ocean Perch (POP)	*Sebastes alutus*
335	Rockfish, Pygmy	*Sebastes wilsoni*
343	Rockfish, Quillback	*Sebastes maliger*
308	Rockfish, Red Banded	*Sebastes babcocki*
324	Rockfish, Redstripe	*Sebastes proriger*
309	Rockfish, Rosethorn	*Sebastes helvomaculatus*
307	Rockfish, Rougheye	*Sebastes aleutianus*
304	Rockfish, Sharpchin	*Sebastes zacentrus*
326	Rockfish, Shortraker	*Sebastes borealis*
354	Rockfish, Shortraker/Rougheye unidentified	*S. borealis* or *aleutianus*
350	Rockfish, Shortspine Thornyhead	*Sebastolobus alascanus*
310	Rockfish, Silvergray	*Sebastes brevispinis*
315	Rockfish, Splitnose	*Sebastes diploproa*
328	Rockfish, Stripetail *	*Sebastes saxicola*
349	Rockfish, Thornyhead unidentified	*S. alascanus* or *altivelis*
329	Rockfish, Tiger	*Sebastes nigrocinctus*

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
331	Rockfish, Vermilion *	*Sebastes miniatus*
305	Rockfish, Widow	*Sebastes entomelas*
322	Rockfish, Yelloweye	*Sebastes ruberrimus*
320	Rockfish, Yellowmouth *	*Sebastes reedi*
321	Rockfish, Yellowtail	*Sebastes flavidus*
240	Ronquil - unidentified	Bathymasteridae
200	**Roundfish - unidentified**	
203	Sablefish (Black Cod)	*Anoplopoma fimbria*
220	**Salmon - unidentified**	***Oncorhynchus* sp.**
229	Salmon, Atlantic*	*Salmo salar*
221	Salmon, Chum (Dog)	*Oncorhynchus keta*
222	Salmon, Chinook (King)	*Oncorhynchus tshawytscha*
223	Salmon, Coho (Silver)	*Oncorhynchus kisutch*
225	Salmon, Pink (Humpback)	*Oncorhynchus gorbuscha*
224	Salmon, Sockeye (Red)	*Oncorhynchus nerka*
226	Salmon, Steelhead (Ocean-run Rainbow Trout)	*Oncorhynchus mykiss*
40	Sand Dollars, Sea Urchins	Echinoidea
239	Sandfish, Pacific	*Trichodon trichodon*
670	Sand Lance, Pacific	*Ammodytes hexapterus*
136	Sanddab - unidentified	Bothidae
144	Sanddab, Longhead	*Limanda proboscidea*
137	Sanddab, Pacific	*Citharichthys sordidus*
614	Sardine, Pacific	*Sardinops sagax*
29	Scallops, Clams, Mussels, Oysters	Bivalvia
353	Scorpionfish, Aleutian *	*Adelosebastes latens*
400	Sculpin - unidentified	Cottidae
402	Sculpin, Bigmouth	*Hemitripterus bolini*
415	Sculpin, Butterfly	*Hemilepidotus papilio*
395	Sculpin, Darkfin	*Malacocottus zonurus*
405	Sculpin, Great	*Myoxocephalus polyacanthocephalus*
418	Sculpin, Irish Lord - unidentified	*Hemilepidotus* sp.

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
434	Sculpin, Longfin Irish Lord	*Hemilepidotus zapus*
440	Sculpin - *Myoxocephalus* unidentified	*Myoxocephalus* spp.
399	Sculpin, Plain	*Myoxocephalus jaok*
407	Sculpin, Red Irish Lord	*Hemilepidotus hemilepidotus*
401	Sculpin, Spinyhead	*Dasycottus setiger*
398	Sculpin, Warty	*Myoxocephalus verrucosus*
414	Sculpin, Yellow Irish Lord	*Hemilepidotus jordani*
55	Sea Anemone - unidentified	Actiniaria
41	Sea Cucumber - unidentified	Holothurioidea
689	Sea Devil - unidentified	Ceratiidae
42	Sea Onions - unidentified	*Boltenia* sp.
58	Sea Pen, Sea Whip - unidentified	Pennatulacea
57	Sea Potato - unidentified	*Halocynthia* sp.
25	Sea Slug - unidentified	Nudibranchia
56	Sea Spider - unidentified	Pycnogonida
43	Sea Squirts, Onions, Potatoes, Tunicates	Ascidiacea
40	Sea Urchins, Sand Dollars	Echinoidea
58	Sea Whip, Sea Pen - unidentified	Pennatulacea
54	Sea Worms (Polychaetes) - unidentified	Polychaeta
240	Searcher - unidentified	Bathymasteridae
900	Seaweed - miscellaneous	
606	Shad, American	*Alosa sapidissima*
65	**Shark - unidentified**	**Selachii**
69	Shark, Blue	*Prionace glauca*
68	Shark, Brown Cat	*Apristurus brunneus*
62	Shark, Pacific Sleeper (Mud)	*Somniosus pacificus*
67	Shark, Salmon	*Lamna ditropis*
66	Shark, Spiny Dogfish	*Squalus acanthias*
70	Shrimp - unidentified	Decapoda
90	**Skate - unidentified**	**Rajiformes**
88	Skate, Alaska	*Bathyraja parmifera*

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
85	Skate, Aleutian	*Bathyraja aleutica*
97	Skate, Bering	*Bathyraja interrupta*
94	Skate, Big	*Raja binoculata*
163	Skate, Commander	*Bathyraja lindbergi*
92	Skate, Deepsea *	*Bathyraja abyssicola*
95	Skate, Longnose	*Raja rhina*
165	Skate, Mud	*Bathyraja taranetzi*
166	Skate, Roughshoulder *	*Amblyraja badia*
89	Skate, Roughtail	*Bathyraja trachura*
159	Skate - Soft Snout unidentified	*Bathyraja* sp.
167	Skate - Stiff Snout unidentified	*Raja* sp.
164	Skate, Whiteblotched	*Bathyraja maculata*
162	Skate, Whitebrow	*Bathyraja minispinosa*
212	Skilfish	*Erilepis zonifer*
602	Smelt - unidentified	Osmeridae
604	Smelt, Capelin	*Mallotus villosus*
628	Smelt, Deepsea unidentified	Bathylagidae
601	Smelt, Eulachon (Candlefish)	*Thaleichthys pacificus*
605	Smelt, Rainbow	*Osmerus mordax*
613	Smelt, Surf	*Hypomesus pretiosus*
30	Snail - unidentified	Gastropoda
34	Snail, Eggs	
36	Snail, Empty Shell	
500	Snailfish - unidentified	Liparidae
559	Snipe Eel - unidentified	Nemichthyidae
109	Sole, Butter	*Isopsetta isolepis*
118	Sole, C-O *	*Pleuronichthys coenosus*
117	Sole, Curlfin *	*Pleuronichthys decurrens*
110	Sole, Deepsea	*Embassichthys bathybius*
107	Sole, Dover	*Microstomus pacificus*
108	Sole, English	*Parophrys vetulus*

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
103	Sole, Flathead	*Hippoglossoides elassodon*
108	Sole, Lemon	*Parophrys vetulus*
112	Sole, Petrale	*Eopsetta jordani*
105	Sole, Rex	*Glyptocephalus zachirus*
104	Sole, Rock Sole unidentified	*Lepidopsetta* sp.
120	Sole, Rock Sole, Northern	*Lepidopsetta polyxystra*
121	Sole, Rock Sole, Southern	*Lepidopsetta bilineata*
114	Sole, Roughscale *	*Clidoderma asperrimum*
148	Sole, Sakhalin *	*Limanda sakhalinensis*
115	Sole, Sand	*Psettichthys melanostictus*
111	Sole, Slender	*Lyopsetta exilis*
140	Sole, Yellowfin	*Limanda aspera*
26	Sponge - unidentified	Porifera
270	Squaretail, Smalleye	*Tetragonurus cuvieri*
50	Squid - unidentified	Cephalopoda
511	Squid, Humboldt	*Dosidicus gigas*
51	Squid, Robust Clubhook	*Moroteuthis robusta*
20	Starfish - unidentified	Asteroidea
21	Starfish, Basket	*Gorgonocephalus* sp.
22	Starfish, Brittle	Ophiuroidea
24	Starfish, Sunstar	Asteroidea
226	Steelhead	*Oncorhynchus mykiss*
230	Sturgeon - unidentified *	*Acipenser* sp.
810	Sunfish, Ocean	*Mola mola*
807	Tubeshoulder - unidentified	Platytroctidae
786	Tunas and Mackerels	Scombridae
43	Tunicates, Ascidians, Sea Squirts	Ascidiacea
102	Turbot, Greenland	*Reinhardtius hippoglossoides*
805	Viperfish - unidentified	Chauliodontidae
899	Waste -- Decomposed Fish	

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Contact NMFS ***if you use any species/species group* shown in **RED.****

Code	Common Name	Scientific Name
762	Waryfish, (Paperbones) - unidentified	Notosudidae
780	Wolf-eel	*Anarrhichthys ocellatus*
781	Wolffish, Bering	*Anarhichas orientalis*
829	Worm - unidentified (flatworms, ribbon worms)	Annelida, Nemertea, Sipuncula, Echiura
759	Wrymouth Unid	Cryptacanthodidae

* If you encounter these species, please bring a specimen back to NMFS.

Contact NMFS ***if you use any species/species group* shown in **RED.****

Appendix B: Species Code List - Seabirds

Code	Common Name	Scientific Name
849	Albatross - unidentified	*Diomedeidae spp.*
852	Albatross, Black-footed	*Phoebastria nigripes*
851	Albatross, Laysan	*Phoebastria immutabilis*
850	Albatross, Short-tailed	*Phoebastria albatrus*
883	Alcid - unidentified	Alcidae spp.
1101	Aleutian Tern	*Sterna aleutica*
1102	American Pipit	*Anthus rubescens*
1103	Ancient Murrelet	*Synthliboramphus antiquus*
1104	Arctic Loon	*Gavia arctica*
1105	Arctic Tern	*Sterna paradisaea*
895	Auklet, Rhinocerous	*Cerorhinca moncerata*
893	Auklet/Murrelet - unidentified	*Alcidae*
1106	Bald Eagle	*Haliaeetus leucocephalus*
998	Bird - unidentified	Aves
1107	Black Turnstone	*Arenaria melanocephala*
1108	Bonaparte's Gull	*Larus philadelphia*
1109	Boreal Owl	*Aegolius funereus*
1110	Brambling	*Fringilla montifringilla*
1112	Canada Goose	*Branta canadensis*
1111	Cassin's Auklet	*Ptychoramphus aleuticus*
1113	Common Loon	*Gavia immer*
1114	Common Merganser	*Mergus merganser*
1115	Common Raven	*Corvus corax*
861	Cormorant - unidentified	*Phalacrocoracidae spp.*
1116	Crested Auklet	*Aethia cristatella*
1117	Dovekie	*Alle alle*
866	Eider, Common	*Somateria mollissima*
863	Eider, King	*Somateria spectabilis*
864	Eider, Spectacled	*Somateria fischeri*
865	Eider, Steller's	*Polysticta stelleri*
1118	Emperor Goose	*Chen canagica*
1119	Eskimo Curlew	*Numenius borealis*

Code	Common Name	Scientific Name
1120	Flesh-Footed Shearwater	*Puffinus carneipes*
1121	Fork-Tailed Storm-Petrel	*Oceanodroma furcata*
854	Fulmar, Northern	*Fulmarus glacialis*
846	Grebe - unidentified	Podicipedidae
1100	Green-Winged Teal	*Anas crecca*
884	Guillemot - unidentified	*Cepphus* spp.
874	Gull - unidentified	*Laridae* spp.
878	Gull, Glaucus	*Larus hyuperboreus*
879	Gull, Glaucus-winged	*Larus glaucescens*
877	Gull, Herring	*Larus argentatus*
1122	Gyrfalcon	*Falco rusticolus*
1123	Harlequin Duck	*Histrionicus histrionicus*
1125	Horned Grebe	*Podiceps auritus*
1124	House Finch	*Carpodacus mexicanus*
871	Jaeger/Skua - unidentified	*Stercorariidae* spp.
876	Kittiwake, Black-legged	*Rissa tridactyla*
875	Kittiwake, Red-legged	*Rissa brevirostris*
898	Land Bird - unidentified	
1127	Lapland Longspur	*Calcarius lapponicus*
851	Laysan Albatross	*Phoebastria immutabilis*
1131	Leach's Storm-Petrel	*Oceanodroma leucorhoa*
1128	Least Auklet	*Aethia pusilla*
1130	Least Sandpiper	*Calidris minutilla*
1129	Lesser Golden-Plover	*Pluvialis dominica*
1132	Long-Tailed Duck	*Clangula hyemalis*
1133	Long-Tailed Jaeger	*Stercorarius longicaudus*
844	Loon - unidentified	Gaviidae
1135	Merlin	*Falco columbarius*
1134	Mew Gull	*Larus canus*
1136	Mottled Petrel	*Pterodroma inexpectata*
887	Murre - unidentified	*Uria* spp.
889	Murre, Common	*Uria aalge*
888	Murre, Thick-billed	*Uria lomvia*
896	Murrelet, Kittlitz's	*Brachyramphus brevirostris*
894	Murrelet, Marbled	*Brachyramphus marmoratus*

Code	Common Name	Scientific Name
893	Murrelet/Auklet - unidentified	Alcidae
854	Northern Fulmar	*Fulmarus glacialis*
1137	Northern Hawk Owl	*Surnia ulula*
1138	Northern Pintail	*Anas acuta*
1139	Northern Wheatear	*Oenanthe oenanthe*
1140	Osprey	*Pandion haliaetus*
1141	Parakeet Auklet	*Aethia psittacula*
1142	Parasitic Jaeger	*Stercorarius parasiticus*
1143	Pelagic Cormorant	*Phalacrocorax pelagicus*
1144	Peregrine Falcon	*Falco peregrinus*
853	Petrel/Shearwater - unidentified	*Procellariidae* spp.
868	Phalarope - unidentified	*Phalaropodidae* spp.
1145	Pomarine Jaegaer	*Stercorarius pomarinus*
890	Puffin - unidentified	*Fratercula* spp.
891	Puffin, Horned	*Fratercula corniculata*
892	Puffin, Tufted	*Fratercula cirrhata*
1147	Red Phalarope	*Phalaropus fulicarius*
1148	Red-Faced Cormorant	*Phalacrocorax urile*
1149	Red-Necked Stint	*Calidris ruficollis*
1146	Ring-Billed Gull	*Larus delawarensis*
1152	Ruddy Turnstone	*Arenaria interpres*
1151	Rustic Bunting	*Embreriza rustca*
1150	Rusty Blackbird	*Euphagus carolinus*
1153	Sabine's Gull	*Xema sabini*
897	Seabird - unidentified	
855	Shearwater, Dark - unidentified	*Puffinus* spp.
857	Shearwater, Short-tailed	*Puffinus tenuirostris*
856	Shearwater, Sooty	*Puffinus griseus*
853	Shearwater/Petrel - unidentified	*Procellariidae* spp.
867	Shorebird - unidentified	*Charadriiformes*
1155	Short-Eared Owl	*Asio flammeus*
1156	Siberian Accentor	*Prunella montanella*
871	Skua/Jaeger - unidentified	*Stercorariidae*
1154	Slaty-Backed Gull	*Larus schistisagus*

Code	Common Name	Scientific Name
1157	Snowy Owl	*Nyctea scandiaca*
1159	South Polar Skua	*Stercorarius maccormicki*
1158	Spoonbill Sandpiper	*Eurynorhynchus pygmeus*
858	Storm Petrel - unidentified	Hydrobatidae
880	Tern - unidentified	*Sterninae* spp.
848	Tubenoses - unidentified	Procellariiformes
1160	Unidentified Auklet	Alcidae
1162	Unidentified Duck	Unidentified Duck
1163	Unidentified Eider	Aythyinae
1164	Unidentified Falcon	Falconinae
1165	Unidentified Hawk	Accipitridae
1166	Unidentified Kittiwake	Loridae
1167	Unidentified Murrelet	Alcidae
1168	Unidentified Owl	Strigidae
1169	Unidentified Passerine	Passeriformes
1170	Unidentified Petrel	Hydrobatidae
1161	Unidentified Plover	Charadriidae
1171	Unidentified Raptor	Unidentified Raptor
1174	Unidentified Sandpiper	Scolopacidae
1172	Unidentified Shorebird	Unidentified Shorebird
1175	Unidentified Small Dark Auklet	Alcidae
1176	Unidentified Sparrow	Fringillidae
1173	Unidentified Warbler	Sylviidae
862	Waterfowl - unidentified	Anseriformes
1178	Western Gull	*Larus occidentalis*
1179	Whiskered Auklet	*Aethia pygmaea*
1177	White-Crowned Sparrow	*Zonotrichia leucophrys*
1181	White-Winged Scoter	*Melanitta fusca*
1180	Wilson's Warbler	*Wilsonia pusilla*
1182	Yellow Wagtail	*Motacilla flava*

Appendix C: Species Code List - Marine Mammals

Code	Common Name	Scientific Name
CU	Northern Fur Seal	*Callorhinus ursinus*
EJ	Steller (Northern) Sea Lion	*Eumetopias jubatus*
ZC	California Sea Lion	*Zalophus californianus*
UO	Unidentified Otariid *****	
EB	Bearded Seal	*Erignathus barbatus*
PV	Harbor Seal	*Phoca vitulina*
MA	Northern Elephant Seal	*Mirounga angustirostris*
PF	Ribbon Seal	*Histriophoca fasciata*
PH	Ringed Seal	*Phoca hispida*
PL	Spotted Seal (Largha Seal)	*Phoca largha*
OR	Walrus	*Odobenus rosmarus*
US	Unidentified Phocid *****	
UP	Unidentified Pinniped *****	
TT	Bottlenose Dolphin	*Tursiops truncatus*
DD	Common Dolphin	*Delphinus delphis*
PX	Dall's Porpoise	*Phocoenoides dalli*
LH	Frasier's Dolphin	*Lagenodelphis hosei*
PP	Harbor Porpoise	*Phocoena phocoena*
LB	Northern Right Whale Dolphin	*Lissodelphis borealis*
LO	Pacific Whitesided Dolphin	*Lagenorhynchus obliquidens*
GG	Risso's Dolphin	*Grampus griseus*
SB	Rough Toothed Dolphin	*Steno bredanensis*
SL	Spinner Dolphin	*Stenella longirostris*
SA	Spotted Dolphin (Central Pacific)	*Stenella attenuata*
SG	Spotted Dolphin (Eastern Pacific)	*Stenella attenuata*
SC	Striped Dolphin	*Stenella coeruleoalba*
UD	Unidentified Dolphin/Porpoise	
BE	Baird's Beaked Whale	*Berardius bairdii*
DL	Beluga	*Delphinapterus leucas*
MS	Bering Sea Beaked Whale	*Mesoplodon stejnegeri*
BG	Black Right Whale	*Balaena glacialis*

Code	Common Name	Scientific Name
BL	Blue Whale	*Balaenoptera musculus*
BM	Bowhead Whale	*Balaena mysticetus*
BX	Bryde Whale	*Balaenoptera edeni*
PC	False Killer Whale	*Pseudorca crassidens*
BP	Fin Whale	*Balaenoptera physalus*
ZX	Goosebeak Whale	*Ziphius cavirostris*
ER	Gray Whale	*Eschrichtius robustus*
MN	Humpback Whale	*Megaptera novaeangliae*
OO	Killer Whale	*Orcinus orca*
BA	Minke Whale	*Balaenoptera acutorostrata*
MM	Narwhal	*Monodon monoceros*
FA	Pygmy Killer Whale	*Feresa attenuata*
BB	Sei Whale	*Balaenoptera borealis*
GM	Shortfin Pilot Whale	*Globicelphala macrorhynchus*
PM	Sperm Whale	*Physeter macrocephalus*
UX	Unidentified Small Whale	
UZ	Unidentified Large Whale	
UW	Unidentified Whale	
UC	Unidentified Cetacean *****	
EL	Sea Otter	*Enhydra lutris*
ZZ	Unidentified Mammal	

***** The following characteristics define animals belonging to these groups.

Otariid: This family includes fur seals and sea lions. They have visible, cartilaginous ears, large foreflippers and their hind flippers can be turned under the body. Their flippers are partially furred and they have three claws on their hindflippers, and none on their foreflippers. Males have scrotal testes.

Phocid: These are the true seals. They have no external cartilaginous ears, their small foreflippers are used for guidance only, and their hind flippers cannot be turned under the body. Their flippers are fully furred and five claws on each. Males have internal testes.

Pinniped: This group includes otariids, phocids and the walrus, which has characteristics from both families.

Cetacean: This class includes all whales and porpoises. The body is streamlined with the tail developed into horizontal flukes used for propulsion.

Appendix D: Abbreviations, Conversions, and Formulas

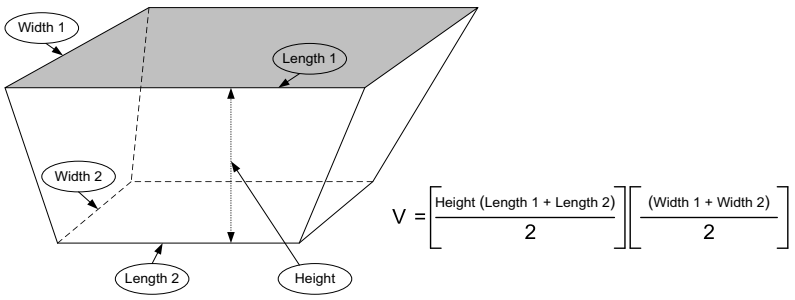
ABBREVIATIONS

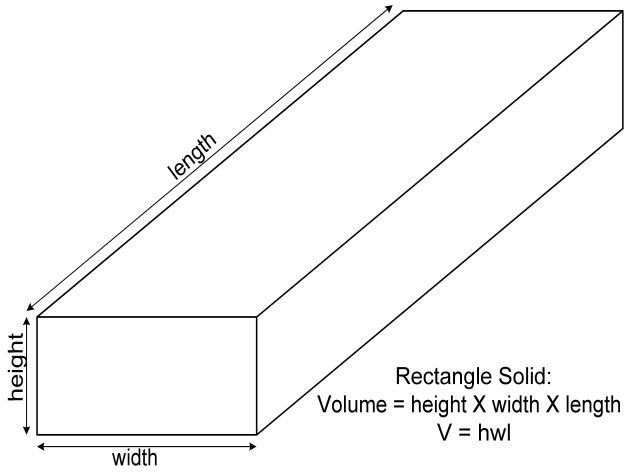
inch	in	millimeter	mm	quart	qt	grams	g
foot	ft	centimeter	cm	liter	L	kilograms	kg
mile	mi	meter	m	minute	min	metric ton	mt
fathoms	f	kilometer	km	pounds	lbs	Fahrenheit	F°
nautical mile	nm					Celsius	C°

CONVERSIONS

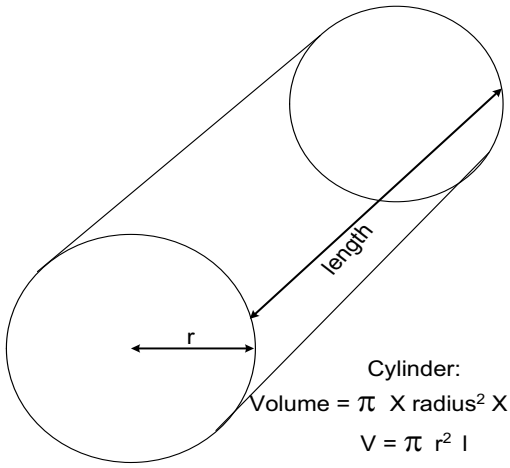
1 in = 2.540 cm		1 L = 1.0567 qt
1 cm = 10 mm = 0.3937 in		F° = (1.8 x C^0) + $32C^0$ = 5/9(F^0 - 32)
1 ft = 0.3048 m = 0.1667 f		1 mi = 5,280 ft = 1.609 km = 0.86899 nm = 880 f
1m = 3.2808 ft = 0.5468 f		1 nm = 1.15078 mi = 1 min lat = 1.852 km = 1,012.6859 f = 1,852 m
1 f = 6 ft = 1.829 m		1 f = 0.0009875 nm = 0.0011364 mi
1000 m = 1 km = 0.6214 mi		Decimal minute (also called hundreth of minute) X 60 = Seconds
1 lb = 0.4536 kg		Total catch weight in lbs x 0.4536 = total catch weight in kg
1 mt = 1,000 kg		

AREA, VOLUME AND PRODUCT FORMULAS

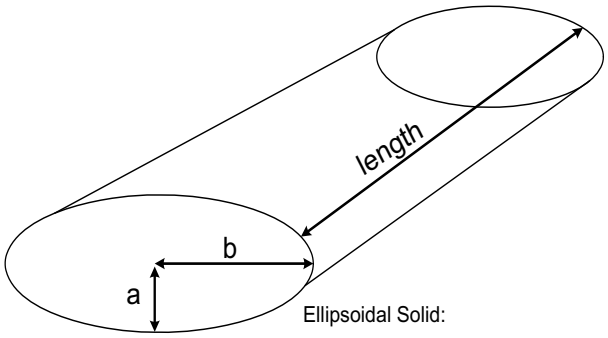
Number of Product Units x Average Unit Weight = Total Weight of Product
Product Weight ÷ Recovery Rate = Whole Weight of fish used to make the product
Product Weight x Conversion Factor = Whole or Fresh Weight of fish used for product
Area of a circle = πr^2 Circumference = $2\pi r$ (π = 3.1416)
Area of a square or rectangle = length × width
Area of a triangle = $1/2 \times \text{base} \times \text{height}$
Length of the triangle hypotenuse "c" where a and b equal the length of the opposite two sides: $a^2 + b^2 = c^2$ and $\sqrt{c^2} = c$
Volume of a right angle cone = $1/3 \times \pi r^2 h$
Volume of a Sphere = $\frac{4}{3} \times \pi \times r^3$
Volume of a Trapezoid: 



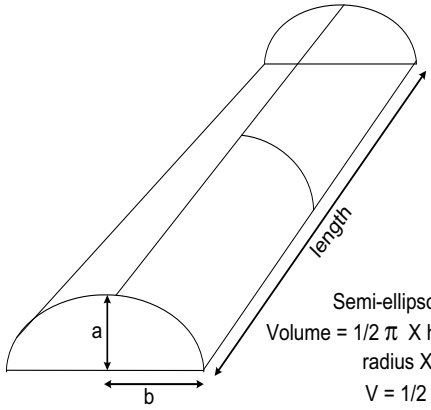
Rectangle Solid:
Volume = height X width X length
V = hwl



Cylinder:
Volume = π X radius^2 X length
V = π r^2 l

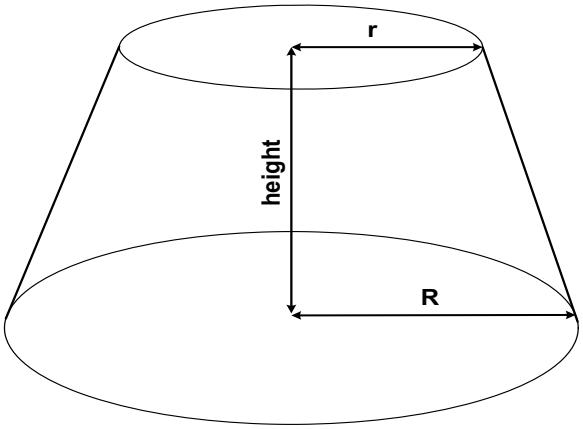


Ellipsoidal Solid:
Volume = π X short radius X long radius X length
V = π a b l

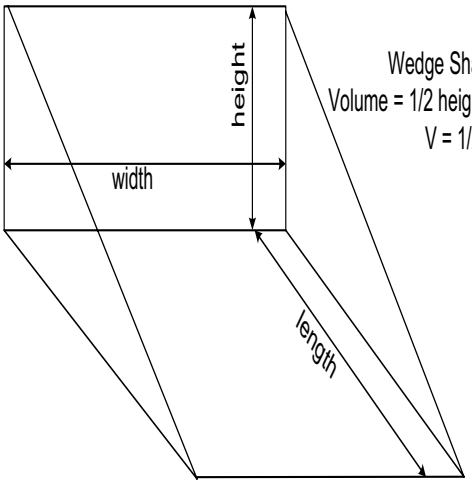


Semi-ellipsoidal Solid:
Volume = 1/2 π X height X long radius X length
V = 1/2 π a b l

Note that 'a' in this equation is the total height, not radius as in the equation for an ellipsoid



Right Circular Cone:
V = 1/3 π(R^2 + rR + r^2) height



Wedge Shaped Solid:
Volume = 1/2 height X width X length
V = 1/2 h w l

Appendix E: Random Number Table

	col. 1 to 5	col. 6 to 10	col. 11 to 15	col. 16 to 20	col. 21 to 25	col. 26 to 30	col. 31 to 35	col. 36 to 40	col. 41 to 45	col. 45 to 50
1	56724	05875	11967	97482	66412	87210	10511	65388	25634	94576
2	08354	96208	25994	96268	25095	63952	45439	35689	06280	38824
3	84884	41403	78468	34394	29328	36855	32201	71021	95240	75026
4	10437	16315	28768	22852	76045	02910	85708	75579	28733	29357
5	64592	54896	42321	26553	40201	11616	10825	25870	79785	59998
6	30350	85105	37321	71799	99136	83455	19947	93995	89901	12925
7	18260	57742	96223	19675	58713	49511	82619	36352	45312	63960
8	25925	57145	46765	13237	36225	40860	71488	38231	27601	63854
9	98585	67535	38946	74046	14362	91688	44732	20909	58848	24794
10	24488	06026	48834	37177	04124	06087	10177	90171	50995	40606
11	69982	88666	53293	40272	70320	71531	85393	71006	77845	15567
12	66636	92775	07549	77978	75735	78468	68747	72967	30795	72317
13	84021	19501	50360	62012	29744	07250	58110	57585	93922	51377
14	56143	46206	58905	32679	47991	26892	32156	35606	65894	33354
15	96049	00377	32297	88906	63562	28916	73267	75026	28017	06264
16	77222	12904	51453	94659	66117	79062	57544	70968	51896	65964
17	33052	50637	47593	87741	41836	76638	93140	02723	57828	89570
18	47337	03208	86300	74631	85565	02812	33059	77784	68022	75316
19	81244	46823	22484	35300	75233	75245	85491	35724	30579	55804
20	82602	85964	63364	83546	66489	52656	10301	55446	88845	89836
21	14785	05345	95634	67903	06262	96563	47970	95573	61119	33749
22	50958	23918	48116	90433	07712	42787	97057	01718	73847	40584
23	45228	10998	34935	28004	72181	88936	00110	45422	93538	38610
24	05776	67648	38615	04748	15240	38347	21879	90124	28666	36434
25	22316	27569	13959	38477	85898	96354	15727	81811	56291	39381
26	15473	78771	51430	63747	60077	18285	54230	88005	66847	00107
27	22847	05000	69826	30590	66137	89494	38033	51407	04016	51896
28	91402	75504	27618	75826	59382	53681	59693	08922	36102	31814
29	80016	14280	09526	33532	00842	77774	17306	30776	63017	00931
30	36284	69668	66183	87905	93181	60159	73997	30354	55636	06766
31	07928	10347	92903	68726	08146	16000	30176	02457	03174	04740
32	50833	16415	76544	45363	49760	67609	31975	92526	11217	57736
33	19279	81488	40161	47258	69959	74635	27045	57581	12173	63584
34	17738	14049	62109	47440	39511	73783	61885	48104	60624	68580
35	79348	36249	83022	94198	00234	70046	20619	91859	74967	22524
36	07579	43871	62464	65120	40791	75997	69444	70614	19533	42029
37	51421	88179	55086	91964	50289	20695	61696	39379	59497	25550
38	53589	61821	97634	22311	38628	75248	54485	13114	04914	79023
39	20655	18911	67977	61305	06907	88338	48177	19215	38745	17163
40	69720	79037	24561	37426	80692	93023	99584	87445	10035	09290
41	88768	54996	08670	75304	01030	24945	67440	56773	56402	17518
42	92886	05640	57937	88755	28140	30789	98012	23142	10900	77902
43	99169	28239	26801	71469	05550	18354	87058	85841	25014	02069
44	75495	67150	51509	18236	11179	55285	42423	01913	16422	85942
45	45078	05403	44883	13624	46616	55202	05717	57720	99191	34130
46	76088	68736	53775	99662	36192	85281	68230	29546	72960	65005
47	61358	81567	95772	28945	19695	20691	62614	06079	76402	99523
48	79080	74030	66517	25405	28015	39992	21871	58195	76916	21988
49	24364	56532	20917	98583	55494	12192	95519	74855	71330	76279
50	74654	15748	00831	30224	09962	67177	54242	56166	16690	14203

Appendix F: Product Recovery Rates (PRR)

Product recovery rate (PRR) represents that proportion of an organism that is used for product. The PRR is also referred to as the recovery ratio. Recovery rates can be used for estimating the fresh weight of a catch from the tonnage of product produced. The following equation can be used for estimating round weight from product weight. ***Remember to add in discards.***

(product weight ÷ recovery rate) = round weight (before processing)

Recovery rates are commonly expressed as a percent or as a ratio. Headed and gutted cod may have a recovery ratio of 0.62 to 1, or 62% recovery, while fish frozen whole would have a recovery ratio of 1.00 to 1, or 100% recovery. The weight of product divided by the weight of the fish before processing is the recovery ratio. The fish weighed before processing should be sorted to species and be of the size and condition needed for the product.

(product weight ÷ round weight) = product recovery rate

The product weight as defined here assumes 100% efficiency in production. If fifty fish are weighed before processing, the product weight should represent the product from all fifty fish. If the product weight is less, because of loss along the production line, the result should be called an efficiency ratio rather than a product recovery ratio.

A wide range of recovery rates are used to describe the utilization of different species in a variety of products. The type of processing, the size of the fish, the area and season of the year, the experience of the processing crew, and the vessel type all have a bearing on the recovery rate of a particular species.

A conversion factor is a number which can be multiplied times the product weight to obtain the round weight (whole weight of the fish). ***A conversion factor is always greater than 1*** (for example, the conversion factor of surimi weight to pollock weight may be 6.67). To convert a conversion factor to a recovery rate, take the reciprocal of the conversion factor, (i.e., divide the number l by the conversion factor).

FMP Group	NMFS Group Codes	Product Code																								
		3	4	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	30	31	32	36	37
P. cod	110	0.98	0.85	0.63	0.57	0.47	0.44	---	0.45	---	0.05	0.05	---	0.05	---	0.01	0.45	0.35	0.25	0.25	---	0.15	0.50	0.17	---	0.43
SWF	119	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
Oflat	120	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
arrowtooth	121	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
flathead	122	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
rock sole	123	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
Dover	124	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
rex	125	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
YFS	127	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	0.18	---	0.17	---	---
turbot	134	0.98	0.90	0.80	0.72	0.65	0.62	0.48	---	---	0.08	---	---	---	---	---	0.32	0.27	0.27	0.22	---	---	---	0.17	---	---
thornyhead	143	0.98	0.88	0.55	0.60	0.50	---	---	---	---	---	---	0.20	0.05	0.05	0.05	0.40	0.30	0.35	0.25	---	---	---	0.17	---	---
sculpins	160	0.98	0.87	---	0.50	0.40	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.17	---	---
Atka	193	0.98	0.87	0.67	0.64	0.61	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	---	0.17	---	---
pollock	270-A*	0.98	0.80	0.70	0.65	0.56	0.50	0.25	---	---	0.07	---	0.15	---	---	---	0.35	0.3	0.3	0.21	0.16	0.16	0.22	0.17	---	0.43
	270-B **	0.98	0.80	0.70	0.65	0.56	0.50	0.25	---	---	0.07	---	0.15	---	---	---	0.35	0.3	0.3	0.21	0.16	0.17	0.22	0.17	---	0.43
smelts	510	0.98	0.82	---	0.71	---	---	---	---	---	---	---	---	---	---	---	---	0.38	---	---	---	---	---	0.17	---	---
eulochon	511	0.98	0.82	---	0.71	---	---	---	---	---	---	---	---	---	---	---	---	0.38	---	---	---	---	---	0.17	---	---
capelin	516	0.98	0.89	---	0.78	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.17	---	---
sharks	689	0.98	0.83	---	0.72	---	---	---	---	---	---	---	---	---	---	---	---	0.3	0.3	0.25	---	---	---	0.17	---	---
skates	700	0.98	0.90	---	---	0.32	---	---	---	0.32	---	---	---	---	---	---	---	---	---	---	---	---	---	0.17	---	---
sablefish	710	0.98	0.89	---	0.68	0.63	0.50	---	---	---	---	---	---	0.05	---	---	0.35	0.3	0.3	0.25	---	---	---	0.17	---	---
octopus	870	0.98	0.81	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.17	0.85	---
squid	875	0.98	0.69	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.17	0.75	---
rockfish	---	0.98	0.88	---	0.6	0.5	---	---	---	---	---	---	0.15	0.05	0.05	0.1	0.4	0.3	0.33	0.25	---	---	---	---	---	---

* Standard pollock surimi rate during January through June

** Standard pollock surimi rate during July through December

Appendix G: Product Codes and Description

Code	Description	Code	Description
1	Whole fish/food fish (PRR = 1.00)	**31**	Minced fish
3	Bled only (throat slit to allow blood to drain)	**32**	Fish meal (meal from whole fish or fish parts, includes bone meal)
4	Gutted only (head on, belly slit and viscera removed)	**33**	Fish oil
5	Gutted, head off (headed/gutted) - IFQ halibut only	**34**	Milt (in sacs, or testes - ancillary product only)
6	H & G, with roe	**35**	Stomachs (includes all internal organs - ancillary product only)
7	H & G, Western cut (head removed ***in front of*** pectoral girdle)	**36**	Octopus/squid mantles (flesh after removal of viscera and arms)
8	H & G, Eastern cut (head removed ***behind*** pectoral girdle)	**37**	Butterfly (split, no backbone, head removed, fillets still attached)
10	H & G, tail removed (usually a Western cut with tail also removed)	**39**	Bones (ancillary product only)
11	Kirimi (head, gut and tail removed by cuts perpendicular to spine)	**41**	Fish destined for fish meal (PRR=1.00)
12	Salted and split	**61**	Sold for bait
13	Wings (from skates, side fins are cut off next to body)	**62**	Overage
14	Roe only (eggs, either loose or in sacs or skeins)	**63**	Confiscated or seized
15	Pectoral girdle only (collar bone and associated bones, cartilage and flesh - ancillary product only)	**64**	Tagged IFQ fish
16	Heads (heads only, regardless where severed - ancillary product only)	**86**	Donated prohibited species, food bank program
17	Cheeks (muscles on sides of head - ancillary product only)	**87**	Retained for future sale
18	Chins (lower jaw (mandible), muscles and flesh - ancillary product only)	**88**	Discarded, infested
19	Belly (flesh in region of pelvic and pectoral fins and behind head - ancillary product only)	**89**	Decomposed or previously discarded
20	Fillets with skin and ribs	**92**	Retained for bait - not sold
21	Fillets with skin, no ribs	**93**	Damaged by observer sampling
22	Fillets, with ribs, no skin	**95**	Personal use - not sold
23	Fillets, skinless/boneless	**97**	Other retained product - specify condition
24	Deep skin fillets	**98**	Discard at sea
30	Surimi (paste from any of the fish flesh and additives)	**99**	Discard, onshore - after delivery/before processing - not sold
For a complete list of product codes see http://www.cf.adfg.state.ak.us/geninfo/permits/10elanding_codes.pdf			

Appendix H: NMFS Species and Group Codes Used in Vessel Logbooks

Species or Group Code	Species or Group Description
193	Atka mackerel
121	Arrowtooth flounder and/or Kamchatka flounder
870	Octopus
110	Pacific cod
270	Pollock
122	Flathead sole
123	Rock sole (includes northern, southern and unidentified rock soles)
124	Dover sole
125	Rex sole
127	Yellowfin sole
134	Turbot (Greenland)
143	Thornyheads (all *Sebastolobus* species)
160	Sculpins
511	Eulachon
516	Capelin
689	Sharks (general)
700	Skates (general)
710	Sablefish
875	Squid
Group Code 118	Shallow water flatfish complex (SWF) in the Gulf of Alaska (includes yellowfin sole, rock soles, English sole, starry flounder, butter sole, Alaska plaice and sand sole).
Group Code 120	Other Flatfish (OFLAT) (All flatfish without a separate code (*e.g.*, petrale sole)
130	Lingcod (non-allocated species)
136	Northern rockfish
Group Code 168	Demersal shelf rockfish (canary, china, copper, quillback, rosethorn, tiger and yellow-eye)
Group Code 169	Pelagic shelf rockfish (dusky, yellowtail and widow)
Group Code 144	Slope rockfish (aurora, blackgill, Bocaccio, chilipepper, darkblotch, green-striped, harlequin, pygmy, redbanded, redstripe, sharpchin, shortbelly, silvergray, splitnose, stripetail, vermillion, and yellowmouth)
141	Pacific ocean perch
151	Rougheye rockfish
152	Shortraker rockfish

Appendix I: Alaska Department of Fish and Game Fish Ticket Codes

Code	Species	Code	Species	Code	Species	Code	Species
110	cod, Pacific (gray)	**158**	rockfish, redstrlpe	**400**	salmon, roe	**Shellfish**	
121	flounder, arrowtooth	**159**	rockfish, darkblotched	**410**	salmon, chinook	**810**	clam, butter
122	sole, flathead	**160**	sculpin, general	**420**	salmon, sockeye	**812**	clam, surf
123	sole, rock	**166**	rockfish, sharpchin	**430**	salmon, coho	**815**	clam, geoduck
124	sole, dover	**167**	rockfish, blue	**440**	salmon, pink	**820**	clam, cockle
125	sole, rex	**170**	sardine, Pacific	**450**	salmon, chum	**830**	clam, razor
126	sole, butter	**175**	rockfish, yellowmouth	**511**	smelt, eulachon	**840**	clam, little-neck
127	sole, yellowfin	**176**	rockfish, harlequin	**515**	smelt, surf	**842**	clam, eastern softshell
128	sole, english	**177**	rockfish, blackgill	**516**	smelt, capelin	**850**	scallop, weathervane
129	flounder, starry	**178**	rockfish, chillipepper	**521**	Arctic char	**851**	scallop, pink (or calico)
130	lingcod	**179**	rockfish, pygmy	**531**	Dolly Varden	**855**	blue mussel
131	sole, petrale	**180**	shad	**540**	trout, steelhead	**860**	abalone
132	sole, sand	**181**	rockfish, shortbelly	**600**	lamprey, Pacific	**870**	octopus
133	plaice, Alaska	**182**	rockfish, splitnose	**625**	jellyfish	**875**	squid
134	turbot, Greenland	**183**	rockfish, stripetail	**680**	sturgeon, general	**890**	snails
135	rockfish, greenstripe	**184**	rockfish, vermilion	**689**	shark, general	**892**	urchin, red sea
136	rockfish, northern	**185**	rockfish, aurora	**690**	shark, salmon	**893**	urchin, green sea
137	rockfish, bocaccio	**191**	greenling, rock	**691**	shark, spiny dogfish	**895**	sea cucumber
138	rockfish,copper	**192**	greenling, whitespot	**692**	shark, Pacific sleeper	**899**	coral
141	perch, Pacific Ocean	**193**	greenling, atka mackerel	**700**	skate, general	**900**	crab,box
142	rockfish, black	**194**	greenling, kelp	**701**	skate, longnose	**910**	crab, Dungeness
143	rockfish, thornyhead	**200**	halibut	**703**	skate, Alaska	**921**	crab, red king
145	rockfish, yelloweye	**210**	eels or eel-like fish	**710**	sablefish (blackcod)	**922**	crab, blue king
146	rockfish,canary	**211**	wrymouths	**714**	ratfish	**923**	crab, brown king (golden)
147	rockfish, quillback	**212**	hagfish, Pacific	**715**	skilfish	**924**	crab, scarlet king (couesi)
148	rockfish, tiger	**213**	grenadier (rattail)	**720**	albacore	**931**	crab, Tanner, bairdi
149	rockfish, China	**214**	grenadier (giant)	**Forage Fish**		**932**	crab, Tanner, opilio
150	rockfish,rosethorn	**215**	prowfish	**206**	Pacific sand fish	**933**	crab, Tanner, grooved (tanneri)
151	rockfish,rougheye	**216**	lumpsucker	**207**	gunnel	**934**	crab, Tanner, triangle (angulatus)
152	rockfish,shortraker	**220**	saury, Pacific	**208**	prickleback	**940**	crab, korean horsehair
153	rockfish,redbanded	**230**	herring, Pacific (directed fishery)	**209**	bristlemouth	**951**	crab, multispina
154	rockfish,dusky	**235**	herring, Pacific (bycatch)	**772**	lanternfish	**953**	crab, verrilli
155	rockfish, yellowtail	**250**	tomcod, Pacific	**773**	deep-sea smelt	**961**	shrimp, pink
156	rockfish, widow	**260**	Pacific Flatnose	**774**	Pacific sand lance	**962**	shrimp, sidestripe
157	rockfish, silvergray	**270**	pollock, walleye	**800**	krill	**963**	shrimp, humpy
						964	shrimp, coonstripe
						965	shrimp, spot

Appendix J: Processor Permit List

Permit	Processor	Location
5470	10th & M Seafoods	Anchorage
29501	Absolute Fresh Seafoods, Inc.	Seattle
27101	Adak Fisheries	Adak
5504	Alaska Custom Seafoods Inc.	Homer
5343	Alaska Fresh Seafoods Inc.	Kodiak
5945	Alaska Glacier Seafood Co.	Juneau
5342	Alaska Pacific Seafood	Kodiak
5797	Alaskan Premier Seafoods	Hyder
5320	Alyeska Seafoods Inc.	Unalaska
26238	Anderson's Alaska Specialty Seafood	Homer
5394	Annette Island Packing Co. Cold Storage	Metlakatla
5314	Arctic Enterprise	
3978	Arctic Star	
5424	Arrowac Fisheries Inc.	Bellingham
5303	Atka Pride Seafoods Inc.	Atka
6053	Auction Block (The)	Homer & Seward
28843	Bear & Wolf Salmon Company	Seattle
5482	Bell's Seafood	Haines
5437	Bellingham Cold Storage	Bellingham
18671	Bering Pacifc Seafoods	
3531	Bering Star	
18592	Big Blue Fisheries	Sitka
5380	Bornstein Seafoods Inc.	Bellingham
29503	Captain's	Yakutat
5435	Coastal Cold Storage	Petersburg
28721	Copper River Fine Seafoods, Inc.	Anchorage
6293	Copper River Fine Seafoods, Inc.	Cordova
5298	Deep Creek/ Custom Packing Inc.	Ninilchik
3877	Discovery Star	
32181	Dutch Harbor Acquisitions	Dutch Harbor
5376	E.C.Philips	Ketchikan
4111	Excellence	
5383	FAVCO	Anchorage
28197	Fee's Custom Seafoods	Anchorage
26030	Fish Factory	Homer
5386	Fishhawk Fisheries Inc.	Astoria
5372	Glacier Village Supermarket Inc.	Juneau
27989	Global Seafoods	Kodiak
1607	Golden Alaska	
5484	Great Pacific Seafoods Inc.	Anchorage
28629	Harbor Crown Seafoods, Inc.	Dutch Harbor
5335	Hoonah Cold Storage	Hoonah
5638	Horst Seafood Inc.	Juneau
32387	Icicle Seafoods - Adak	Adak
30032	Icicle Seafoods - Egegik	Egegik
5332	Icicle Seafoods - Homer	Homer
5300	Icicle Seafoods-Petersburg Fisheries	Petersburg
5299	Icicle Seafoods-Seward Fisheries	Seward
5490	Icy Straits Seafoods Inc.	Juneau
3259	Independence	
5392	International Seafoods of AK (True World Seafoods)	Kodiak
28695	Island Fish Co. LLC	Kodiak
5302	Kachemak Bay Seafood	Homer
30336	Kake Foods	Kake
1996	Katie Ann	
5645	Kingfisher Seafoods Co	Unalaska
30877	Kodiak Smoking & Processing (East Point)	Kodiak
5400	New West Fisheries	
6238	Norquest Seafoods Inc.	Chignik

Permit	Processor	Location
5338	Norquest Seafoods Inc.	Cordova
5336	Norquest Seafoods Inc.	Ketchikan
5337	Norquest Seafoods Inc.	Petersburg
5341	North Pacific Seafoods, Inc.	Cordova
26247	North Pacific Seafoods	Togiak
4078	Northern Victor	
30884	Ocean Beauty Seafoods Inc.	Alitak, SW Kodiak
30885	Ocean Beauty Seafoods Inc.	Cordova
30886	Ocean Beauty Seafoods Inc.	Excursion Inlet
30883	Ocean Beauty Seafoods Inc.	Kodiak, AK
5443	Ocean Beauty Seafoods Inc.	Naknek
27328	Ocean Beauty Seafoods	Nikiski
5431	Ocean Beauty Seafoods Inc.	Petersburg
5518	Ocean Beauty Seafoods Inc.	Seattle
27324	Ocean Beauty Seafoods	Seward
3703	Ocean Phoenix	
5349	Osterman Fish	Dutch Harbor
5344	Pacific Salmon Company Inc.	Edmonds
5442	Pacific Star Seafoods Inc.	Kenai
28113	Peter Pan Seafoods Inc.	Dillingham
5357	Peter Pan Seafoods Inc.	Valdez
5358	Peter Pan Seafoods Inc.	King Cove
29550	Polar Equipment Inc. DBA Polar Sfds	Seward
5333	Prime Alaska Seafoods Inc.	Unalaska
5423	Prime Select Seafood Inc.	Cordova
5925	R & J Seafoods	Kasilof
5438	Resurrection Bay Seafoods L.L.C.	Seward
5362	RM Thorstenson	Floating Processor
30133	Royal Aleutian Seafoods Inc.	Dutch Harbor
5460	Salamatof Seafoods Inc.	Kenai

Permit	Processor	Location
27991	SE AK Smoked Salmon Co., Inc.(Taku Fisheries)	Juneau
28043	Sea Level Seafoods Inc.	Wrangell
5371	Seafood Producers Cooperative	Sitka
31740	Silver Bay Seafoods	Sitka
5346	Sitka Sound Fisheries	Sitka
5359	Sitka Sound Fisheries	Yakutat
3592	Snopac	Adak
7124	Snug Harbor Seafoods	Seward
5362	Stellar Sea	
27991	Taku Fisheries	Juneau
7061	Tonka Seafoods	Petersburg
27990	Trident Seafoods	Kodiak
5305	Trident Seafoods Corp.	Sand Point
5306	Trident Seafoods Corp.	Akutan
5307	Trident Seafoods Corp.	St. Paul Island
27444	Trident Seafoods Corp.	Chignik
5392	True World Seafoods (International Seafoods of AK)	Kodiak
5310	Unisea Inc. - Dutch Harbor	Dutch Harbor
99999	Unknown Location	
5348	Wards Cove Packing Company	Kodiak
29502	Western Alaska Fisheries (Westward Seafoods).	Kodiak
5323	Westward Seafoods Inc.	Dutch Harbor
29502	Westward Seafoods (Western Alaska Fisheries) .	Kodiak
6258	Wrangell Fisheries, Inc.	Wrangell
29504	Yakutat Seafoods, LLC	Yakutat
5891	Yki Fisheries Inc.	Yakutat

Appendix K: Vessel/Plant Names and Permit Numbers

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
ADAK PLANT			27101
AIREDALE	130	988	3374
AJ	150	57934	3405
ALASKA BEAUTY	98	22011	2046
ALASKA CHALLENGER	105	4100	3387
ALASKA DAWN	90	69765	6097
ALASKA FRESH SFDS			5343
ALASKA JURIS	238	54693	2443
ALASKA MIST	174	54851	2833
ALASKA OCEAN	376	60407	3794
ALASKA PACIFIC SFDS			5342
ALASKA PATRIOT	177	52813	3816
ALASKA PIONEER	196	56980	3308
ALASKA ROSE	120	38989	515
ALASKA SPIRIT (CV)	98	35949	4105
ALASKA SPIRIT (C/P)	221	59870	3819
ALASKA VICTORY	227	61083	4093
ALASKA WARRIOR	215	56965	3423
ALASKAN	65	3734	2010
ALASKAN BEAUTY	105	8653	5133
ALASKAN COMMAND	184	57321	3391
ALAS KAN LADY		4306	4306
ALASKAN LEADER	150	62437	4598
ALDEBARAN	132	48215	901
ALEUTIAN	68	7148	2256
ALEUTIAN BALLAD	107	46553	4458
ALEUTIAN BEAUTY	98	32282	4638
ALEUTIAN LADY	165	56126	4102
ALEUTIAN MARINER	118	35844	495
ALEUTIAN NO. 1	126	5992	3687
ALEUTIAN SPRAY	98	991	427
ALICIA JEAN	105	60865	5571
ALLIANCE (TRAWL)	107	55045	2924
ALLSTAR	62	55922	2111
ALPINE COVE	76	30100	26728
ALRITA	73	12658	52
ALSEA	124	40749	2811
ALSKA	63	33172	1562
ALYESKA	122	45	395
ALYESKA SEAFOODS			5320

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
AMATULI	111	3535	3227
AMERICAN DYNASTY	272	59378	3681
AMERICAN EAGLE	120	39	434
AMERICAN LADY	126	67	2309
AMERICAN NO. 1	160	36202	1879
AMERICAN TRIUMPH	285	60660	4055
AMERICAN WAY	100	47839	2099
ANDRONICA	99	39926	4560
ANITA J	130	29	1913
ANNA MARIE	86	6858	1627
ANNETTE	68	11	1430
ARCTIC DAWN	96	42144	4676
ARCTIC EAGLE	126	61111	4555
ARCTIC ENTERPRISE	339	57104	5314
ARCTIC EXPLORER	155	57440	3388
ARCTIC FJORD	275	57450	3396
ARCTIC HUNTER	98	32554	1550
ARCTIC LADY	133	37210	2841
ARCTIC MARINER	125	31792	4582
ARCTIC SEA	134	33696	3381
ARCTIC STAR (PLANT)	258	37268	3978
ARCTIC STORM	334	54886	2943
ARCTIC VENTURE	124	72318	7161
ARCTIC WIND	123	1112	5137
ARCTURUS	132	45978	533
ARGOSY	124	38547	2810
ARICA	186	57228	3694
ARROW	70	4346	97
ATKA PRIDE SEAFOODS			5303
ATLANTICO	98	37	625
AUGUSTINE	90	42232	3093
AURIGA	193	56153	2889
AURORA	193	56154	2888
AUROUS	117	20817	3585
AUTUMN DAWN	127	40951	4619
BALLAD	67	53496	2017
BALLYHOO	176	3645	1921
BARANOF	180	34855	1248
BARBARA J	110	44971	4979
BARWELL	88	5853	2189
BAY ISLANDER	86	49618	1193

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
BEAUTY BAY	127	60100	4533
BELLA-K	130	55124	2929
BERING LEADER	124	74669	29997
BERING PACIFIC SFDS			18671
BERING PROWLER	124	63333	4540
BERING ROSE	124	40638	516
BERING SEA	114	52	3380
BERING STAR(PLANT)	199		3531
BERING STAR (POT)	108	4147	4658
BIG BLUE	88	37241	1907
BILLIKIN	135	20745	277
BLAZER	73	61729	4486
BLUE ACE	131	50226	4529
BLUE ATTU	137	40837	4377
BLUE DUTCH	180	54865	3376
BLUE FIN	120	62841	5040
BLUE FOX	85	62892	4611
BLUE GADUS	152	62933	2090
BLUE NORTH	174	41977	3339
BLUE PACIFIC	180	62905	4618
BLUE STAR	138	41040	2008
BLUE WAVE	200	51736	5361
BOUNTIFUL	165	34053	278
BRISTOL EXPLORER	180	55923	3007
BRISTOL LEADER	167	70435	6323
BRISTOL MARINER	125	8411	5448
BRITTANY	106	3503	5127
BUCCANEER	76	25	1106
BULLDOG	132	131	4106
CAITLIN ANN	103	59779	3800
CALIFORNIA HORIZON	90	33697	412
CAPE FLATTERY	71	17383	589
CAPE HORN	158	55921	2110
CAPE KIWANDA	76	61432	1235
CAPE OMMANEY	85	57198	3770
CAPRICE	86	3	1912
CAPT'N ART	83	40967	1945
CAPTAIN BANJO	88	38097	6343
CARAVELLE	86	57634	3402
CAROL M	61	18895	2259
CASCADE MARINER	101	64	3699
CENTAURUS	149	56986	5780
CHANDALAR	70	55675	5747
CHELISSA	70	70459	6222
CHELSEA	70	19268	2187

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
CHELSEA K	150	62906	4620
CHESAPEAKE	67	31999	2164
CLIPPER ENDEAVOR	124	56602	3242
CLIPPER EPIC	172	38549	4463
CLIPPER EXPRESS	161	41224	3385
CLIPPER SURPRISE	124	54743	2718
COHO	71	56189	1230
COLLIER BROTHERS	90	54648	2791
COLUMBIA	123	39056	1228
COMMODORE	133	53843	2657
CONFIDENCE	100	6946	4980
CONSTELLATION (POT)	127	35629	5781
CONSTELLATION (C/P)	150	61081	4092
CONSTITUTION	73	19267	302
CONTROLLER BAY	88	57847	5530
COOK INLET PROC.-KODIAK			5321
COOK INLET-KENAI			5364
CORNELIA MARIE	126	59109	5178
COURAGEOUS	180	35833	1276
DAWN	92	9206	5
DECEPTION	126	55640	5031
DEEP PACIFIC	124	56016	2872
DEFENDER	200	56676	3257
DEFENDER (C/P)	123	62545	4635
DEFIANT	66	40141	2198
DESTINATION (POT)	109	42234	5329
DESTINATION (TRAWL)	180	60655	3988
DESTINY	100	35639	4177
DETERMINED	111	35306	1114
DISCOVERY STAR	160	51971	3877
DOMINATOR	124	8668	411
DOMINION	66	44342	642
DONA MARTITA	152	51672	2047
DR. K	99	55131	7113
DUSK	86	21636	4
DUTCH HARBOR ACQUISITIONS			32181
EARLY DAWN	108	103	4571
ECHO BELLE	86	49317	1974
ECLIPSE	72	12530	878
ELIZABETH F	90	14767	823
ENTERPRISE	78	20339	2579
ENTERPRISE (C/P)	120	69038	5822
ERLA N	117	20556	10067

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
EVENING STAR (LL)	65	35608	200
EXCALIBUR I I	71	54653	410
EXCELLENCE	367	60958	4111
EXITO	126	54956	5091
EXODUS	94	33112	1249
FARRAR SEA	100	61954	5478
FARWEST LEADER	101	35683	3226
FIERCE ALLEGIANCE	166	55111	4133
FIERCE CONTENDER	156	55123	4110
FRIGIDLAND	74	14895	4853
FORUM STAR	97	59687	4245
FRONTIER EXPLORER	135	62169	4450
FRONTIER MARINER	135	59380	3672
FRONTIER SPIRIT	135	59381	3673
GINNY C	65	6600	3088
GLACIER BAY	154	34905	5325
GLADIATOR	124	32473	1318
GLOBAL SEAFOODS - KODIAK			27989
GOD'S WILL	85	35275	2808
GOLD RUSH	93	40309	1868
GOLDEN ALASKA	305	52929	1607
GOLDEN DAWN	149	35687	1292
GOLDEN FLEECE	104	43260	367
GOLDEN PISCES	98	32817	586
GOLDEN SABLE	100	40918	5001
GRAND DUCHESS	114	55849	2228
GRANT	68	19262	289
GREAT PACIFIC	124	37660	511
GREEN HOPE	100	47790	685
GRUMPY J	82	66039	1232
GUARDIAN	99	61571	4627
GUIDING STAR	94	21730	527
GULF MAIDEN	72	12796	1591
GUN-MAR	172	41312	425
HALF MOON BAY	122	39230	249
HARBOR CROWN SFDS			28629
HAZEL LORRAINE	90	57117	523
HICKORY WIND	107	47795	993
HIGHLAND LIGHT	270	56974	3348
HOONAH COLD STORAGE			5335
HORIZON	148	29089	1301
HUSKY	133	964	3375

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
ICICLE SFDS - ADAK			32387
ICICLE SFDS -EGEGIK			30032
ICICLE SFDS -HOMER			5332
ICICLE SFDS SEWARD			5299
ICICLE SFDS-PBURG			5300
INDEPENDENCE (FLOATER)	351		3259
INDEPENDENCE (LONGLINE/POT)	78	22756	792
INTERNATIONAL SEAFOODS OF AK (TRUE WORLD SFDS)			5392
INTREPID EXPLORER	124	64105	4993
IRENE H	82	6710	2899
ISLAND ENTERPRISE	304	59503	3870
ISLAND FISH CO			28695
JAMIE MARIE	90	58330	4999
JEANINE KATHLEEN	58	61272	4195
JEANOAH	82	14963	1497
JENNIFER A	98	35277	10446
JOANN MARIE	60	35138	1285
JUDI B	92	14	1695
KAMILAR	66	41089	362
KARIEL	66	59918	3759
KARIN LYNN	127	524	5384
KATHERINE	86	58133	3583
KATIE ANN	296	55301	1996
KATIE K	108	20334	3354
KATRINA EM	101	38972	1980
KEMA SUE	80	41033	1701
KESIA DAWN	66	39627	274
KETA	97	7189	5330
KEVLEEN-K	104	960	4769
KILKENNY	75	54966	3248
KISKA SEA	124	61154	4179
KJEVOLJA	110	39369	1632
KODIAK	111	3525	1109
KODIAK ENTERPRISE	275	59170	3671
KONA WIND	81	62090	4373
KONA-KAI	108	51347	2342
KRISTEN GAIL	114	40071	1686
KRISTIANA	69	19044	576
KUSTATAN	100	60210	5489
LABRADOR	126	12128	4589

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
LADY ALASKA	138	61351	4978
LADY ALEUTIAN	116	41715	5474
LADY GUDNY	103	39133	4285
LADY KISKA	174	35522	5675
LADY KODIAK	126	61352	4893
LAST FRONTIER	99	47826	4962
LAURA	93	21591	1571
LEGACY	132	48183	3367
LESLIE LEE	91	56119	1234
LILLI ANN	141	63484	4569
LINDY	77	20105	357
LISA MARIE	79	70221	6172
LISA-MELINDA	81	41520	4506
LONE STAR	86	30332	213
LORELEI I I	63	18906	1257
LUALDA	63	14476	1665
MAJESTY	106	60650	3996
MAR DEL NORTE	86	21650	435
MAR DEL SUD	110	21652	1287
MAR PACIFICO	96	23131	1674
MAR-GUN	113	12110	524
MARATHON	87	49617	1191
MARCY J	97	55	2142
MARGARET LYN	123	31672	723
MARK I	98	6440	1242
MASONIC	70	33468	1279
MELANIE	102	20363	1934
MELISSA BETH	77	57775	3397
MEMORIES	65	53486	2264
MESSIAH	83	66196	6081
MICHELLE RENEE	112	61244	4131
MILKY WAY	72	40894	3038
MISS BERDIE	87	59123	3679
MISS CONCEPTION	77	25080	171
MISS CORINNE	58	38913	1314
MISS LEONA	86	25227	1482
MISS SARAH	103	64109	4989
MONRAD FARSTAD	80	61448	4161
MORNING STAR	148	38431	208
MS. AMY	73	56164	2904
MUIR MILACH	102	41021	480
NANCY H	85	54231	2998
NEAHKAHNIE	110	32858	424
NEW LIFE	79	21845	6182
NEW STAR	188	58005	3491

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
NEW VENTURE	100	4	1137
NEW WEST FISHERIES			5400
NIGHTWATCH	74	23565	854
NIP 'N TUCK	66	39006	2340
NOR' QUEST	110	56492	3425
NORCOASTER	62	38137	181
NORDIC FURY	110	200	1094
NORDIC MARINER	120	222	6191
NORDIC STAR	123	961	428
NORDIC VIKING	130	8500	6202
NORQUEST (SILVER LINING)			5336
NORQUEST SEAFOODS			6238
NORQUEST SEAFOODS INC.			5338
NORSEMAN	108	22406	5128
NORTH CAPE	123	59376	3692
NORTH PACIFIC PROCESS			5341
NORTH POINT	85	53800	5389
NORTH SEA	126	36047	3382
NORTHERN	69	12068	307
NORTHERN AURORA	155	29998	1613
NORTHERN EAGLE	341	56618	3261
NORTHERN ENDURANCE	78	74791	30102
NORTHERN GLACIER	201	48075	661
NORTHERN HAWK	341	60795	4063
NORTHERN JAEGER	336	60202	3896
NORTHERN MARINER	110	61223	4543
NORTHERN MARINER	73	59607	3741
NORTHERN PATRIOT	152	55153	2769
NORTHERN PRINCE	60	61107	5912
NORTHERN SPIRIT	90	59578	3736
NORTHERN VICTOR	379		4078
NORTHWEST EXPLORER	162	36808	3002
NORTHWESTERN	126	29962	4973
NORTON SOUND	136	59154	5294
NOTORIOUS	120	00987	4185
NUKA ISLAND	105	35640	1959
NUNIVAK	86	16886	506
OBSESSION	107	34374	2212
OCEAN ALASKA	107	41219	528
OCEAN BALLARD	114	61605	4573

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
OCEAN BEAUTY-ALITAK, SW KODIAK			30884
OCEAN BEAUTY-CORDOVA			30885
OCEAN BEAUTY-EXCURSION INLET			30886
OCEAN BEAUTY SFDS-KODIAK			30883
OCEAN BEAUTY-NAKNEK			30885
OCEAN BEAUTY - NIKISKI			27328
OCEAN BEAUTY - PETERSBURG			5431
OCEAN BEAUTY - SEATTLE			5518
OCEAN BEAUTY - SEWARD			27324
OCEAN CAPE	99	29923	1615
OCEAN DAWN	81	36604	1936
OCEAN EXPLORER	155	51073	3011
OCEAN FURY	124	97	5368
OCEAN HARVESTER (LONGLINE)	72	31204	649
OCEAN HARVESTER (POT/TRAWL)	108	101	5130
OCEAN HOPE I	108	48171	1640
OCEAN HOPE I I I	111	48173	1623
OCEAN HUNTER	100	40924	1964
OCEAN LEADER	120	32	1229
OCEAN PEACE	219	55767	2134
OCEAN PHOENIX	635	59463	3703
OCEAN PROWLER	155	43570	3336
OCEAN ROVER	256	56987	3442
OCEANIC	122	3404	1667
OSTERMAN FISH			5349
PACIFIC ALLIANCE	105	38294	2816
PACIFIC CHALLENGER	104	6931	657
PACIFIC EXPLORER	155	50759	3010
PACIFIC FURY	110	33	421
PACIFIC GLACIER	276	56991	3357
PACIFIC KNIGHT	185	54643	2783
PACIFIC MAIDEN	69	43503	1520
PACIFIC MARINER	126	7	4581
PACIFIC MIST	87	41	1923

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
PACIFIC MONARCH	166	54645	2785
PACIFIC PEARL	162	31068	276
PACIFIC PRINCE	149	61450	4194
PACIFIC RAM	82	61792	4305
PACIFIC SOJOURN	72	48068	751
PACIFIC STAR	79	55038	2781
PACIFIC STORM	88	70379	32645
PACIFIC SUN	121	35977	3648
PACIFIC VENTURE	103	986	3238
PACIFIC VIKING	127	47	422
PATHFINDER	180	61538	4306
PAVLOF	166	37374	3406
PEGASUS (LL/POT)	72	34328	952
PEGASUS (TRAWLER)	96	57149	1265
PEGGY JO	99	9200	979
PERSEVERANCE	93	63219	4803
PERSEVERANCE	87	12668	2837
PERSISTENCE	76	66182	5381
PETER PAN SFDS-KING COVE			5358
PETER PAN SFDS-VALDEZ			5357
POLAR LADY	105	36822	5123
POLAR SEA	104	303	4590
POLARIS	76	19266	51
POSEIDON	117	37036	1164
PREDATOR (TRAWL)	90	33744	1275
PRIME ALASKA SFDS			5333
PROGRESS	114	6	512
PROSPERITY	137	41864	3361
PROVIDENCE	70	52119	2420
PROWLER	115	40920	1622
QUEEN - EAST POINTT KODIAK (KODIAK SMOKING & PROCESSING)			30877
QUEST	65	36997	438
RAMBLIN ROSE	103	59686	7158
RAVEN	92	56395	1236
REBECCA IRENE	140	51873	1610
REBEL	98	34189	3689
RELIANCE	165	53779	5393
REPUBLIC	86	19048	221
RESOLUTE (LL)	72	17402	46

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
RESURRECTION BAY SFDS			5438
RETRIEVER	133	35199	4588
RM THORSTENSON		64242	5362
ROCKY B	66	48348	1042
ROGUE	90	58966	4138
ROLLO	107	30	5449
ROSELLA	90	21732	2861
ROYAL ALEUTIAN SFDS			30133
ROYAL AMERICAN	105	40840	543
ROYAL ATLANTIC	124	46	236
ROYAL VIKING	108	3718	5455
RUFF & REDDY	90	53	651
SAGA	107	11022	5792
SCANDIES ROSE	130	35318	5456
SEA ALASKA		56146	3231
SEA FISHER	166	9187	20
SEA MAC	87	6151	1043
SEA ROVER	108	134	7133
SEA STAR	104	997	439
SEA STORM	123	40969	420
SEA VALLEY I I	66	43280	2853
SEA VENTURE	104	8225	2122
SEA WARRIOR	105	60804	11798
SEA WOLF	125	35957	1652
SEABROOKE	109	36800	3035
SEADAWN	124	77	2059
SEAFISHER	230	56964	3835
SEAFOOD PRODUCERS COOPERATIVE			5371
SEAFREEZE ALASKA	295	39798	2733
SEATTLE ENTERPRISE	270	56789	3245
SEEKER	98	59476	2849
SEYMOUR	82	17530	283
SHAMAN	110	36	602
SHELLFISH	94	6101	290
SHERRIE MARIE	61	50842	3541
SIBERIAN SEA	137	62424	4578
SILVER BAY SFDS			31740
SILVER SPRAY	116	60860	4101
SITKA SOUND-SITKA			5346
SITKA SOUND-YAKUTAT			5359
SNOPAC	190	57605	3592
SNOPAC INNOVATOR	311	30919	5293
SNUG HARBOR	78	58239	3940
SOJOURN	67	32141	1157
SOUND PACER		59385	4664
SOUTHEAST	66	53163	1798
SOUTHERN SEAS	66	61864	4333
SOVEREIGNTY	165	55199	2770
ST. JOHN I I	65	17406	485
STARBOUND	240	57621	3414
STARFISH	123	12	1167
STARLITE	123	34931	1998
STARWARD	123	39197	417
STELLAR SEA		64242	5362
STORM PETREL	123	39860	1641
STORMBIRD	90	46854	1751
SUNDANCER	64	62597	4659
SUNSET	65	12430	333
SUNSET BAY	122	35527	251
SUNWARD	65	14305	2075
SUSTINA	85	36361	1901
TAASINGE	73	38001	912
TAKU SMOKERIES			27991
TANI RAE	90	14971	5158
TEMPEST	112	3716	3479
THOR	68	19254	1628
TIME BANDIT	114	65577	4984
TOPAZ	86	40250	405
TORDENSKJOLD	75	36037	592
TRACY ANNE	95	54654	2823
TRAILBLAZER	134	33704	3343
TRAVELER	109	58821	3404
TREMONT	124	55466	2018
TRIDENT SFDS KODIAK			27990
TRIDENT SFDS-AKUTAN			5306
TRIDENT SFDS-SAND POINT			5305
TRIDENT SFDS-ST PAUL			5307
TRUE WORLD SFDS (INTERNATIONAL SEAFOODS OF AK)			5392
TUXEDNI	102	8788	3589
U.S. INTREPID	185	54392	2800

Vessel or Plant Name	Len. ft.	ADFG #	NMFS Permit #
U.S. LIBERATOR	162	8522	372
UNIMAK	185	57211	3369
UNISEA: G1 & G2			5310
VAERDAL	124	1119	2123
VALIANT	111	996	5717
VAN ELLIOTT	76	68	1575
VANGUARD	94	39946	519
VANSEE	87	19307	61
VERNON	50	14551	3646
VESTERAALEN	124	38342	517
VIEKODA BAY	102	57971	4593
VIGOROUS	67	8357	937
VIKING	144	8	1222
VIKING EXPLORER	124	36045	1116
VIN CE	82	59392	3796
VIXEN	98	70030	6210
WALTER N	95	34919	825
WARDS COVE-ALITAK			5348
WARDS COVE-KODIAK			5414
WESTERLY	72	13205	1286
WESTERLY	90	51935	16856
WESTERN AK FISHERIES (WESTWARD SFDS)			29502
WESTERN DAWN	113	22294	134
WESTERN MARINER			1445
WESTERN QUEEN	177	62845	2647
WESTERN STAR	80	40965	2511
WESTERN VIKING	101	9069	5131
WESTLING	108	42736	2150
WESTWARD I	135	53247	1650
WESTWARD SFDS-DUTCH HARBOR			5323
WESTWARD SFDS - KODIAK (WESTERN AK FISHERIES)			29502
WESTWARD WIND	160	32660	3274
WINDJAMMER	75	55523	2076
WINONA J	69	43383	1433
WIZARD	156	35265	4532
WONIYA	72	53432	1979
YARDARM KNOT	323	53677	3116
YUKON QUEEN	166	58510	3616
ZENITH	124	41010	440
ZOLOTOI	101	40917	3016

The following vessel names recently changed. You may need to look up vessel profiles by the former name.

Cascade Mariner formerly the Cascade.

Tremont formerly the Alaskan Rose.

Ocean Alaska formerly the Beagle.

Northern Mariner formerly the Northern Cascade.

Arctic Star (plant) formerly the Bering Star.

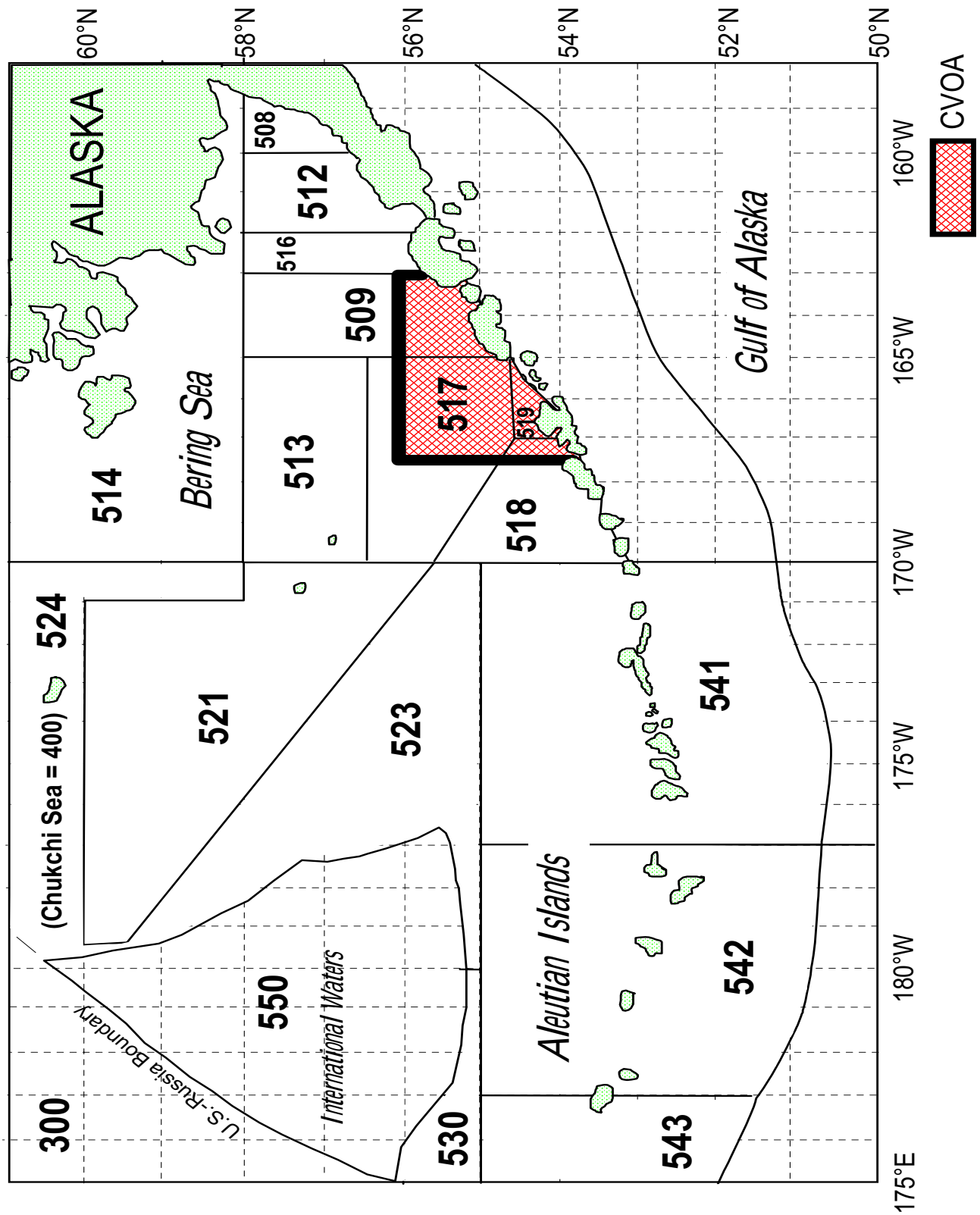
Blue Ace formerly the Storfjord

Blue Star formerly the Seattle Star

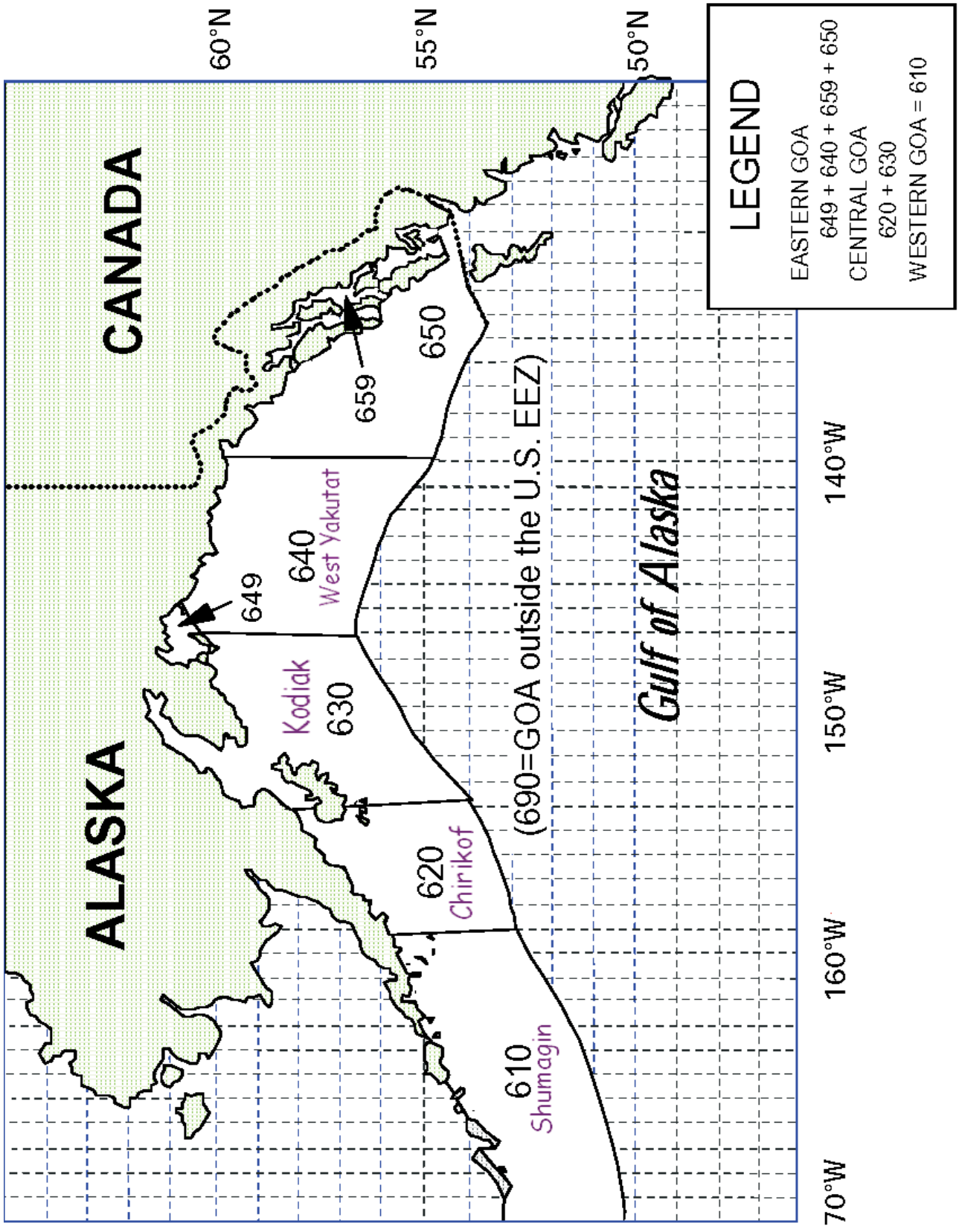
Alaskan Lady formerly the Pathfinder

****If you do not see a NMFS permit number or ADFG number on this list, look in the supplemental information packet, the vessel logbook, contact NMFS staff, or talk to the vessel operator.****

Appendix L: NMFS Reporting Areas for the Bering Sea and Aleutian Islands



Appendix M: NMFS Reporting Areas for the Gulf of Alaska



Appendix N. Decimal Minutes to Seconds Conversion Chart

Conversion Chart for Decimal Minutes* to Seconds *Decimal minutes and hundredths of minutes are the same thing					
Decimal Minutes	Value in Seconds	**Decimal Minutes**	Value in Seconds	**Decimal Minutes**	Value in Seconds
0.01	01	**0.34**	20	**0.67**	40
0.02	01	**0.35**	21	**0.68**	41
0.03	02	**0.36**	22	**0.69**	41
0.04	02	**0.37**	22	**0.70**	42
0.05	03	**0.38**	23	**0.71**	43
0.06	04	**0.39**	23	**0.72**	43
0.07	04	**0.40**	24	**0.73**	44
0.08	05	**0.41**	25	**0.74**	44
0.09	05	**0.42**	25	**0.75**	45
0.10	06	**0.43**	26	**0.76**	46
0.11	07	**0.44**	26	**0.77**	46
0.12	07	**0.45**	27	**0.78**	47
0.13	08	**0.46**	28	**0.79**	47
0.14	08	**0.47**	28	**0.80**	48
0.15	09	**0.48**	29	**0.81**	49
0.16	10	**0.49**	29	**0.82**	49
0.17	10	**0.50**	30	**0.83**	50
0.18	11	**0.51**	31	**0.84**	50
0.19	11	**0.52**	31	**0.85**	51
0.20	12	**0.53**	32	**0.86**	52
0.21	13	**0.54**	32	**0.87**	52
0.22	13	**0.55**	33	**0.88**	53
0.23	14	**0.56**	34	**0.89**	53
0.24	14	**0.57**	34	**0.90**	54
0.25	15	**0.58**	35	**0.91**	55
0.26	16	**0.59**	35	**0.92**	55
0.27	16	**0.60**	36	**0.93**	56
0.28	17	**0.61**	37	**0.94**	56
0.29	17	**0.62**	37	**0.95**	57
0.30	18	**0.63**	38	**0.96**	58
0.31	19	**0.64**	38	**0.97**	58
0.32	19	**0.65**	39	**0.98**	59
0.33	20	**0.66**	40	**0.99**	59

Appendix O. Pacific Sleeper Shark Length to Weight Table

Length-Weight Table for Sleeper Sharks (*Somniosus pacificus*)
This table lists total natural length*

NOT TO BE USED WITH ESTIMATED LENGTHS OR OTHER SHARK SPECIES

Length (cm)	Weight (kg)		Length (cm)	Weight (kg)
100	7.68		255	154.06
105	8.97		260	163.94
110	10.42		265	174.26
115	12.01		270	185.02
120	13.77		275	196.22
125	15.69		280	207.88
130	17.79		285	220.01
135	20.08		290	232.62
140	22.56		295	245.71
145	25.24		300	259.31
150	28.14		305	273.41
155	31.26		310	288.03
160	34.60		315	303.19
165	38.19		320	318.88
170	42.02		325	335.12
175	46.11		330	351.92
180	50.47		335	369.29
185	55.10		340	387.24
190	60.01		345	405.78
195	65.22		350	424.93
200	70.73		355	444.69
205	76.56		360	465.07
210	82.70		365	486.08
215	89.18		370	507.74
220	95.99		375	530.05
225	103.16		380	553.03
230	110.69		385	576.68
235	118.58		390	601.02
240	126.86		395	626.06
245	135.52		400	651.81
250	144.58		405	678.28

***Natural length**: Total length from tip of snout to posterior margin of the longest caudal-fin lobe (upper lobe) with the fin in its natural position.

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Appendix P. Skate Length to Weight Table

Length-Weight Table for Big Skates (*R. binoculata*) and Longnose Skates (*R. rhina*) *NOT TO BE USED WITH ESTIMATED LENGTHS*					
Length (cm)	Weight (kg)		Length (cm)	Weight (kg)	
	R. binoculata	*R. rhina*		*R. binoculata*	*R. rhina*
151	26.15	16.02	181	45.18	28.45
152	26.68	16.36	182	45.94	28.95
153	27.21	16.70	183	46.70	29.45
154	27.75	17.05	184	47.48	29.97
155	28.30	17.40	185	48.26	30.49
156	28.85	17.76	186	49.05	31.01
157	29.42	18.13	187	49.85	31.54
158	29.99	18.49	188	50.66	32.08
159	30.56	18.87	189	51.47	32.62
160	31.14	19.25	190	52.30	33.17
161	31.74	19.63	191	53.13	33.73
162	32.33	20.02	192	53.98	34.29
163	32.94	20.41	193	54.83	34.86
164	33.55	20.81	194	55.69	35.44
165	34.17	21.22	195	56.56	36.02
166	34.80	21.63	196	57.44	36.61
167	35.44	22.04	197	58.33	37.20
168	36.08	22.46	198	59.23	37.81
169	36.73	22.89	199	60.14	38.41
170	37.39	23.32	200	61.05	39.03
171	38.06	23.76	201	61.98	39.65
172	38.74	24.20	202	62.91	40.28
173	39.42	24.65	203	63.86	40.91
174	40.11	25.11	204	64.81	41.56
175	40.81	25.57	205	65.77	42.20
176	41.52	26.03	206	66.74	42.86
177	42.23	26.50	207	67.73	43.52
178	42.96	26.98	208	68.72	44.19
179	43.69	27.46	209	69.72	44.87
180	44.43	27.95	210	70.73	45.55

Appendix Q. Halibut Length to Weight Table

cm.	kg.	cm.	kg.	cm.	kg.
10 - 12	.01	**54**	1.72	**94**	10.34
13 - 14	.02	**55**	1.82	**95**	10.70
15 - 16	.03	**56**	1.93	**96**	11.07
17	.04	**57**	2.05	**97**	11.45
18	.05	**58**	2.16	**98**	11.83
19	.06	**59**	2.29	**99**	12.23
20	.07	**60**	2.41	**100**	12.64
21	.08	**61**	2.55	**101**	13.05
22	.09	**62**	2.69	**102**	13.47
23	.11	**63**	2.83	**103**	13.91
24	.12	**64**	2.98	**104**	14.35
25	.14	**65**	3.13	**105**	14.80
26	.16	**66**	3.29	**106**	15.26
27	.18	**67**	3.45	**107**	15.73
28	.21	**68**	3.62	**108**	16.21
29	.23	**69**	3.80	**109**	16.71
30	.26	**70**	3.98	**110**	17.21
31	.28	**71**	4.17	**111**	17.72
32	.32	**72**	4.36	**112**	18.24
33	.35	**73**	4.56	**113**	18.77
34	.38	**74**	4.76	**114**	19.32
35	.42	**75**	4.98	**115**	19.87
36	.46	**76**	5.19	**116**	20.44
37	.50	**77**	5.42	**117**	21.01
38	.55	**78**	5.65	**118**	21.60
39	.60	**79**	5.89	**119**	22.20
40	.65	**80**	6.13	**120**	22.81
41	.72	**81**	6.38	**121**	23.43
42	.76	**82**	6.64	**122**	24.07
43	.82	**83**	6.91	**123**	24.71
44	.88	**84**	7.18	**124**	25.37
45	.95	**85**	7.46	**125**	26.04
46	1.02	**86**	7.75	**126**	26.72
47	1.10	**87**	8.05	**127**	27.41
48	1.17	**88**	8.35	**128**	28.12
49	1.25	**89**	8.66	**129**	28.83
50	1.34	**90**	8.98	**130**	29.56
51	1.43	**91**	9.31	**131**	30.31
52	1.52	**92**	9.64	**132**	31.06
53	1.62	**93**	9.99	**133**	31.83

cm.	kg.	cm.	kg.	cm.	kg.
134	32.61	**174**	76.02	**214**	148.63
135	33.41	**175**	77.45	**215**	150.89
136	34.22	**176**	78.89	**216**	153.18
137	35.04	**177**	80.35	**217**	155.49
138	35.87	**178**	81.83	**218**	157.82
139	36.72	**179**	83.33	**219**	160.18
140	37.59	**180**	84.85	**220**	162.56
141	38.46	**181**	86.39	**221**	164.97
142	39.35	**182**	87.94	**222**	167.40
143	40.26	**183**	89.52	**223**	169.85
144	41.18	**184**	91.11	**224**	172.33
145	42.11	**185**	92.73	**225**	174.84
146	43.06	**186**	94.36	**226**	177.37
147	44.02	**187**	96.01	**227**	179.93
148	45.00	**188**	97.39	**228**	182.51
149	45.99	**189**	99.11	**229**	185.11
150	47.00	**190**	101.10	**230**	187.75
151	48.02	**191**	102.83	**231**	190.40
152	49.06	**192**	104.58	**232**	193.09
153	50.12	**193**	106.36	**233**	195.80
154	51.18	**194**	108.16	**234**	198.53
155	52.27	**195**	109.97	**235**	201.29
156	53.37	**196**	111.81	**236**	204.08
157	54.49	**197**	113.67	**237**	206.90
158	55.62	**198**	116.00	**238**	209.74
159	56.77	**199**	117.45	**239**	212.61
160	57.93	**200**	119.37	**240**	215.50
161	59.11	**201**	121.32	**241**	218.43
162	60.31	**202**	123.28	**242**	221.38
163	61.53	**203**	125.27	**243**	224.35
164	62.76	**204**	127.28	**244**	227.36
165	64.01	**205**	129.32	**245**	230.39
166	65.27	**206**	131.37	**246**	233.45
167	66.55	**207**	133.45	**247**	236.54
168	67.83	**208**	135.55	**248**	239.66
169	69.17	**209**	137.67	**249**	242.80
170	70.51	**210**	139.82	**250**	245.98
171	71.86	**211**	141.99		
172	73.23	**212**	144.18		
173	74.62	**213**	146.39		

Appendix R: Halibut Condition Criteria For Trawl Bycatch

The criteria are listed in order of importance.

Excellent: Fish is alive, showing no stress, and injuries, if any, are slight.

1. External injuries.
   - Superficial nicks or cuts on body.
   - Little (<10% of fin area) or no fraying of dorsal and anal fin.
   - Hemorrhaging (redness) of skin on white side limited to 5-10% of surface area.
2. Operculum pressure.
   - Fish is able to close operculum tightly for at least 5-10 seconds.
   - Muscle tone and physical activity.
   - Strong and lively, perhaps flopping around on deck if provoked.
   - Fish can tightly clench its jaw.
3. Bleeding.
   - No bleeding observed.
4. Gills and gill color.
   - Deep red in color.

Poor: Fish is alive, but showing signs of stress.

1. Injuries are apparent.
   - Body abrasions have damaged the skin but skin is still present, not missing.
   - Cuts and lacerations in body extend through skin just into flesh and are not deep.
   - Between 10 and 50% of dorsal and anal fins are frayed.
   - Slight bleeding from fin edges.
   - Approximately 10-25% of skin on white side of fish shows hemorrhaging.
2. Operculum pressure.
   - Fish closes operculum weakly and not sustained.
3. Muscle tone or physical activity.
   - Weak, intermittent movement. May respond if stimulated or provoked.
   - Body is limp, but not in rigor mortis.
4. Bleeding.
   - Blood is continually flowing from gills, but not profusely.
5. Gills and gill color.
   - Deep to bright red in color.

Dead: No sign of life or, if alive, likely to die from severe injuries or suffocation.

1. Injuries are apparent.
   - Body cavity ripped open.
   - Internal organs exposed and damaged.
   - Cuts and lacerations in body extend deeply into the flesh.
   - Sediment in mouth.
   - Hemorrhaging in skin on 25% or more of white side.
2. Operculum pressure.
   - Fish does not close operculum.
3. Muscle tone and physical activity.
   - No sign of muscle tone (limp) or fish is in rigor (stiff).
   - Physical activity absent or limited to fin ripples or twitches.
   - Little, if any, response to stimuli.
   - Jaw is hanging open.
4. Bleeding.
   - Blood is flowing freely and continuously in large quantity from a torn or severed gill arch, or a body injury.
5. Gills and gill color.
   - Gills appear washed out, *e.g.*, dull red, pink, or white in color.

Appendix S: Key to Pacific Halibut Viability for Trawl Vessels

Codes: Excellent = E, Poor = P, Dead = D, Unknown = U

1a. Fish is alive ..... Go to 2a
1b. Fish is dead when sorted from the catch ..... code **DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear washed out, i.e., dull red, pink, or white in color. Mouth may contain sediment.

2a. Body of fish appears uninjured, or has only minor injuries ..... Go to 3a
2b. Injuries to fish are significant and obvious ..... code **DEAD**
Body cavity is ripped open, exposing internal organs. Body tissue may be torn or ripped in a rough, ragged manner. Red hemorrhaging observed on 25% or more of the white side.

3a. Fish is able to close operculum when stimulated ..... Go to 4a
Operculum is closed strongly or weakly, but pressure is evident. Operculum may not stay closed for long, though pressure may last up to 5 seconds or longer.
3b. Fish cannot close operculum, even when stimulated ..... code **DEAD**

4a. Fish displays activity and has muscle tone ..... go to 5a
Fish displays a minimal amount of activity, especially when stimulated. May be able to clench jaw tightly.
4b. Fish exhibits no muscle tone ..... code **DEAD**

5a. Fish is not bleeding, or only slightly bleeding, if at all ..... go to 6a
5b. Blood is flowing freely and continuously in large quantity (profusely) ..... code **DEAD**
Bleeding is coming from a torn or severed gill arch, or a body injury.

6a. Body injuries are minimal, perhaps difficult to find ..... go to 7a
May consist of superficial nicks or cuts on body. Less than 10% of dorsal and anal fin area is frayed.
6b. Body injuries are readily apparent ..... code **POOR**
Skin is damaged with abrasions. Cuts and lacerations in body extend through the skin and just barely into the flesh (not deeply). Dorsal and anal fin area is frayed between 10-50% Fin edges may be bleeding. Roughly 10-25% of the white side of fish shows red hemorrhaging.

7a. Operculum pressure is strong and sustained ..... go to 8a
7b. Operculum pressure is weak and not sustained ..... code **POOR**

8a. Fish is strong and lively, displaying good muscle tone ..... go to 9a
Fish is flopping around the deck, hard to control. Jaw may be tightly clenched, difficult to open.
8b. Fish appears weak ..... code **POOR**
Movement is intermittent, perhaps occurring when provoked or stimulated. Body is limp.

9a. Fish is bleeding from gills ..... code **POOR**
Blood is flowing continuously, slow and steadily, but not profusely. Gills are deep to bright red in color.
9b. No bleeding observed ..... code **EXCELLENT**
Gills are deep red in color.

Appendix T. Halibut Condition Criteria For Pot Bycatch

The criteria are listed in order of importance

Excellent: Fish is alive, showing no stress, and injuries, if any, are slight.

1. External injuries.
   - Superficial nicks or cuts on body.
   - Little (<10% of fin area) or no fraying of dorsal and anal fins.
   - Hemorrhaging (redness) of skin on white side limited to 5-10% of surface area.
2. Operculum pressure.
   - Fish is able to close operculum tightly for at least 5-10 seconds.
3. Muscle tone and physical activity.
   - Strong and lively, perhaps flopping around on deck if stimulated.
   - Fish can tightly clench its jaw.
4. Bleeding.
   - No bleeding from gills, body, or fins observed.
5. Gills and gill color.
   - Deep red in color.
6. No penetration of the body or head by sand fleas. No predation by crabs.
   - Membranes surrounding eyes and anus are intact, without any holes from sand fleas.
   - A few sand fleas may be seen on body, but can be wiped off with your hand. Typically, no penetration has occurred when only a few (*e.g.*, <10) sand fleas are found on the body.

Poor: Fish is alive, but displaying physical injuries and signs of stress.

1. External injuries are apparent.
   - Body abrasions have damaged the skin but skin is still present, not missing.
   - Cuts and lacerations in body extend through skin just into flesh and are not deep.
   - Between 10 and 50% of dorsal and anal fins are frayed.
   - Slight bleeding from fin edges.
   - Approximately 10-25% of skin on white side of fish shows hemorrhaging.
2. Operculum pressure.
   - Fish closes operculum weakly and not sustained.
3. Muscle tone or physical activity is weak.
   - Intermittent body movement. May respond if stimulated.
   - Body appears limp, but not in rigor mortis.
4. Bleeding.
   - Blood is not flowing profusely, but is oozing continuously from fin edges or body wounds.
5. Gills and gill color.
   - Gills are deep to bright red.
6. No penetration of the body or head by sand fleas. No crab predation.
   - Membranes surrounding eyes and anus are intact, without any holes from sand fleas.
   - A few sand fleas may be seen on body, but can be wiped off with your hand. Typically, no penetration has occurred when only a few (*e.g.*, <10) sand fleas are found on the body.
   - No damage to the fish from crabs, if any, in the pot.

Dead/Fleas: No sign of life or, if alive, likely to die from injuries or predation.

1. External and internal injuries.
   - Body cavity may be ripped open.
   - Internal organs may be exposed and damaged.
   - Body tissue may be torn or ripped in a rough, ragged manner.
   - Hemorrhaging in skin on 25% or more of white side.

(Condition criteria continued on next page.)

2. Operculum pressure.

- Fish does not close operculum.

3. Muscle tone and physical activity.

- No sign of muscle tone (limp) or fish is in rigor (stiff)
- Physical activity absent or limited to fin ripples or twitches.
- Little, if any, response to stimuli.
- Jaw may be open and slack.

4. Bleeding.

- Blood is flowing profusely from fin edges or body.

5. Gills and gill color.

- Gills appear washed out, *e.g.*, dull red, pink, or white in color.

6. Sand fleas have penetrated the body via the eyes, fins, or anus. Crab predation may also occur.

- Membrane surrounding eye may be partially or completely eaten by sand fleas.
- Dorsal and/or anal fin membranes may be eaten away, leaving fin rays exposed. Skin on the body is separated from tissue where sand fleas have eaten.
- Crabs in the pot may also have attacked and eaten the “dead” fish.

Appendix U: Key to Pot Condition Codes for Pacific Halibut

Codes: Excellent = E, Poor = P, Dead = D, Unknown = U

1a. Fish is alive ..... Go to 2a
1b. Fish is dead when sorted from the catch ..... code **DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear washed out, i.e., dull red, pink, or white in color.

2a. No penetration of the body or head by sand fleas ..... Go to 3a
Membranes surrounding eyes and anus are intact, without any holes from sand fleas. A few sand fleas my be seen on body and can be wiped off with your hand. Typically, no penetration has occurred when only a few (e.g. <10) sand fleas are found on the body.
2b. Sand fleas have penetrated the body via the eyes, fins, or anus ..... code **DEAD**
Membrane surrounding eye may be partially or completely missing. Dorsal and/or anal fin membranes may be eaten away, leaving fin rays exposed. Skin on the body is separated from tissue where sand fleas have eaten.

3a. No predation of the fish's body by crabs in the pot is noted ..... Go to 4a
3b. Predation by crabs has occurred ..... code **DEAD**
Crabs in the pot may have attacked and eaten the fish.

4a. Body of fish appears uninjured, or has only minor injuries ..... go to 5a
4b. Injuries to fish are obvious and significant ..... code **DEAD**
Body cavity is ripped open, exposing internal organs. Body tissue may be torn or ripped in a rough, ragged manner. Red hemorrhaging observed on 25% or more of the white side.

5a. Fish is able to close operculum when stimulated ..... go to 6a
Operculum is closed strongly or weakly, but pressure is evident. Operculum may not stay closed for long, though pressure may last up to 5 seconds or longer.
5b. Fish cannot close operculum, even when stimulated ..... code **DEAD**

6a. Fish displays activity and has muscle tone ..... go to 7a
Fish displays a minimal amount of activity, especially when stimulated. May be able to clench jaw, perhaps tightly.
6b. Fish exhibits no muscle tone ..... code **DEAD**
Physical activity absent or limited to fin ripples or twitches. Little, if any response to stimuli. Jaw is hanging open and is slack.

7a. Fish is not bleeding, or only slightly bleeding, if it all ..... go to 8a
7b. Blood is flowing freely and continuously in a large quantity (profusely) ..... code **DEAD**
Bleeding is coming from fin edges or a body injury.

(Key continues on next page)

8a. Body injuries are minimal, perhaps difficult to find.....go to 9a
May consist of superficial nicks or cuts on body. Less than 10% of dorsal and anal fin area is frayed. Hemorrhaging of skin on white side limited to < 10% of surface area.
8b. Body injuries are readily apparent..... code **POOR**
Skin is damaged with abrasions. Cuts and lacerations in body extend through the skin and just barely into the flesh (not deeply). Dorsal and anal fin area is frayed between 10-50%. Fin edges may be bleeding slightly. Roughly 10-25% of the white side of fish shows red hemorrhaging.

9a. Operculum pressure is strong and sustained.....go to 10a
Fish should be able to close operculum for at least 5-10 seconds.
9b. Operculum pressure is weak and not sustained..... code **POOR**

10a. Fish is strong and lively, displaying good muscle tone.....go to 11a
Fish is flopping around the deck, hard to control. Jaw may be tightly clenched, difficult to open.
10b. Fish appears weak..... code **POOR**
Movement is intermittent and of short duration, perhaps occurring when provoked or stimulated. Body appears limp, not in rigor mortis.

11a. Fish is bleeding from fin edges or body..... code **POOR**
Blood is oozing continuously from fin edges or body wounds. Gills are deep to bright red in color.
11b. No bleeding observed ..... code **EXCELLENT**
Gills are deep red in color. Fins are not bleeding.

Appendix V: Halibut Injury Criteria For Longline Bycatch

The criteria are listed in order of importance

Minor injuries: Injuries, if any, are slight and inconsequential to health of the fish.

1. Injuries around the mouth from the hook and hook removal are slight.

- A hook entrance/exit hole around the jaw or in the cheek.
- The lip (skin covering the external portion of the jaw) may be torn and hanging.
- The hook and some length of residual gangion may be hanging from the mouth if the gangion was cut.

2. Very little bleeding, if any.

- Bleeding is seen only in the area surrounding the jaw.
- Bleeding may have stopped, or may be continuing very slowly a few drops at a time.

3. No penetration of the body or head by sand fleas.

- Membranes surrounding eyes and anus are intact, without any holes from sand fleas.
- A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration has occurred when only a few (*e.g.*, <10) sand fleas are found on the body.

Moderate injuries: Injuries are present, but are not severe.

1. Injuries may have been inflicted to the jaw, cheek, eye, or body.

- Lower jaw may be broken into 2 pieces at the snout, but each is still attached at the base of the jaw.
- Jaw is torn on one side or the other, possibly extending through the cheek.
- Hook may have punctured the eye or eye socket.
- Wounds on head and abdomen limited to surface scratches on skin.
- No wounds of any kind to abdominal organs. Abdominal cavity wall not punctured.
- Wounds in body consist of puncture holes in skin, with possibly a flesh tear.

2. Bleeding is occurring but not from gills.

- Blood may be seen around mouth and jaw.
- Blood is not flowing profusely, but is oozing continuously.

3. No penetration of the body or head by sand fleas.

- Membranes surrounding eyes and anus are intact, without any holes from sand fleas.
- A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration has occurred when only a few (*e.g.*, <10) sand fleas are found on the body.

Severe injuries: Severe life-threatening injuries can be seen.

1. Injuries to the head and/or jaw have occurred. Any of the following will be present, individually or in combination:

- Skin on head (forward of preopercle) is ripped and torn deeply, exposing tissue and internal organs.
- Side of the head, possibly including the jaw, has been torn loose and missing from the fish.
- Lower jaw has been torn away and is missing.
- No wounds of any kind to abdominal organs. Abdominal cavity wall not punctured.

2. No penetration of the body or head by sand fleas.

- Membranes surrounding eyes and anus are intact, without any holes from sand fleas.
- A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration has occurred when only a few (*e.g.*, <10) sand fleas are found on the body.

(Condition criteria continued on next page.)

Dead/Fleas/Bleeding: Fish is lifeless, sand flea predation, severe bleeding.

1. Fish is already dead when brought to the surface on the gear

- Fish is in rigor and lifeless, even if no apparent injuries.
- Gills appear completely devoid of blood (light pink or white in color).

2. Marine mammals have taken bites out of the fish

- Usually taken out of the back of the fish or from the abdominal cavity.

3. Sand fleas have penetrated the body via the eyes, fins, or anus.

- Membrane surrounding eye may be partially or completely missing.
- Dorsal and/or anal fin membranes may be eaten away, leaving fin rays exposed. Skin on the body is separated from tissue where sand fleas have eaten.

4. Bleeding is severe, especially from the gills.

- Blood is flowing freely and continuously in large quantity.
- Bleeding is occurring from a torn or severed gill arch.

5. Internal organs are damaged, possibly by a gaff.

- Abdominal cavity wall is punctured or torn.
- Viscera are visible and exposed, and may be protruding.

Appendix W: Key to Longline Injury Codes for Pacific Halibut

Codes: 1 = Minor, 2 = Moderate, 3 = Severe, 4 = Dead/Sand Fleas/Bleeding, 9 = Unknown

1a. Fish is alive ..... Go to 2a
1b. Fish is dead when brought to the surface on the gear ..... code **DEAD**
Fish is in rigor and lifeless, even if no apparent injuries. Gills appear completely devoid of blood (light pink or white in color).

2a. Body shows no signs of marine mammal predation ..... Go to 3a
Fish's body is intact. Flesh my be torn, but no missing tissue.
2b. Body is missing pieces of flesh ..... code **DEAD**
Pieces of tissue are missing from predation by marine mammals. Missing pieces are typical of bites from sea lions or other large marine mammals.

3a. No penetration of the body or head by sand fleas ..... Go to 4a
Membranes surrounding eyes and anus are intact, without any holes from sand fleas. A few sand fleas may be seen on body and can be wiped off with your hand. Typically, no penetration occurs when only a few (e.g. <10) sand fleas are found on the body.
3b. Sand fleas have penetrated the body via the eyes, fins, or anus ..... code **DEAD**
Membranes surrounding eye may be partially or completely missing. Dorsal and/or anal fin membranes may be eaten away, leaving fin rays exposed. Skin on the body is separated from tissue where sand fleas have eaten.

4a. No wounds of any kind to abdominal organs. Abdominal wall not punctured ..... go to 5a
4b. Abdominal organs are damaged, possibly by a gaff ..... code **DEAD**
Abdominal cavity wall is punctured or torn. Viscera are visible and exposed, and may be protruding.

5a. Fish is not bleeding from gills (but may be bleeding from elsewhere) ..... go to 6a
5b. Fish is bleeding from gills ..... code **DEAD**
Bleeding is occurring from a torn or severed gill arch.

6a. Fish is not bleeding at all, or bleeding is minor to moderate (not from gills) ..... go to 7a
Blood may be seen around mouth and/or jaw. Blood may be oozing continuously, or bleeding may be continuing very slowly a few drops at a time, or bleeding may have stopped.
6b. Bleeding is severe ..... code **DEAD**
Blood from any source is flowing freely and continuously in large quantity.

7a. Injuries to head and/or jaw are minor to moderate, but no structures are missing ..... go to 8a
7b. Major injuries to head and jaw, resulting in missing pieces ..... code **SEVERE**
Side of the head, possibly including the jaw, has been torn loose and missing from the fish, and/or lower jaw has been torn away and is missing.

(Key continues on next page)

8a. Wounds to the head (forward of preopercle and above cheek and jaw) are only surface scratches on the skin .....go to 9a
8b. Skin on head (forward of preopercle) is ripped and torn deeply .....code **SEVERE**
Internal organs are likely exposed.

9a. Eye or eye socket is not punctured.....go to 10a
9b. Eye or eye socket is punctured .....code **MODERATE**

10a. No wounds to the body are evident.....go to 11a
10b. Wounds in body consist of puncture holes in skin, with possibly a flesh tear.....code **MODERATE**

11a. Lower jaw is significantly damaged .....code **MODERATE**
Lower jaw may be broken into 2 pieces at the snout, but each is still attached at the base of the jaw. Jaw may be torn on one side or the other, possibly extending through the cheek.
11b. Damage to lower jaw, if any, is slight.....code **MINOR**
Injuries include the hook entrance/exit hole around the jaw or in the cheek, or a tear in the cheek. A piece of the lip may be torn and hanging from the jaw. If the gangion was cut, the hook and some length of residual gangion may be hanging from the mouth.

Appendix X: Contact Addresses and Numbers

North Pacific Groundfish Observer Program

During work hours, staff members will accept collect calls. After hours, voice mail accepting collect calls is available at (206) 526-4240. Leave a message, even if only to tell us you are trying to reach us.

Address

NMFS Observer Program,
7600 Sand Point Way NE
Seattle, WA 98115-0070

Data Receiving Lines:

Fax: (206) 526-4066 or 526-4207

Staff Lines:

Training & Debriefing: (206) 526-4192
ATLAS software or communication questions:
(206) 526-4240, Glenn.Campbell@noaa.gov
Gear Room Bldg. 33: (206) 526-6827

Anchorage Field Station

Address

Federal Building Annex
222 W. 8th Ave., Suite A41
Anchorage, AK 99513

Phone: (907) 271-1313
Fax: (907) 271-1315

Dutch Harbor Field Station

Physical Address

2315 Airport Beach Road, Suite 105
Dutch Harbor, AK 99692

Phone: (907) 581-2060
Fax: (907) 581-2066
VHF Channel 16: Monday - Friday 0900-1700

Mailing Address

P.O. Box 920225
Dutch Harbor, AK 99692

Kodiak Field Station

Address

NMFS Observer Program
301 Research Court
Kodiak, AK 99615

Phone: (907) 481-1770
Fax: (907) 481-1771

Alaska Regional Office

Address

National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

Phone: (907) 586-7228 or Fax: (907) 586-7465

This office will accept collect calls from observers on matters directly related to observer work. They will not answer “quota remaining” or “fishery closure” questions.

North Pacific Groundfish Observer Program

Enforcement

If you are the victim of a crime and you would like to report directly to law enforcement, you may contact a Special Agent or the Observer Program Liaison directly. The Special Agents are specifically trained to assist you:

Special Agent
Nathan Lagerwey (Anchorage)
Office: (907) 271-3031
Cell: (907) 360-2616
Nathan.Lagerwey@noaa.gov

Special Agent
Jaclyn Smith (Anchorage)
Office: (907) 271-1869
Cell: (907) 382-8452
Jaclyn Smith@noaa.gov

Observer Program Liaison
Alicia Miller (Seattle)
Office: (206) 526-4316
Alicia.M.Miller@noaa.gov

If you are in one of these Alaska ports, you may also contact the local NOAA Fisheries Enforcement office:

Kodiak	(907) 486-3298
Dutch Harbor	(907) 581-2061
Seward	(907) 224-5348
Homer	(907) 235-2337
Sitka	(907) 747-6940
Ketchikan	(907) 247-5804
Petersburg	(907) 772-2285
Juneau	(907) 586-7225

To report a fishery or marine mammal violation, you may also contact the NOAA Fisheries Enforcement Hot Line 1-800-853-1964.

Standing Together Against Rape (STAR) is a victim advocacy organization that provides confidential support for victims of assault, sexual assault, workplace harassment, and rape. They provide immediate crisis support, law enforcement accompaniment, legal support and accompaniment, advocacy, crisis counseling, support groups, information, referrals, and more.You may contact STAR 24 hours a day at 1-800-478-8999, 1-907-276-7273, or at advocate@staralaska.org.

International Pacific Halibut Commission (IPHC)

Gregg Williams
Phone: (206) 552-7687
E-mail: gregg@iphc.int

Steve Kaimmer
Phone: (206) 552-7668
E-mail: stevek@iphc.int

Please contact Gregg or Steve with questions regarding halibut viability or injury assessments.

U.S. Coast Guard

Anchorage.....	Chief John Jones@ (907) 271-1954 or Ed Miner @ (907) 271-6945
Kodiak.....	Marine Safety Detachment @ (907) 487-5750
Unalaska (Dutch Harbor).....	Marine Safety Detachment @ (907) 581-3466

Appendix Y: Radio Instructions

The radios that you will encounter most often are ***VHF***-FM (Very High Frequency Modulation), used for short-range vessel-to-vessel and vessel-to-shore communication, and HF-***SSB*** (High Frequency-Single Side Band), used for communication when the stations are out of VHF range with each other. Both types offer certain special advantages, and each requires a specific operating procedure.

VHF Radios

In the United States, the VHF band is broken up into 71 channels, with a frequency range of from 156.000 to 163.000 MHz, including six WX (Weather) channels. By law, all operating VHF stations are required to have at least three of these channels: channel 6, channel 16, and at least one other working channel.

Channel 6
(156.300 MHz) is the Intership Safety Channel, used for intership safety purposes, search-and rescue (SAR) communications with ships and aircraft of the U.S. Coast Guard, and vessel movement reporting within ports and inland waterways. This channel must not be used for non-safety communications.

Channel 16
(156.800 MHz) is the International Distress, Safety, and Calling Channel (Intership and Ship-to-Coast). This channel must be monitored at all times the station is in operation (except when actually communicating on another channel). This channel is also monitored by the U.S. Coast Guard, Public Coastal Stations, and many Limited Coastal Stations. Calls to vessels are normally initiated on this channel. Then, except in an emergency, you must switch to a working channel. ***It is against FCC regulations to conduct business on this channel.*** In addition, vessels calling must use their assigned call sign at the beginning and end of each transmission.

Channel22A
(157.100 MHz) is the US Coast Guard Liaison Channel. This channel is used for communications with Coast Guard ships, aircraft, and coastal stations after first establishing contact on channel 16. Navigational warnings and, where not available on WX channels, Marine Weather forecasts are also broadcast on this frequency.

SSB Radios

To communicate over distances beyond twenty miles, you need to use satellite communication or a medium-to-high frequency radiotelephone referred to as Single Side Band (SSB) radio. All ship SSE radiotelephones must be capable of operating ***frequency 2182 kHz, the international distress and calling frequency,*** and at least 2 other frequencies. Frequency 2670 kHz is only used for communicating with the Coast Guard and should not be used for other purposes.

When using SSB radiotelephone, you must observe radio silence at Frequency 2182 kHz, the emergency channel, for 3 minutes immediately after the hour and the half-hour. The purpose of radio silence on the emergency hailing channel is to clear the airwave for weak or distant distress signals. No radio silence is used on the VHF emergency channel.

Every ship and all Coast Guard stations continually listen to the emergency frequencies. These channels cannot be used for other communication and extraneous conversation is illegal and dangerous. The emergency channels are:

- VHF Channel 16 (international distress channel)
- VHF Channel 13 (for ships to use to avoid collisions, cannot be used to contact the USCG shore stations)
- SSB Frequency 2182 (international distress frequency)

If you are required to send an emergency message or relay information to the Coast Guard, use the following procedures:

- When trying to establish communications, repeat the USCG Station's name and your name at least twice.
- Use radio punctuation words ("over," "clear," "out," "roger," "say again," "standing by," and "break"). Radios transmit in only one direction at a time and these words signal your intentions to the receiving station. Speak directly into the microphone, speaking loudly, slowly and distinctly.

- To be clear when using letters (for call signs or other codes), use the phonetic alphabet:

A = Alpha	N = November
B = Bravo	O = Oscar
C = Charlie	P = Papa
D = Delta	Q = Quebec
E = Echo	R = Romeo
F = Foxtrot	S = Sierra
G = Gulf	T = Tango
H = Hotel	U = Uniform
I = India	V = Victor
J = Juliet	W = Whiskey
K = Kilo (keelo)	X = X-ray
L = Lima (leema)	Y = Yankee
M = Mike	Z = Zulu

- Upon completing a transmission, sign off by identifying your vessel and using the words “clear” or “out.” If you expect to resume contact soon with the same station, use the phrase “standing by.”

A correctly sent message would be as follows:

You (on VHF Channel 16): Coast Guard Station Kodiak, Coast Guard Station Kodiak. This is the fishing vessel Starry Flounder, Whiskey Tango Zulu four, one, nine, zero. This is the fishing vessel Starry Flounder, Whiskey Tango Zulu four, one, nine, zero on channel sixteen, over.

USCG: Fishing vessel Starry Flounder this is Coast Guard Station Kodiak shift and answer on channel eleven, out.

You (now on VHF Channel 11): Coast Guard Station Kodiak. Coast Guard Station Kodiak. This is the Starry Flounder on channel eleven, over.

USCG: Fishing vessel Starry Flounder, this is Coast Guard Station Kodiak. Send your traffic, over.

You: Kodiak this is the Starry Flounder, I am the observer relaying a message for the captain. A crewman has a badly crushed arm and needs hospitalization. Can you evacuate the crewman? Over.

USCG: Vessel Starry Flounder, this is Kodiak. Affirmative. What is your current position? Over.

You: Kodiak this is the Starry Flounder. Position is five-five degrees five-zero minutes north, one-five-seven degrees, two-four minutes west, over.

You would continue to provide information as requested by the Coast Guard until they end the communications by ending their final message with “out.”

Appendix Z: Beam Balance Flatbed Scale Care and Maintenance

Flatbed scales are available from the Kodiak and Dutch Harbor field offices. They are particularly helpful on small vessels that have no convenient location to hang a 50 kg Salter scale. Although useful, these scales are delicate and expensive. They require proper care and maintenance to survive your deployment.

Before You Use the Scale

As with all scales issued to you the flatbed scale must be checked for accuracy before going into the field. Be sure to check the scale at 10 kg, 20 kg, and 35 kg. Record the results of this test in your logbook. This should serve to familiarize you with the operation of the scale.

Field Care and Use of Flatbed Scales

The Beam Balance Flatbed Scale is likely the most valuable piece of equipment issued to observers. It is important that it be treated as such to ensure its longevity. A few simple precautions and light maintenance can easily prevent irreparable damage to your scale. By following these steps the life span of these flatbed scales can be improved, and provide observers with high quality equipment. ***Thanks for doing your part!***

1. Lock both the platform and the beam balance at all times when the scale is not in use. The motion of the boat keeps the scale "working" whenever it is not locked, which can wear out the scale. Lock the platform using the black knob on the right side of the scale. Turn the lever back to lock the platform and forward to unlock. To lock the beam in place use the lever that pivots up under the right side (near the balance indicator).

2. Always protect the scale from impact damage. Even seemingly moderate impacts to the balance or the unlocked platform can damage the floating hangers under the scale. Once these hangers are damaged the precision of the scale is forever and irreparably compromised. Do not drop baskets of fish onto the platform. ***Do not throw fish into baskets on the platform.*** Fill your baskets and then place them on the platform.

3. Keep the scale as clean and dry as possible. These scales are not designed for the marine environment. Corrosion of the internal hangers, zero adjustment and poise weights are the leading cause of scale damage. Rinse the scale off when finished with it, ***preferably with fresh water,*** and store it in a dry location until its next use.

4. Lubricate the scale often. Lubricate the poise weight bars, the zero adjustment and the floating hangers under the scale with a light oil as often as possible. This will reduce corrosion and improve the performance of the scale.

5. Move the zero adjustment daily. The zero adjustment assembly (located on the top left side of the balance beam) is the first part of the scale to fail due to corrosion. The weight and screw are prone to seize together. Be sure to move it at least five full turns every day to prevent this. Lubricate it often with a product such as WD-40 or LPS, commonly found on boats.

For information on taring this scale "Taring Your Scales" on page 2-24.

If you have any questions about the use or care of your flatbed scale please consult a staff member.

Returning the Scale

Before checking-in the scale, ***rinse it well with fresh water.*** The scale will need to be retested upon your return. Test the scale at 10 kg, 20kg, and 35 kg and record the results in your logbook. Check the results against the NMFS acceptable accuracy range. If your scale does not fall within acceptable limits be sure to note this in your logbook and bring it up during your debriefing.

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Appendix AA. Species Identification Rules and Tricks

USING THE SPECIES IDENTIFICATION MANUAL

Arrangement and Use of the Manual

The Species Identification Manual is a compilation of dichotomous keys and a guide: keys to families, sculpins, flatfishes, cods, salmons, skates, and crabs, and a guide for rockfishes.

Each of the dichotomous keys is essentially a chain of decisions the observer has to make regarding the presence, absence, or condition of morphological characters. The guide to rockfishes is not dichotomous, but is designed to be used in a process of stepwise elimination, successively narrowing the pool of candidate species based on suites of morphological characters.

To successfully use the manual, the observer must ***Read the manual carefully*** and be familiar with the characteristics that the key or guide is referencing. Fish identification training covers the basics of the morphological terminology used in the guide; however, for any unfamiliar terms, the observer should reference the "Methods and Definitions" section at the beginning of the manual and diagrams that preface several of the keys.

Some Helpful Hints for Each Section

Family-level key

The family-level key includes many, but not all, of the families of fishes represented in the northern Gulf of Alaska, Aleutian Islands, and Bering Sea. This is where you should start if you can't confidently place your fish in one of the groups for which we have a key. Because the family-level key divides nearly all the fishes of the area into family groups, the diversity of shape and form is considerable. Thus, characters used in the key are often not very subtle (*e.g.*, absence of pelvic fins, number of dorsal fins, body length, etc.). Success with the family key is predicated on a careful reading of the couplets and an understanding of the terminology that describes these morphologically varied groups.

Key to Sculpins

Alaska's marine waters are home to over 70 species of sculpins. Groundfish observers typically encounter only a fraction of these species, and are only required to identify a small subset of them to the species level. To identify the sculpins, observers must be familiar with a series of characters that are often subtle and require some familiarity to interpret. The following are important characters used in the key, the states of which must be clearly identified for the key to be used successfully:

- **Broadly connected dorsal fin versus separate or adjacent dorsal fins.** Taxa with broadly connected fins (*i.e.*, Irish lords), clearly have what appears to be a single, continuous dorsal fin. If unsure, it's best to choose separate or adjacent.
- **Presence of an anal scale row.** This is an important character for the identification of the longfin Irish lord. Unfortunately, scales in this band, positioned directly above and parallel to the long axis of the anal fin, are **SMALL** or, in some cases **MINUTE**. It's important to look carefully and try to **FLUFF THE SCALES WITH FORCEPS OR A SMALL KNIFE**.
- **Minute prickles**. This diagnostic character of the bigmouth sculpin is often misinterpreted or overlooked. In this species the body is **ENTIRELY** covered by **SMALL WART-LIKE BUMPS.**
- **Stellate scales.** These scales, present above the lateral line only in the **PLAIN AND WARTY SCULPINS**, resemble the individual scales of a starry flounder in that they are isolated scales with **MANY CTENII** (minute spines) distributed all around the scale, not just on the posterior margin.

Key to Flatfishes

The Orr, Baker, and Brown key works extremely well for our species of flatfishes. Nearly all the species can be diagnosed by a relatively small suite of discrete characters. Because they break up the key into major groups of species, you should focus on the following characters:

- **Symmetrical versus asymmetrical placement of pelvic fins on the abdominal ridge**
- **Presence of tuberculate (very rough) scales**
- **Presence of an accessory dorsal branch (ADB) of the lateral line**
- **Size of mouth relative to the orbit**
- **Degree to which the lateral line arches over the pectoral fin**

***Important*:** Several species in the key are diagnosed, at least in part, by gill-raker count. It's imperative that the count be taken from **BOTH THE BLIND AND EYED SIDE** of the fish. In the case that there is a discrepancy, **USE THE HIGH COUNT.** In addition, even the smallest element on the gill arch must be counted as a gill raker. Counting both sides, using the high count, and being sure to find all the elements on the arch are especially important when identifying rock soles.

Key to Cods and Hakes
The cod key is rather straightforward, covering only six species. The characters important for the identification of species in this key include:

- **Number of dorsal and anal fins**
- **Size of the chin barbel relative to the diameter of the pupil**
- **Morphology of the lateral line, whether broken or solid, wavy or straight**

Key to Salmon
Salmon in marine waters can be difficult to identify to species. The characters used to diagnose the species are subtle and, in some cases, variable. The best character complex for the identification of these species is the presence or absence of spots and silver washing on the caudal fin. In most cases, the common species of Pacific salmon can be identified based on the following characters as outlined in the key:

- **King:** Diffuse silver over entire caudal fin, spots on both lobes
- **Coho:** Silver present on anterior three quarters of fin, spots on upper lobe only
- **Chum:** Silver isolated to rays, absent from membranes; spots absent
- **Pink:** No silver on fin, spots on both lobes
- **Sockeye:** No spots, no silver

Other characters that may be helpful in the identification of these species include the small scales of the pink salmon, the often black gums of the king, the high number of gill rakers of the sockeye, and the narrow caudal peduncle of the chum.

Key to Skates
The species of skates encountered in our fishing area are generally easily diagnosed by combinations of unique, discrete characters. The following are characters that establish major divisions within the key:

- **Snout firm *versus* flexible**. If the snout can be bent and rolled on itself (like one would roll out a carpet), the snout is considerable flexible, a character that diagnoses species of the genus Bathyraja. Note however, that a firm snout can be broken.
- **Presence or absence of thorn groups.** It is very important that the thorn groups be correctly identified. Refer to the schematic diagram at the front of the skate key.

***Important*:** The Bering skate, one of the most common species in Alaska, displays an unusual degree of morphological variation. Although diagnosed as having scapular thorns, Bering skates may be missing scapular thorns or all the thorns on the disc. These specimens are commonly misidentified as mud skates. However, the two species can be distinguished from one another by the mud skate's smaller and more rounded disc and longer tail, which can be quantified by comparing the precaudal length to the tail length. Refer to the skate diagram to make sure these measurements are taken properly.

Rockfish Guide
Rockfishes are a difficult group of species to identify. It is often the case that a rockfish in hand possesses distinctive characters of several species. Because of this, it is important to make species identification based on the **WEIGHT OF EVIDENCE.** In other words, tally up the number of characters for the likely species (plural) and choose the species that shares the most characters. It may be a tie. In that case, go for the most distinctive and less variable characters. Once a provisional identification has been made, it is often

helpful to spend some time **REVIEWING ADDITIONAL CHARACTERS** for that species and comparing with those mentioned in the **SIMILAR SPECIES** sections.

The following should be taken into account when using the rockfish guide:

- **ALWAYS TAKE A SYSTEMATIC APPROACH**. Don't flip wildly through the guide looking for characters you've recognized in the fish in hand. This is a recipe for quick confusion.
- D**O NOT PICTURE KEY**, matching the specimen in hand to the picture in the guide. Rockfishes are too variable—no one picture could capture variation of a species.
- No matter how sure you are of your ID, **ALWAYS READ THE "SIMILAR SPECIES" SECTION.**
- Use strength and number of **HEAD SPINES FOR RED ROCKFISHES,** rely less on peritoneum color.
- Use **PERITONEUM COLOR FOR BLACK ROCKFISHES**, rely less on head spines.

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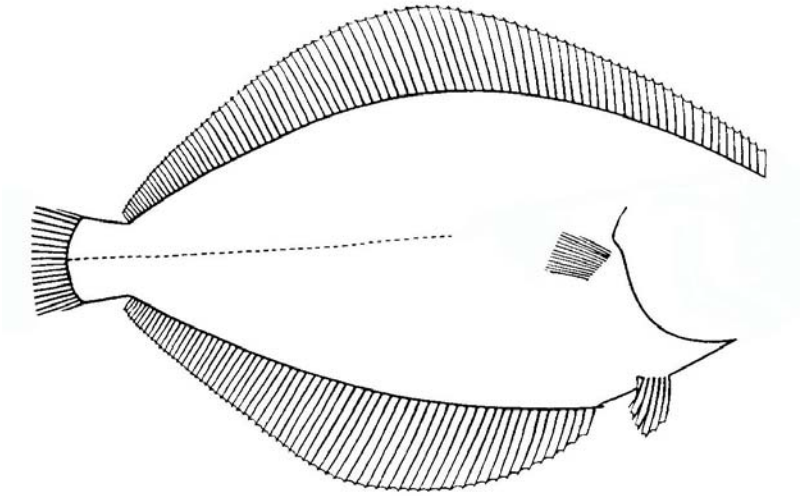
Appendix AB: Flatfish Species Description Form

Flatfish Species Description Form

Vessel name:_____	Vessel code:_____
Species common name: _____	
Observer:_____	Cruise:_____
Haul #:_____	Fork length:_____
Specimen collected? _____	Weight:_____

Complete the diagram below using the specimen in your hand. Include:

1. mouth, showing the size
2. preopercle and tail shape
3. eyes, size and position
4. lateral line shape
5. ADB size
6. distinctive markings or structures (spots, distinctive scales, etc.)



Field characteristics used in recognizing this species:

_____

_____

_____

_____

(OVER)

Flatfish Species Description Form

Right-eyed or Left-eyed? RIGHT LEFT

Pelvic fins symmetrical around abdominal ridge? YES NO

Describe the lateral line, including presence/absence of ADB, length of ADB, and shape of lateral line over the pectoral fin:_____
_____
_____

Can the dorsal eye be seen from the blind side? YES NO

Describe the color of the blind side:_____

Where does the maxilla end relative to the lower (ventral) eye?

_____forward of orbit _____below posterior part of orbit
_____below anterior part of orbit _____beyond the orbit
_____below mid-eye

The posterior margin of the preopercle is: ANGLED ROUNDED

Is the anal spine present? YES NO

Gill rakers on first arch:

Eyed side	Blind side
_____Upper	_____Upper
_____Lower	_____Lower
_____Total	_____Total

Gill rakers on upper part of second arch (if arrowtooth or Kamchatka):_____

Appendix AC: Rockfish Species Description Form

Rockfish Species Description Form

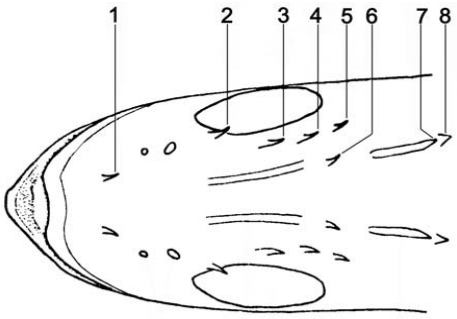
Vessel name:_____	Vessel code:_____
Species common name: _____	
Observer:_____	Cruise:_____
Haul #:_____	Fork length:_____
Specimen collected? _____	Weight:_____

Which color category is this specimen?_____

Head spine strength (circle one):

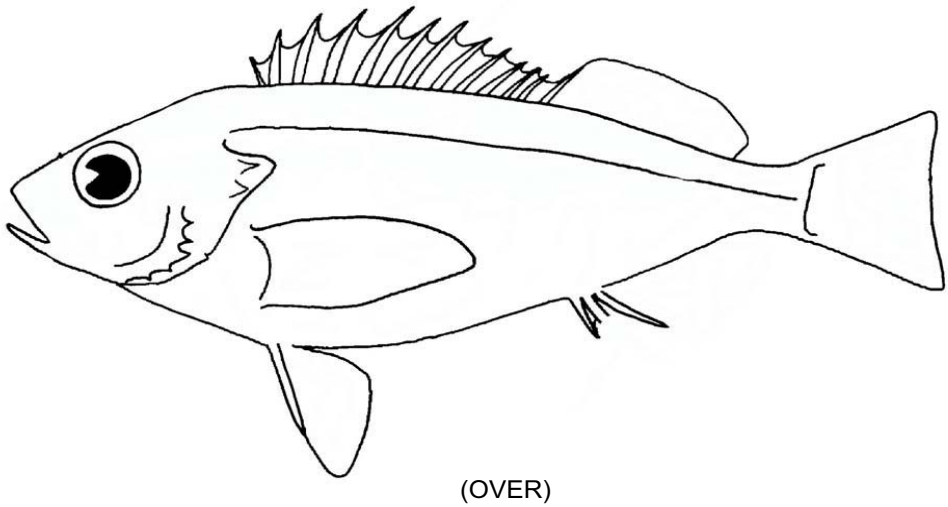
WEAK STRONG

Circle the numbers of all head spines present:



Draw the characteristics you used to identify this species, including the following:

1. Symphyseal knob
2. Maxilla
3. Anal fin spine and membrane
4. Pigment pattern



(OVER)

Rockfish Species Description Form

Is a symphyseal knob present? If so, describe it:_____

Dark blotches on body? – (Draw these on front of form)

_____None
_____Above lateral line only
_____Bars extending below lateral line
_____Dispersed all over body

Markings on opercle? – (Draw these on front of form)

_____None
_____Bars radiating from eye
_____Diffuse opercular blotch
_____Distinct opercular blotch

Peritoneum color:_____

Describe the anal fin slant relative to body axis and relative length of anal spines:

_____
_____
_____

Are suborbital spines present? (and if so, how many?):_____

Coloration and other field characteristics important in recognizing this species:

_____
_____
_____
_____

Appendix AD: Sculpin and Salmon Species Description Forms

Sculpin Species Description Form

Vessel name: _____ Vessel permit: _____

Species common name: _____

Observer: _____ Cruise: _____

Haul / Offload #:_____ sample #_____ Fork length: _____

Specimen collected? _____ Weight: _____

Dorsal fin: SEPARATE/ADJACENT CONNECTED

Dorsal scales band: YES NO if present how many rows: _____

Anal scales row: YES NO

Stellate scales above lateral line: YES NO

Describe upper preopercular spine:_____

_____

Describe pigment on body pattern:_____

_____

Describe pelvic fins:_____

_____

Describe caudal fin (shape, coloration, pattern):_____

_____

Draw the specimen, include the following:

1. Upper preopercular spine
2. Dorsal, caudal, pelvic fins
3. Scales
4. Pigment pattern

Other Characteristics:_____

_____

_____

National Marine Fisheries Service/Fisheries Monitoring and Analysis Division Cr. 09

Salmon Species Description Form

Vessel name: _____ Vessel permit: _____

Species common name: _____

Observer: _____ Cruise: _____

Haul / Offload #:_____ sample #: _____ Fork length: _____

Scales collected? _____ Weight: _____

Silver on caudal fin:	NO	rays & membranes	rays only
Spots on caudal fin:	NO	YES	
Color at base of teeth:	black	white w/black rim	other
Spots on the operculum:	NO	YES	

Describe the caudal fin: _____

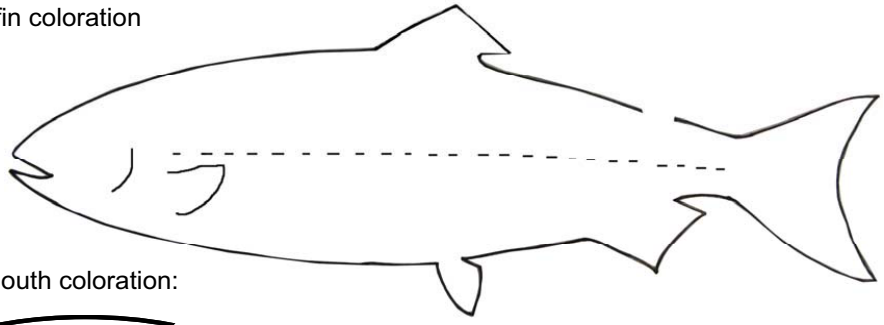
_____

Describe the body coloration and scale size: _____

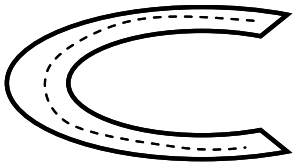
_____

Draw the characteristics you used to identify this species, including the following:

1. Caudal fin coloration
2. Spots



Draw the mouth coloration:



Gill rakers on first arch _____ (total)

Other useful characteristics: _____

_____

Appendix AE: Miscellaneous Species/ Crab Description Form

Miscellaneous Species Description Form

Vessel name:_____ Vessel code:_____

Species common name: _____

Observer:_____ Cruise:_____

Haul #:_____ Fork length:_____

Specimen collected? _____ Weight:_____

FISHES:

How many dorsal fins does the fish have? 1 2 3

Is an adipose fin present? YES NO

Pelvic fins? Present Absent

Pelvic fin position: abdominal thoracic jugular

Describe the caudal peduncle (if present) and caudal fin shape:

_____

_____

Describe the lateral line(s) if present:

_____

_____

Draw the fish here:

Field characteristics important in recognizing this species:

_____

_____

_____

_____

Crab Species Description Form

Vessel name:_____	Vessel code:_____
Species common name: _____	
Observer:_____	Cruise:_____
Haul #:_____	Carapace size:_____
Specimen collected? _____	Weight:_____

CRABS:

How many pairs of walking legs does the crab have?_____

Describe the carapace shape as well as any spines, bumps, hairs, or decorations present on the carapace and legs:_____

_____

_____

Draw the crab here, including a full view of the carapace as well as a detailed view of the rostrum:

Field characteristics important in recognizing this species:

_____

_____

_____

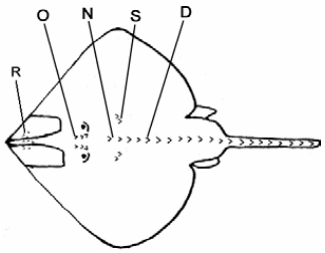
Appendix AF. Skate Species Description Form

Skate Species Description Form

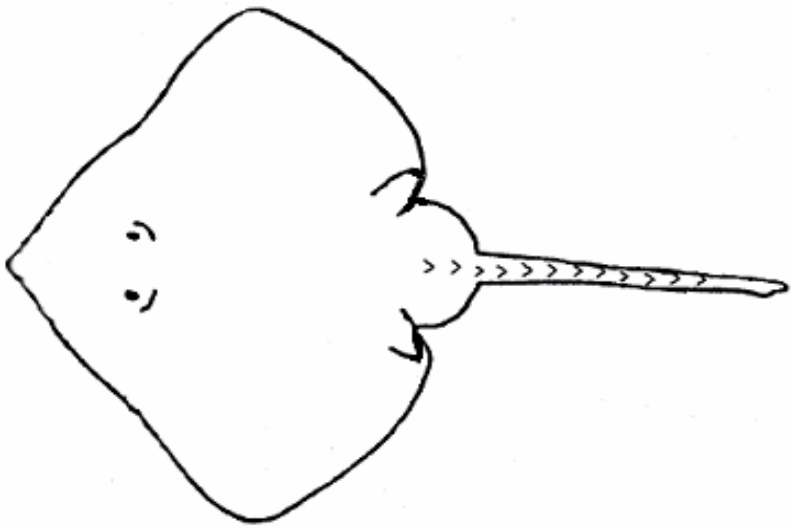
Vessel name:_____	Vessel code:_____
Species common name: _____	
Observer:_____	Total length:_____
Cruise:_____	Precaudal length:_____
Haul #:_____	Tail length:_____
Specimen collected? _____	Weight:_____

Which series of thorns are present?

_____ Rostral
_____ Scapular
_____ Orbital
_____ Mid-dorsal
_____ Nuchal



Draw the thorns and any distinctive pigment patterns on this diagram:



Additional field characteristics used to identify this species:

_____

_____

_____

(OVER)

Skate Species Description Form

What is the dorsal coloration of the skate?

uniform brown or gray	dark with light blotches
uniform black	dark with white “eyebrows”
other:_____	

What is the ventral coloration of the skate?

uniform light	light, with dark tail
uniform dark	dark, with white areas
other:_____	

Describe the pattern of denticles on the dorsal (upper) and ventral (lower) surface:

_____

_____

_____

_____

Appendix AG: Seabird Species Description Form (for Dead Birds)

Seabird Species Description Form

Cruise #: _____

Species common name: _____ Permit #: _____

Date: _____ Haul # OR Lat / Long: _____

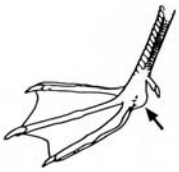
Specimen collected: Y N Drop off location: _____Photos taken? Y N

Length of bird - measure straight line from the tip of bill to longest tail feather: _____ cm

Foot type: (Circle one or describe)

3 webbed toes

3 webbed toes, 4th minute, flat heel



3 webbed toes, 4th minute, swollen heel

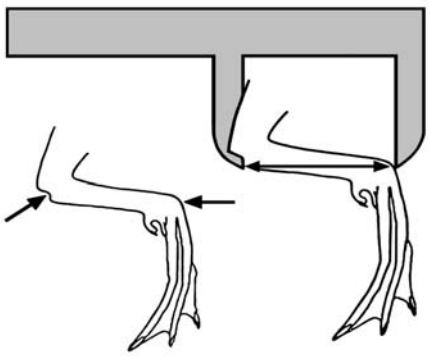
3 webbed toes; 4th toe free, with fleshy flap

4 webbed toes

Other foot type, describe and draw: _____

_____

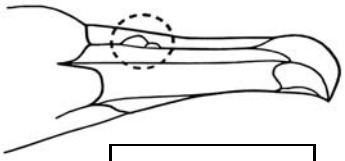
Tarsus measurement: (For all tubenoses and unidentified birds)



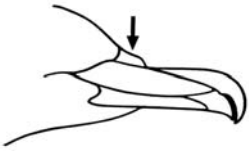
The tarsus or leg measurement is the long bone connecting the ankle to the foot. It is measured diagonally across the bone from the middle groove of the ankle joint to the top edge of the foot.

Tarsus length: _____ mm

Bill shape: (Circle one or describe)

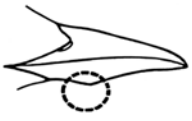


Hooked bill
Nasal tubes on side

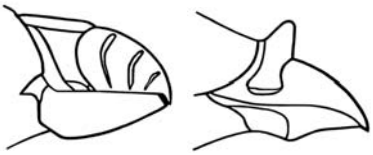


Hooked bill
Nasal tubes on top

Hooked bill
Arch on lower mandible



Dark, smooth, pointed bill; arch on lower mandible



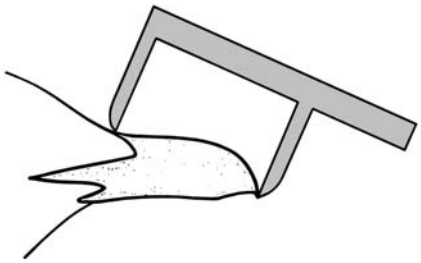
Orange, with grooves, horn or bump

Duck-like bill with feathers

Duck-like bill with knob

Other bill shape, describe and draw.

Bill measurement: (All birds)



Bill length or exposed culmen, is the straight-line distance between the tip of the bill and the point where the bill meets the skin or feathers of the forehead. Place one end of the dividers at the tip of the bill and measure the diagonal distance to the forehead feathers.

Bill length: _____ mm

Wing chord measurement: (All birds)

In a relaxed folded wing, the wing chord is the distance between the wrist bend and the tip of the longest primary feather. Do not stretch out the wing. For accuracy, gently lay the wing against the ruler (do not flatten) and line the end of the ruler up with the wrist.

Wing chord length: _____ cm

Additional identifying characteristics or notes:

Appendix AH: Protocols for Handling Injured or Sick Seabirds

Safety First! Be very careful when handling live birds. Heavy rubber protective gloves are advised. All birds have sharp beaks and strong jaws that can cause serious injury.

If you encounter an injured or sick ***species of interest*** seabird, follow the protocols outlined below and contact your inseason advisor or NMFS staff as soon as possible.

Please note that rehabilitating seabirds should only be done for short tailed albatross and other species of interest.

SEABIRD HANDLING SAFETY

Do not attempt to recover a sick or injured seabird when it is not safe. Seabirds may become aggressive if they feel threatened. Seabirds carry diseases that are transmissible to humans. Avoid contact with bodily fluids. ***Always wear gloves when handling seabirds and keep the seabird at or below your waist protecting your face.*** Wear safety glasses if they are available. Clean and treat all cuts and scratches you may receive. Wash your hands thoroughly after handling seabirds.

OILED SEABIRDS

Properly cleaning oiled seabirds is a highly specialized and labor intensive process. These birds cannot be properly cared for at sea. Even slightly oiled birds stand little chance of recovery. Your best course of action is to euthanize and collect the seabird, unless it is a species of interest. If you have a species of interest seabird, assess it's condition and contact your inseason advisor. If you are not comfortable euthanizing the bird you may return it to the sea. Please record these instances in your logbook and relay them to your debriefer. Euthanizing the bird and saving the carcass supports U.S. Fish and Wildlife bilge oil monitoring and compliance programs. The specimen will be further valued by supporting other scientific uses as well. Most importantly, you end the birds suffering. Please euthanize the seabird, wrap it in aluminum foil, and save it following the bag and tag instructions (see "Tag and Bag Procedures for Retained Seabird Specimens" on page 16-4)

INJURED OR SICK BIRDS

For apparently minor injuries (small lacerations, web tears, minor stunning, etc.), release the bird if:

- you are so advised, or
- the bird meets ***all*** the following release criteria.

Release Criteria

1. Bird can stand and walk using both feet.

2. Bird can flap both wings and there is no apparent wing droop.

3. Bird is alert, active, holds it head up and reacts to stimuli (motion, light, etc.).

4. Bird is not bleeding freely.

5. Wing and tail feathers have not been lost and are in good condition.

6. Bird is waterproof (water beads up on feathers).

Retain birds that do not meet all of these criteria!

Rehabilitating Short Tailed Albatross and Other Species of Interest

Take the following steps to rehabilitate the seabird.:

1. Wear gloves, eye protection, and rain gear.

2. Capture the bird without jeopardizing the safety of yourself or the crew and place it in box or container. The bird should not have enough room to further injure itself.

3. Do not restrict a live bird from opening its bill with tape or a rubber band, etc.

4. Ensure adequate ventilation of the container.

5. Never put a bird in an overly warm place (*e.g.*, engine room) or use external heat sources to dry a wet bird (*e.g.*, hair dryer, space heater, etc.).

6. Treat a wet bird by gently blotting excess water from the bird with paper towels.

7. Keep bird inside the container in a quiet, dry place and minimize handling.

8. Contact your inseason advisor or NMFS staff immediately. Record recovery location (latitude and longitude), time, persons involved and why and how

the bird was recovered. Also record when the bird eats or drinks.

9. Place a container of cool, fresh water with the bird, if the possibility of spilling is minimal.

10. Place absorbent material in the bottom of the container to minimize contact with feces. Replace the material when soiled.

11. Food may be offered if the bird is alert. Try offering a hard-boiled egg or small pieces of fish liver.

Release the species of interest birds only when advised to do so.

Transporting Sick or Injured Birds

Sick or injured species of interest may need to be transported. You will get specific care and transport instructions when you contact NMFS staff.

SACRIFICING BIRDS

If the bird is seriously injured, sick, suffering, oiled or appears to be dying and it ***is not*** a species of interest, you may euthanize the bird. For species of interest seabirds, attempt to contact NMFS staff before proceeding with euthanization. Note any band or tag information in your logbook.

Field Procedures for Sacrificing Birds

Administer euthanasia away from the crew. The preferred field methods for euthanizing birds are cervical dislocation (breaking the neck) and decapitation.

Cervical Dislocation

Place the bird's head, bottom of the bill down, on a flat, solid surface. Place a solid rod (stick, dowel, etc.) on the neck directly behind the head. Holding the rod firmly on the neck, seize the body in the other hand, and give a quick, definite and strong yank backwards without letting the head move. You should feel the neck stretch and break. A slow or tentative motion will not work. It may help to pull the bird's body up as well as backward. The bird may shudder or tremble for a minute. Repeat the procedure if necessary.

Decapitation

Wear gloves to reduce contact with bodily fluids. Use a large, heavy knife or axe. Cut through the neck in one stroke. This procedure is quick and minimizes suffering.

Retaining Euthanized Specimens

For all species of interest, follow the “Tag and Bag Procedures for Retained Seabird Specimens” on page 16-4, unless advised otherwise. For all other species, discard at sea, unless advised otherwise.

Appendix AI: Material Safety Data Sheet for DMSO

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSOS Name: Dimethyl Sulfoxide

Catalog Numbers: S79994REAG, BP231 I, BP231 4, BP231-1, BP231-4, BP2311, BP2314, BP2314 001, BP2314 002, BP2314001, BP2314002, BP2620100, 0128 1,01284,0128500,0128-1,0128-4,0128-500,01281,01284, 0128500,01361,0136-1,01361, NC9529973, NC9530475, NC953 1964, NC9750632, XXBP23120BLI, XXBP23120LI, XXBP23120LI/SP, XXEP231ET4LI

Synonyms: Methyl Sulfoxide; DMSO; Sulfinylbis (Methane).

Company Identification: Fisher Scientific I Reagent Lane, Fairlawn, NJ 07410. For information, call: 201-796-7100. **Emergency Number:** 201-796-7100

For CHEMTREC assistance, call: 800-424-9300. For International CHEMTREC assistance, call: 703-527-3887

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#
67-68-5	Methane, Sulfinylbis	100	200-664-3

Hazard Symbols: XI

Risk Phrases: 22 36/38

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: Harmful if swallowed. Irritating to eyes and skin. Hygroscopic.

Potential Health Effects

Eye: Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause chemical conjunctivitis.

Skin: May cause irritation with burning pain, itching and redness. Substance is rapidly absorbed through the skin. Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause garlic smell on the breath and body.

Inhalation: May cause respiratory tract irritation. Can produce delayed pulmonary edema. **Chronic:** Prolonged or repeated skin contact may cause dermatitis. May cause liver and kidney damage. Effects may be delayed.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. DO NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth resuscitation.

Notes to Physician: Treat symptomatically and supportively

SECTION 5: FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.

Extinguishing Media: Cool containers with flooding quantities of water until well after fire is out. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

SECTION 6: ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (*e.g.* vermiculite, sand or earth), then place in suitable container. Do not flush into a sewer. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation.

SECTION 7: HANDLING AND STORAGE

Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR:1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	liquid	**Appearance**	clear
Odor	slight, sulfur- or garlic-like	**pH**	not available
Vapor Pressure	0.4 mm Hg at 20	**Vapor Density**	2.7 (air = 1)
Evaporation Rate	not available	**Viscosity**	1.lcp @ 27 deg
Boiling Point	189 deg C	**Freezing Point**	18.45 deg C
Autoignition Temp.	215 deg C	**Flash Point**	95 deg C
Explosion Limits (upper)	42.00 vol%	**Explosion Limits (lower)**	2.60 vol%
Decomp. Temp.	> 200 deg C	**Solubility**	soluble
Specific Gravity	1.10 10g/cm3	**Molecular Formula**	C2H60S
Molecular Weight	78.13		

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Conditions to Avoid: Incompatible materials, excess heat, strong oxidants.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, strong bases.

Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide.

Hazardous Polymerization: Has not been reported.

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS#: CAS# 67-68-5: PV6210000

LD50/LC50: CAS# 67-68-5: Draize test, rabbit, eye: 500 mg/24H Mild; Draize test, rabbit, skin: 500 mg/24H Mild; Oral, mouse: LD50 = 7920 mg/kg; Oral, rat: LD50 = 14500 mg/kg; Skin, rat: LD50 = 40 gm/kg.

Carcinogenicity: Methane, Sulfinylbis- -Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: No information available.

Other Studies: No information available.

See actual entry in RTECS for complete information.

SECTION 12: ECOLOGICAL INFORMATION

Other: For more information, see "Handbook of Environmental Fate and Exposure Data."

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

US DOT No information available; Canadian TDG No information available.

SECTION 15: REGULATORY INFORMATION

US Federal:TSCA CAS# 67-68-5 is listed on the TSCA inventory. This material does not contain any Class 2 Ozone depletors. Clean Water Act: No information available.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

State: Methane, Sulfinylbis- is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California: No Significant Risk Level: None of the chemicals in this product are listed.

Canada: CAS# 67-68-5 is listed on Canada's DSL List. CAS# 67-68-5 is listed on Canada's Ingredient Disclosure List.

SECTION 16: ADDITIONAL INFORMATION

MSDS Creation Date: 12/12/1997 Revision #4 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. How- ever, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary dam- ages, howsoever arising, even if the company has been advised of the possibility of such damages

Appendix AI: Material Safety Data Sheet for 100% Formalin

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

MSDS Name: FORMALDEHYDE SOLUTION 37%
Catalog Numbers: S74337, S74338, S80018-2, BP530-25, BP530-500, BP53025, BP531-25, BP53 1-500, F75P20, F75P4, F77 20, F77 200, F7720, F77200, F77200LC, F7720LC, F77P 20, F77P 4, F77P20, F77P4, F79 I, F79 20, F79 200, F79 4, F79 500, F791, F7920, F79200, F794, F79500, F79J4, F79P 20, F79P 4, F79P20, F79P4, NC9475399, S74337MF, S74338MF

Synonyms: None.

Company Identification: Fisher Scientific I Reagent Lane, Fairlawn, NJ 07410. For information, call: 201-796-7100. **Emergency Number:** 201-796-7100

For CHEMTREC assistance, call: 800-424-9300 For International CHEMTREC assistance, call: 703-527-3887.

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#
50-00-0	Formaldehyde	37	200-001-8
67-56-1	Methyl alcohol	15	200-659-6
7732-18-5	Water	48	231-791-2
Not avail.	Odor mask	0.0-1.1	unlisted

Hazard Symbols: T

Risk Phrases: 1023/24/25 344043

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: Flammable. Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Possible risks of irreversible effects. May cause sensitization by skin contact.

Potential Health Effects

Eye: Causes eye irritation. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause cyanosis of the extremities.

Ingestion: May be fatal or cause blindness if swallowed. Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause central nervous system depression.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, head- ache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause burning sensation in the chest.

Chronic: Repeated exposure may cause skin discoloration and thickening and nail decay. Repeated inhalation is associated with nasal and nasopharyngeal cancer.

SECTION 4: FIRST AID MEASURES

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.

Skin: Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

SECTION 5: FIRE FIGHTING MEASURES

General Information: As in any fire, wear a flash back. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (*e.g.* vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

SECTION 7: HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well- ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep containers tightly closed.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	liquid	**Appearance**	not available
Odor	none reported	**pH**	not available
Vapor Pressure	not available	**Vapor Density**	> 1.0
Evaporation Rate	not available	**Viscosity**	not available
Boiling Point	212 deg F	**Freezing Point**	32 deg F
Autoignition Temp.	not available	**Flash Point**	122 deg F
Explosion Limits (upper)	not available	**Explosion Limits (lower)**	not available
Decomp. Temp.	not available	**Solubility**	soluble in water
Specific Gravity	not available	**Molecular Formula**	Mixture
Molecular Weight	not available		

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, oxidizers.

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS#: CAS# 50-00-0: LP8925000; CAS# 67-56-1: PC1400000; CAS# 7732-18-5: ZC0110000

LD50/LC50: CAS# 50-00-0: Draize test, rabbit, eye: 750 ug/24H Severe; Draize test, rabbit, eye: 750 ug Severe; Draize test, rabbit, eye: 10 mg Severe; Draize test, rabbit, skin: 2 mg/24H Severe; Draize test, rabbit, skin: 50 mg/24H Moderate; Inhalation, mouse: LC50 = 454 gm/rn3/4H; Inhalation, rat: LC50 = 203 mg/rn3; Oral, mouse: LD50 = 42 mg/kg; Oral, rat: LD50 = 100 mg/kg; Skin, rabbit: LD50 = 270 uL/kg. CAS# 67-56-1: Draize test, rabbit, eye: 40 mg Moderate; Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, skin: 20 mg/24H Moderate; Inhalation, rat: LC50 = 64000 ppm/4H; Oral, mouse: LD50 = 7300 mg/kg; Oral, rabbit: LD50 = 14200 mg/kg; Oral, rat: LD50 = 5628 mg/kg; Skin, rabbit: LD50 = 15800 mg/kg. CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.

Carcinogenicity: Formaldehyde - ACGIH: A2 suspected human carcinogen; California: carcinogen; initial date 1/1/88; NIOSH: occupational carcinogen; NTP: Suspect carcinogen; OSHA: Possible Select carcinogen; IARC: Group 2A carcinogen. Methyl alcohol- Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. Water- Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Neurotoxicity: No data available.

Mutagenicity: No data available.

Other Studies: No data available.

SECTION 12: ECOLOGICAL INFORMATION

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

US DOT Shipping Name: FORMALDEHYDE, SOLUTIONS, FLAMMABLE; Hazard Class: 3; UN Number: UNl198; Packing Group: III; Canadian TDG No information available.

SECTION 15: REGULATORY INFORMATION

US Federal:TSCA CAS# 50-00-0, CAS# 67-56-1 and CAS# 7732-18-5 are listed on the TSCA inventory. This material does not contain any Class 2 Ozone depletors.

Clean Water Act: CAS# 50-00-0 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CW A. None of the chemicals in this product are listed as Toxic Pollutants under the CWA. OSHA: CAS# 50-00-0 is considered highly hazardous by OSHA.

State:Formaldehyde can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. Methyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. Water is not present on state lists from CA, PA, MN, MA, FL, or NJ. The following statement(s) is (are) made in order to comply with the California Safe Drinking Water Act: WARNING: This product contains Formaldehyde, a chemical known to the state of California to cause cancer. California No Significant Risk Level: CAS# 50-00-0: no significant risk level = 40 ug/day.

Canada:CAS# 50-00-0, CAS# 67-56-1 and CAS# 7732-18-5 are listed on Canada's DSL List. CAS# 50-00-0 and CAS# 67- 56-1 are listed on Canada's Ingredient Disclosure List. CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

SECTION 16: ADDITIONAL INFORMATION

MSDS Creation Date: 7/12/1999 Revision #6 Date: 08/02/2000

The information above is believed to be accurate and represents the best information currently available to us. How- ever, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular

purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

Appendix AI: Material Safety Data Sheet for 10% Formalin

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: 10% BUFFERED FORMALIN
Catalog Numbers: SF99 20, SF99 4, SF9920, SF994

Synonyms: None.

Company Identification: Fisher Scientific 1 Reagent Lane, Fairlawn, NJ 07410 For information, call: 201-796-7100. **Emergency Number:** 201-796-7100

For CHEMTREC assistance, call: 800-424-9300. For International CHEMTREC assistance, call: 703-527-3887

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#
50-00-0	Formaldehyde	37	200-001-8
67-56-1	Methyl alcohol	15	200-659-6
7732-18-5	Water	48	231-791-2
127-09-3	Sodium Acetate	1.2-2.0	204-823-8

Hazard Symbols: None Listed.

Risk Phrases: None Listed.

SECTION 3: HAZARDS IDENTIFICATION EMERGENCY

Emergency Overview: Not available.

POTENTIAL HEALTH EFFECTS

Eye: Causes eye irritation.

Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re- exposure to this material.

Ingestion: Cannot be made non-poisonous. May cause central nervous system depression, kidney damage, and liver damage. Causes gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: Causes respiratory tract irritation. May cause allergic respiratory reaction.

Chronic: May cause cancer according to animal studies. May cause reproductive and fetal effects.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give any- thing by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

SECTION 5: FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHAINIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.

SECTION 6: ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (*e.g.* vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section.

SECTION 7: HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Wash hands before eating. Use only in a well-ventilated area. Do not get in eyes.

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Section 8: Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State	liquid	**Appearance**	not available
Odor	none reported	**pH**	not available
Vapor Pressure	not available	**Vapor Density**	not available
Evaporation Rate	not available	**Viscosity**	not available
Boiling Point	not available	**Freezing Point**	not available
Autoignition Temp.	not available	**Flash Point**	194 deg F
Explosion Limits (upper)	not available	**Explosion Limits (lower)**	not available
Decomp. Temp.	not available	**Solubility**	soluble in water
Specific Gravity	not available	**Molecular Formula**	Mixture

Section 10: Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Conditions to Avoid: Incompatible materials, excess heat.

Incompatible with Other Materials: Strong oxidants.

Hazardous Decomposition Products: Irritating and toxic gases. Hazardous Polymerization: Has not been reported.

Section 11: Toxicological Information

RTECS#: CAS# 50-00-0: LP8925000; CAS# 67-56-1: PC1400000; CAS# 127-09-3: AJ4300010; CAS# 7732-18-5: ZCOIIOOOO

CAS# 50-00-0: Draize test, rabbit, eye: 750 ug/24H Severe; Draize test, rabbit, eye: 750 ug Severe; Draize test, rabbit, eye: 10 mg Severe; Draize test, rabbit, skin: 2 mg/24H Severe; Draize test, rabbit, skin: 50 mg/24H Moderate; Inhalation, mouse: LC50 = 454 gm/m3/4H; Inhalation, rat: LC50 = 203 mg/m3; Oral, mouse: LD50 = 42 mg/kg; Oral, rat: LD50 = 100 mg/kg; Skin, rabbit: LD50 = 270 uL/kg. CAS# 67-56-1: Draize test, rabbit, eye: 40 mg Moderate; Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, skin: 20 mg/ 24H Moderate; Inhalation, rat: LC50 = 64000 ppm/4H; Oral, mouse: LD50 = 7300 mg/kg; Oral, rabbit: LD50 = 14200 mg/kg; Oral, rat: LD50 = 5628 mg/kg; Skin, rabbit: LD50 = 15800 mg/kg. CAS# 127-09-3: Draize test, rabbit, eye: 10 mg Mild; Draize test, rabbit, skin: 500 mg/ 24H Mild; Inhalation, rat: LC50 = >30 gm/ m3/IH; Oral, mouse: LD50 = 6891 mg/kg; Oral, rat: LD50 = 3530 mg/kg; Skin, rabbit: LD50 = >10 gm/kg. CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.

Carcinogenicity: Formaldehyde - ACGIH: A2 - suspected human carcinogen; California: carcinogen; initial date 1/1/88; NIOSH: occupational carcinogen; NTP: Suspect carcinogen; OSHA: Possible Select carcinogen; IARC: Group 2A carcinogen Methyl alcohol - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. Sodium Acetate - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. Water - Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No data available.

Specific Development Abnormalities: craniofacial and musculoskeletal, ipr-mouse TDLo = 240 mg/kg.

Reproductive Effects: Formaldehyde effects on Fertility: male index, itt-rat TDLo=400 mg/kg; post-implantation mortality, ims-mouse TDLo=259 mg/kg. Paternal Effects: spermatogenesis, orl-rat TDLo=200 mg/kg; testes/sperm duct/ epididymis, ipr-rat TDLo=80 mg/kg.

Neurotoxicity: No information available.

Mutagenicity: Formaldehyde DNA Damage: human fibroblast 100 umol/L DNA Inhibition: human cell types 210 umol/L. Unscheduled DNA Synthesis: rat cell types 50 umol/L. Gene Mutation in Mammalian Cells: human lymphocyte 130 umol/L.

Other Studies: No data available.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Atlantic salmon LC50=173 uL/L/96H; Catfish (fresh water) TLm=32pprn/24H; Flounder (salt water) TLm=100-330 ppm/48H; Fathead minnowLC50=10-100 uL/L/96H; Rainbow trout LC50= 168mg/L/48H; Zebrafish LC50=41mg/L/96H; Water flea LC50=52 mg/L/24H. Cas# 50-00-0: LC50(96Hr.) rainbow trout = 0.12 mL/L; flowthrough bioassay; LC50(96Hr.) fathead minnow = 24.1 mg/L; flowthrough conditions; LC50 (96Hr.) bluegill = 0.10 mg/L; Flow-through conditions; EC50 (96Hr.) water flea = 20 mg/L; EC50 (30 min) photobacterium phospherum = 3.00-10.2 mg/L; Microtox.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

US DOT Shipping Name: AVIATION REGULATED LIQUID, N.O.S (10% FORMALIN); Hazard Class: 9; UN Number: UN3334; Packing Group: No information available; Canadian TDG No information available.

SECTION 15: REGULATORY INFORMATION

US Federal: TSCA CAS# 50-00-0, CAS# 67-56-1, CAS# 127-09-3 and CAS# 7732-18-5 are listed on the TSCA inventory. This material does not contain any Class 2 Ozone depletors. Clean Water Act: CAS# 50-00-0 is listed as a Hazardous Substance under the CW A. None of the chemicals in this product are listed as Priority Pollutants under the CW A. None of the chemicals in this product are listed as Toxic Pollutants under the CWA. OSHA: CAS# 50-00-0 is considered highly hazardous by OSHA.

State: Formaldehyde can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. Methyl alcohol can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts. Sodium Acetate is not present on state lists from CA, P A, MN, MA, FL, or NJ. Water is not present on state lists from CA, PA, MN, MA, FL, or NJ. The following statement(s) is (are) made in order to comply with the California Safe Drinking Water Act: WARNING: This product contains Formaldehyde, a chemical known to the state of California to cause cancer. California No Significant Risk Level: CAS# 50-00- 0: no significant risk level = 40 ug/day.

Canada:CAS# 50-00-0, CAS# 67-56-1, CAS#127-09-3 and CAS# 7732-18-5 are listed on Canada's DSL List. CAS# 50-00-0 and CAS# 67-56-1 are listed on Canada's Ingredient Disclosure List. CAS#127-09-3 and CAS# 7732-18-5 are not listed on Canada's Ingredient Disclosure List.

SECTION 16: ADDITIONAL INFORMATION

MSDS Creation Date: 7/12/1999 Revision #6 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. How- ever, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary dam- ages, howsoever arising, even if the company has been advised of the possibility of such damages.

Appendix AJ: NMFS-Permitted Contractors for the Fisheries Monitoring and Analysis Division

AIS
4516 Union Bay Place NE
Seattle, WA 98105
Phone: 855-247-6746
npgop@aisobservers.com

Alaskan Observers, Inc. (AOI)
130 Nickerson, Suite 206
Seattle, WA 98109
Phone: (206) 283-7310
Fax: (206) 283-6519
E-mail: aoistaff@alaskanobservers.com
www.alaskanobservers.com

NWO, Inc.
P.O. Box 624
Edmonds, WA 98020
Phone: (425) 673-6445
Fax: (425) 673-5995
E-mail: alaska@nwoinc.com
www.nwoinc.com

MRAG Americas Inc.
1810 Shadetree Circle
Anchorage, AK 99502
Phone: (907) 677-8772
Fax: (907) 677-6022
E-mail: bryan.belay@mragamericas.com
www.mragamericas.com

Saltwater, Inc. (SWI)
733 N. Street
Anchorage, AK 99501
Phone: (907) 276-3241
Fax: (907) 258-5999
E-mail: darren@saltwaterinc.com
www.saltwaterinc.com

TechSea International Corp.
12510 33rd Avenue NE
Suite L-103
Seattle, WA 98125
Phone: (206) 285-1408
Fax: (206) 285-1535
E-mail: info@techsea.com
www.TechSea.com

Glossary

A

ABC - "Acceptable Biological Catch" - The annual harvest level that a stock can sustain to maintain the maximum sustainable yield (MSY).

AFA – American Fisheries Act – This Act established a new allocation scheme for Bering Sea Pollock. This Limited Access Privilege Program allowed the formation of fishing cooperatives in which participants of the Bering Sea pollock fishery divide the quota among its members. This Act also requires vessels fishing in the U.S. to be at least 75% owned by U.S. interests.

Aft - Towards the stern or back end of a vessel.

After-scale – Fish that made it past the sorters and into the factory. This bycatch may have been originally weighed as the target species and is deducted from the target species weight. The after-scale weights are added to the appropriate species group on the fish ticket.

AIP- Aleutian Islands Pollock- The AI pollock TAC in the Aleutian Islands is fully allocated to the Aleut Corporation for the purpose of economic development in Adak, Alaska, and is managed separately. Vessels must designate AIP in their logbooks when fishing this allocation.

Allocation - Distribution of the opportunity to fish among user groups or individuals; sometimes based on historical harvest amounts.

Amendment 80 – Non-AFA Catcher Processors in the Bering Sea. This amendment to the FMP of the BSAI establishes a Limited Access Privilege Program for non-pollock catcher processors in the BSAI to form cooperatives that are awarded exclusive rights to the quota of Pacific cod, yellowfin sole, rocksole, flathead sole, Atka mackerel and Pacific Ocean perch, and the associated prohibited species catch.

Amendment 91 (A-91) - Established a cap of the number of Chinook salmon that can be taken as bycatch in the Bering Sea pollock fishery. A-91 affects observer coverage on pollock CVs and observer duties at shoreside plants, pollock CVs, and pollock CPs.

Amidships - Midway between the bow and stern of a ship, or on the centerline.

Anchor/Buoy lines - Sections of line that join the groundline and anchors on the bottom of the ocean to the buoys or "bags" on the surface.

ATLAS – Software that is an electronic data entry program allowing groundfish observers to enter and send data direct from a vessel or plant to NMFS at the Alaska Fisheries Science Center in Seattle.

Autobaiters - A piece of machinery that automatically cuts bait into strips and places the strips on the hooks as the groundline is being set.

B

Bag - The codend; also used for a buoy.

Bait bags/jars - Containers filled with ground bait that are hung inside pots to attract fish.

Beam - Width of a ship.

Benthic - Living in direct relation with the bottom of the sea.

Bias- Tending to yield one outcome more frequently than others. Factors affecting the randomness of a sample, including possible mechanical sorting of catch by an incline belt, or purposeful presorting by a crew member, will introduce bias.

Bight - A loop or turn in a line.

Bin - A large compartment built into a ship for holding fish. Also called live tank, refrigerated seawater tank (RSW tank), lobby.

Bleeder/Sorter - Crewman assigned to sort bycatch out of the catch, and to cut the "throat" of the cod.

Block/Hydro/Hauler - Hydraulically driven wheel into which the groundline is placed during gear retrieval. As the wheel spins the groundline is drawn on board.

Boat Share - The percentage of the gross TAC which goes to the vessel owner.

Bobbin - A round, rubber or steel roller used in the footrope of a bottom net to protect the net from damage.

Bosun - Person in charge of a ship's rigging, anchors, cables and deck crew, Deck Boss.

Bottom - May refer to (1) ocean floor, (2) fishing depth, or (3) a ship hull depending on the context.

Bow - The front section of a boat or ship.

Bowline - A type of knot used to form an eye in the end of a rope.

Brailer - A type of netting that is attached to a crane and used to transport fish and other materials from one vessel to the dock or to another vessel.

Breach - A behavioral characteristic of some marine mammals such as humpback whales, where they rise vertically out of the water, and then with most of their body above the surface, they fall to their back or side.

Bridge - The control center of a ship, wheelhouse.

Bridle - On a trawler, a cable attached to the head rope, footrope or side panel of a net, by which the net is towed. On a pot vessel, a length of line attaching two sides of a pot to the buoy line.

Briefing - Training for observers to inform them of any policy changes and to review the priorities and duties on different vessel types. There are four-day briefings prior to observing in each new calendar year. An additional one-day, two-day tutorial or four-day briefing must be completed prior to each additional cruise within the year.

BSAI- Bering Sea and Aleutian Islands Management Area.

Bulkhead - A wall separating compartments of a ship.

Bulwarks - The upper section of the side plating of a ship, which extends above and around the upper deck.

Buoy - A float used as a marker or warning.

Buoy line - The length of line connecting the buoy assemblage to the anchor.

Bycatch- Anything caught in fishing operations that is not the target species, such as other fish species, prohibited species, marine mammals, seabirds, invertebrates, and inert objects.

C

Calibrate - To check, adjust, or standardize a measuring instrument, usually by comparing it with an accepted model or certified weights.

Cannnonball - Lead weighs attached to the groundline between gear segments helping to sink the gear and keep it on the sea floor.

Carrying capacity - The number of organisms the resources of an area can support.

Catch - The amount of fish caught (retained or not).

Catch Per Unit Effort (CPUE) - The number of fish caught per amount of effort (effort is generally a combination of gear type, gear size and length of time the gear is used); CPUE can be used as a measurement of relative abundance of a caught species.

Catcher boat - Vessel that is used for catching fish and that does not process (freeze) fish on board.

Catcher/processor - Vessel that is used for, or equipped to be used for, catching fish and processing (freezing) fish products.

CDQ – Community Development Quota program – a portion of the TAC of the groundfish, halibut, and crab fisheries of the BSAI is allocated to residents of coastal Western Alaska, providing them with the opportunity to participate in the groundfish and crab fisheries of the BSAI. There are increased equipment and observer coverage requirements in CDQ fisheries.

Central Gulf of Alaska Rockfish Program - The Central GOA Rockfish Program (Rockfish Program) permits harvesters to form voluntary cooperatives and receive exclusive harvesting and processing privileges to selected groundfish species in the Central GOA. The primary rockfish species are the Pacific ocean perch, northern rockfish, and pelagic shelf rockfish. There are increased equipment and observer coverage requirements in Rockfish Program fisheries.

CFR – Code of Federal Regulations – administrative rules and regulations by the executive departments and agencies of the Federal government. 50 CFR 600 and 679 implement the Magnuson-Stevens Act and Fisheries Management Plans for the GOA and the BSAI areas.

Chafing gear - Protective carpeting (or strands of nylon forming a carpet pile) on the outer, underside of the trawl net to keep it from catching and ripping on obstacles on the bottom.

Checker bin - Compartments on either side of the trawl alley separated by removable boards (bin boards) for storage of gear and catch. The observer uses these bins for sampling purposes as well.

Chief - The engineer; responsible for care of engines and deck machinery.

Choker, choke strap - A loop of wire or rope used to cinch off the net or codend.

Chopper - Machine used to grind frozen herring or squid for bait or the person assigned this duty.

Cleat - A heavy piece of wood or metal having two horns around which ropes may be made fast or belayed, usually secured to a fixed object such as the dock or deck.

CMCP – Catch Monitoring Control Plan - This plan defines the method in which each individual plant will sort and weigh all species during any AFA or Central GOA Rockfish Program deliveries.

COBLZ – *Chionoecetes opilio* Bycatch Limitation Zone - Bycatch Limitation Area in the Northern Bering Sea for trawl fisheries. Upon attainment of the allowance of C. opilio crab specified for a particular fishery category, the COBLZ will be closed to directed fishing for each category for the remainder of the year or for the remainder of the season.

Coded wire tag - Small tag (3mm) etched with binary code that are inserted into the snout of fishes for later identification.

Codend - The end "bag" of a trawl net where the majority of the fish are collected and held.

Coiler - Person or machine that is designated to coil line as it is retrieved by the block.

Combi - A piece of machinery through which the groundline, gangions, and hooks move during gear retrieval. The combi mechanically places hooks into the magazine racks allowing the gangions and groundline to be hung in an orderly fashion. This term may also refer to a crew member that works both in the factory and on the deck of a factory vessel.

Combined sample – When two samples from the same haul cannot be separated and both are reported as one sample.

Combing - A low partition rising from the bottom of doors and passageways on a vessel.

Companionway - Entrance/stairway from deck to fo'c'sle and engine room.

Compliance - Being in accordance with the fishing regulations.

Composition - In the groundfish Observer Program, this refers to the makeup of harvested species in a catch, and the sample you collect.

Cookie (disc) - A flat, round piece of rubber with a hole in the center strung on a wire rope or chain to protect it from abrasion and to stir up a mud cloud. Used on non-pelagic trawl gear.

Crucifier - A pair of rollers or steel pegs which stand vertically with only enough room for the groundline to pass between. During gear retrieval the groundline passes between the rollers and the hooks are pulled out of the fish.

D

DCPL - Daily Cumulative Production Log – Vessel logbook kept by catcher processors to record daily fishing and processing activity.

Debriefing – Meeting with a staff of the FMA Division or other qualified contractor at the end of an observer's deployment to review the observer's sampling procedures, calculations and collected data. The observer will make corrections to the data, complete a computerized survey for each assignment, get recommendations for future cruises, and receive a written performance evaluation.

Delivery weight – The total weight of catch that is delivered from a catcher vessel to a shoreside plant or floating processor. In the case of a pollock catcher vessel this weight also includes all prohibited species discarded at sea with the exception of herring that are accounted for in the observer's offload census.

Demersal - Dwelling at or near the bottom of the sea.

DFL – Daily Fishing Log – Vessel logbook used by catcher vessels to record daily fishing activity.

Directed fishing - Targeting or fishing for a species quota.

Discard estimate – An independent estimate made by the observer of the weight of the vessel discards by haul. This estimate requires no calculations and should only take a few moments to obtain.

Discards – Catch that is not retained and is returned to the sea.

Disembark - To get off a vessel and go ashore.

Diver/Trailer buoys - A small buoy attached to the main buoy with a length of line. The diver buoy "trails" behind the main buoy and allows a larger target for grappling.

DMSO – Dimethyl Sulfoxide – A chemical preservative used in the Observer Program to preserve Cetacean skin samples.

Dogs - Metal hooks that are hydraulically controlled to secure a pot to a launcher.

Donut Hole - The isolated area in the Bering Sea surrounded by waters under the jurisdiction of Alaska and Russia. This area is considered international waters and is generally closed to commercial fishing.

Door - On a trawler a large steel or alloy structure attached to each main wire (in front of the net) to spread the net horizontally by means of hydrodynamic and friction forces. On a pot vessel, a panel that can be unhooked and opened to remove catch.

Draft - Vertical distance from keel to waterline of a ship.

Drop-off – On a longliner, those organisms that fall or are knocked off of a hook prior to their being landed.

Drum - A metal spool or cylinder around which cable, etc. is wound.

E

Ebb tide - Outgoing tide.

EEZ - "Exclusive Economic Zone" - The term for the 200 mile jurisdiction zone, in which a nation has exclusive fishing rights.

Electronic Monitoring - (also known as EM or video monitoring system). On A-91 Bering Sea Pollock Catcher Processors and Motherships EM is used to track the sorting of salmon. Also used to monitor live tanks on Amendment 80 vessels.

Embark/Embarkation - To board a vessel.

EPIRB - "Emergency Position Indicator Radio Beacon", emergency device that sends an identifiable signal by satellite to a USCG Rescue Coordination Center.

Expansion straps (container lines) - A series of lines running around the circumference of a codend to provide strength and help maintain the shape of the bag.

F

Fathom - A measure of length or depth equal to six feet.

Fingers/Triggers - Small plastic strips located in the tunnel of a pot which allow fish to enter a pot but not exit.

Fish ticket - A record of purchase and documentation of commercial fisheries harvest from Alaska. As a general rule, fish tickets must completed and submitted to the local office of the ADF&G for all initial sales and/or processing of fish within the state of Alaska. Observers can use fish tickets to calculate and/or document the delivery weight from a vesse.l

Fishfinder - An electronic device for locating schools of fish under a vessel.

Fishing day - A 24-hour period, from 1201 hours A.l.t. through 1200 hours A.l.t., in which fishing gear is retrieved and groundfish are retained. An observer must be on board for all gear retrievals during the 24-hour period in order to count as a day of observer coverage. Days during which a vessel only delivers unsorted codends to a processor are not fishing days.

Fishing mortality - Removal (deaths) of fish from a population due to fishing activity.

Fixed gear – Non-mobile gear types. In the groundfish fishery, this includes longline, pot and jig gear.

Flag pole - Pole with a float; often topped with a flag, radar reflector, or strobe light.

Flatfish - Fish which are laterally compressed and orient themselves in the water with their lateral surfaces or sides towards the surface and bottom and both eyes on the upper side.

Flatlink - A piece of cut or cast hardware, generally oblong in shape, with leg diameter smaller in certain areas to allow attachment of a G-hook; used where wires must be connected and disconnected frequently.

Flood tide - Incoming tide.

Fo'c'sle (from: forecastle) - The forward part of a ship where sailor's quarters are located.

Footrope - On a non-pelagic net, a series of bobbins, tires or discs strung on chain or wire rope attached to the bottom front of a bottom net to protect the net from damage. On a midwater net, the rope or wire running along the front, bottom edge of the net.

Fork length - The length from the tip of the snout or jaw (whichever is most anterior) to the end of the middle rays of the caudal fin. It is the most common measurement used by the Observer Program and by NMFS researchers.

Formalin – A chemical preservative used to preserve stomach and other samples collected by the FMA division Observer program. Formalin is 37% Formaldehyde in aqueous solution.

Forward - Towards the bow of a vessel.

G

Galley - Ship's kitchen and/or mess hall.

Gallows - Structure from which trawl blocks are hung; separate units port and starboard.

Gangion - The length of line that connects the hook to the groundline on longline gear. It is often only two to three feet long.

Gantry - A frame structure, usually at the aft of a vessel, which supports pulleys (blocks) used in setting and retrieving trawl nets.

G-hook - A piece of cut or cast iron hardware in the shape of a “G”, used with a flatlink where wires must be connected and disconnected frequently.

Gilson – On a trawler, a single hookline (as distinguished from a multiple block) and winch used to assist in setting, hauling and moving gear on deck.

GOA- Gulf of Alaska Management Area.

GPS – Global Positioning System - A system of satellites, computers, and receivers that is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver.

Groundline/Mainline - The length of line to which all of the hooks are attached on longline gear. This line is the “backbone” of the gear.

GRS - Groundfish Retention Standard: Regulation requiring 80% in aggregate of all groundfish with a directed fishery to be retained when caught by non-AFA catcher/processor vessels. The retention requirement increases to 85% in 2011 and thereafter.

Gunnel or Gunwale - The upper edge of the side of a boat.

Gurdy - Special winch for hauling of longlines or trolling lines.

H

Halibut injury assessment - Assessment of injuries to halibut caught by longliners in the groundfish fisheries. These data are analyzed by the IPHC staff and used to estimate future mortality rates.

Halibut excluder - A divider located in the tunnel of a pot that restricts the size of the opening. Also, a device placed in the intermediate portion of a trawl net to exclude larger halibut.

Halibut viability - Assessment of the condition of incidentally caught halibut as they are released on a trawler or pot vessel in the groundfish fisheries. These data are analyzed by the IPHC staff and used to estimate future mortality rates.

Hanging unit – On a longliner, the unit at the end of your sampling frame that is smaller than all other units because the total number of gear segments is not evenly divisible by the number of segments comprising a sample unit.

Harvest - The total amount of fish caught and retained from an area over a period of time.

Hatch - An opening in a deck or bulkhead of a ship.

Haul - A catch of fish from one tow of a net or longline.

Haulback - The start of retrieval to the codend being brought fully onboard the vessel.

High grading - When a vessel puts up product but later discards it overboard in favor of a more valuable product.

Hook - Usually a three pronged grappling hook used to snag the trailer buoy line.

Hook Counts - The average number of hooks per segment of gear.

Horn Off - To knock organisms off of a hook using the horn on the roller or the butt of a gaff.

Hydrostatic release – Mechanism designed to automatically release emergency survival equipment upon the sinking of a vessel. Hydrostatic releases are installed on life rafts and EPIRBs.

I

IFQ – Individual Fishing Quota -A percentage share of the TAC is assigned to vessels or persons, usually based on historical fishing effort. These shares can be sold or leased. In the fisheries off Alaska; sablefish, halibut, and Bering Sea king and Tanner crab fisheries are managed with IFQs.

Immersion Suit - A special type of waterproof suit that provides flotation and thermal insulation required for cold water emergencies such as a sinking vessel. They have built-on feet (boots), and a hood, and either built-on gloves or watertight wrist seals. An immersion suit is issued to each NMFS observer upon deployment (survival suit).

Incidental catch or species - Catch taken while fishing for the primary purpose of catching a different species.

Intermediate - A gradually tapered section, generally of small mesh, between the back body of a trawl and the codend.

IR/IU Species – (Improved Retention/Improved Utilization Species) Pollock, Cod and GOA shallow-water flatfish for which there are specific retention regulations.

J

Jig boat – small vessels using up to 5 jig machines that dangle a maximum of 15 hooks per line at a constant depth. Target species include Pacific cod and Atka mackerel.

Joint Venture - A cooperative fishing/processing effort between vessels of different nationalities.

K

Knot - A measure of time multiplied by distance, equaling speed. One knot equals one nautical mile (6080 feet) in one hour.

L

Landings - The total amount of fish unloaded at a buying station by commercial fishermen or brought to shore by recreational fishermen; landings are reported at the points at which fish are brought to shore or delivered to an at-sea processing facility.

LAPP – Limited Access Privilege Program - A group of harvesters with exclusive harvest privileges to a fisheries resource. (share-based or rationalized fisheries.)

Launcher - Hydraulic lift, usually located on the port side of a vessel, used to “launch” pots over the side of the vessel and to adjust the angle of the pot when it is being emptied.

Lay - The direction in which the strands of a rope are twisted (right or left) or the degree of tightness with which they are twisted (soft, medium, hard, etc.).

Lazaret - A storage place between the decks of a ship.

Lead level 2 observer - An observer that has met the requirements to become level 2 certified, and has met additional experience requirements on specific vessels and gear types.

Lee, Leeward - The side protected from the wind, opposite the “windward” side.

Length frequency data - Also referred to as sex/length data, length-frequency and/or length sample data.

Level 2 observer – An observer who has successfully completed a cruise, at least 60 days of data collection and received a “met expectations” score for his/her most recent cruise.

Live Tanks - Tanks or bins on factory trawler vessels where the catch is dumped prior to sorting or processing.

Lobby - Another name for a fish bin on a catcher/processor.

Longline pots - Pots connected with line.

M

Magazine - (Mag) - On a longliner, a term used to describe a segment of gear within a set containing approximately one thousand to as many as ten thousand hooks. The length of this segment of gear is dictated by the length of the magazine rack on which the hooks and groundline are hung.

Magazine rack - (Mag rack or rails) - A piece of equipment for automatically feeding hooks through an autobaiter. The hooks are hung on a bar and the gangions and the groundline then hang from the hooks. This equipment functions in a similar fashion to a coat hanger on a closet rod.

Main Wires - The two large cables used to connect the trawl net to the vessel while fishing.

MARPOL- International Convention for the Prevention of Pollution from Ships: International agreements designed to control at-sea disposal of wastes.

Master - The captain of a vessel or one in charge of the fishing activity.

Material Safety Data Sheet (MSDS) - Form containing data regarding the properties of a particular substance intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data, toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill handling procedures.

Maturity stage - Period in the reproductive life cycle, often determined by visual examination of the gonads.

Mid-cruise – Meeting with a staff of the FMA division to review the observer's sampling procedures, calculations and collected data to ensure that all is going well during his/her deployment. Although it is termed a mid-cruise, this interview usually does not take place during the middle of the cruise. It is completed early enough to allow the observer opportunity to incorporate suggestions and make improvements on his/her data collection efforts.

Mothership - A processing vessel at-sea (under way) whose fish come from catcher boat's deliveries.

Motion Compensated Flow Scale - A scale built into a conveyor belt; the scale maintains a running tally of weight moving across the belt, in addition to comparing it to a constant weight in order to compensate for vessel movement.

Motion Compensated Platform Scale (MCP) - An electronic flatbed scale with a constant weight load cell which allows for compensation of the vessel's movement.

MSY - "Maximum Sustainable Yield" - An estimate of the largest average annual catch or yield that can be taken over a significant period of time from each stock under prevailing ecological and environmental conditions. Since MSY is a long term average, it need not be specified annually.

Mustang suit - Insulated, water resistant coveralls worn in the cold months while sampling on deck.

N

Net reel - A hydraulic drum on the deck on which the net and most of the rigging are wound.

Non-fishing day - A day that had no hauls or sets retrieved. These days are documented on the Vessel Haul Form with the location of the vessel at or around noon that day.

O

Observer estimate - Unbiased, independent estimate of total catch weight made by the observer.

Observer Provider - (also known as contractor) - Any person or commercial enterprise that is granted a permit by NMFS to provide observer services to vessels, shoreside processors, or stationary floating processors for observer coverage.

Offload – When a catcher vessel transfers their catch to a shoreside plant or floating processor (delivery).

Offload census - A census done at a plant or mothership for any pollock delivery. Numbers and weights for prohibited species (salmon, crab and halibut) are completed during the entire offload.

Otolith – In fish, calcium carbonate structures located ventrally, and to either side, of the brain tissue, just above the pre-operculum. These structures can be removed and used to determine the age of the fish.

Otter trawl - The type of net gear used on stern trawlers

Otterboard - Another name for a trawl door.

OY - "Optimum Yield" - The harvest level for a species that achieves overall benefits including economic, social and ecological considerations.

Overcapitalization - A level of investment resulting in a non-economically productive fishing effort level (too much effort may drive down economic profits).

Overfishing - Harvesting at a rate that will exceed the management goal; an amount of fishing mortality that jeopardizes the capacity of a fishery to produce MSY on a continuing basis (MSFCMA definition); an overfishing level (OFL) is determined for every species or species group for which there is a TAC.

P

Panel - Mesh netting attached to a square metal frame. Two large panels and four smaller panels are attached to a heavy steel frame box to form the six sides of a pot

Paravane - An alternative to the third-wire net monitoring equipment that requires a cable to be deployed between the ship and the net monitoring equipment on the headrope. A paravane is with a hydrophone receiver and is boomed out alongside the vessel and set to fly from 5-15 fathoms deep. Also known as a "water kite."

Parent sample - The sample from which the subsample was taken. A subsample is taken from within or near the parent sample and a specific numbering convention is used to associate a subsample to the parent sample.

Pelagic – Midwater.

Pelvic Axillary Process (PAP) - Fleshy appendages at the base of the pelvic fin of a salmon.

Peritoneum - The lining of the gut cavity.

Pew, Pew stick - A sharp-ended pole which is used to skewer fish and toss them to another location.

PFD – Personal Flotation Device – A buoyant or inflatable garment for supporting the wearer in deep water and thus serving to prevent drowning.

Pick/"Running the hook" - Hook connected to the end of the boom which is attached to the bridle and is used to lift a pot onto the launcher as the pot is being retrieved.

PLB – Personal Locator Beacon – Issued by the FMA division to every observer, PLBs are GPS equipped units, that when activated, send GPS coordinates along with an identifiable 406 MHz alphanumeric signal to the SARSAT/COSPAS system. When the signal is received, the Mission Control Center mobilizes the USCG and provides them with information on the person with the PLB and with the coordinates.

Plotter - Electronic mapping device that displays the local area and the vessel's position on it. The plotter allows skippers to record the area of a string and also the number of pots in a string on a digital map display.

Pod - A school of marine mammals; such as seals, whales or dolphins.

Point of Collection – Area on a groundfish vessel where the observer collects unsorted catch.

Population - The total of individuals occupying an area or making up a whole. When sampling aboard a trawler, a population is defined as the catch from a single haul.

Port - A town or city having a harbor for ships taking on or discharging cargo.

Porthole - A window in the hull or the outside bulkhead of a ship.

Pot Tie - A short piece of line used to tie pots together when they are stacked on deck.

Pre-anal fin length - The measurement from the tip of the snout to the insertion of the first anal fin ray, immediately posterior to the anus. This is the length measurement used by the Observer Program for grenadier.

Predominant species - Species which are the most abundant in the catch; not necessarily the target species.

Presorting - The segregation and/or removal of any item(s) or organism(s) from the catch prior to the point where an Observer is collecting a sample.

Prohibited species or prohibited species groups - Species whose allowable retention is zero. Salmon, herring, halibut, king crab, and Tanner crab are always prohibited in North Pacific open access groundfish fisheries. For vessel operators, prohibited species include the above and any other species declared prohibited by a notice of closure.

PRR – Product Recovery Rate - Represents that proportion of an organism that is used for product. PRRs can be used for estimating the round weight of a catch from the tonnage of product produced.

PSC - "Prohibited Species Catch" - A harvest limit usually placed on halibut, salmon, crabs or other species which must be discarded in the groundfish fisheries.

Q

No entries.

R

Radio Call Sign - Alpha numeric code used as an international identifier of a vessel when using the ship's radios.

Random - Relating to a set, each of whose elements have an equal probability of occurring in a sample. These elements are chosen as sample units in a manner which eliminates subjectivity.

Random Sample design – The method of sampling a population where all of the elements have an equal probability of occurring in the sample.

Raw data – The original data collected by the observer while sampling. This data is documented on the Deck Form.

Regenerated scale - A fish scale which has grown in to replace one that was lost. Regenerated scales are useless for aging a salmon, but can be used to identify it to species.

Reserve - A portion of quota set aside at the beginning of the fishing year to allow for uncertainties in preseason estimates of Acceptable Biological Catch.

Retained species – Organisms that are retained in whole or part by the vessel for any reason, including consumption on the vessel, processing, delivery, bait, or personal use.

Riblines - Heavy lines or chains that run down the length of the trawl net to strengthen it.

RKCSA – Red King crab savings Area – an area restriction in the Bering Sea closed to non-pelagic trawling year round, except for a subarea that may be opened at the discretion of the Council and NMFS when a guideline harvest level for Bristol Bay red king crab has been established.

Rockfish Program- See "Central GOA Rockfish Program".

Roller - A device made up of one or more metal pins that spin allowing the groundline to be pulled up and over the rail of a vessel during retrieval such that tension and friction on the line is reduced.

Roller station/pit - Term used to describe the area where fishermen stand while retrieving the line and gaffing fish coming in over the roller.

Rollerman - A crewman who stands in the roller station and monitors the retrieval of the gear. The rollerman lands any commercially valuable fish and excludes any non-commercially valuable fish from being landed.

Rostrum - A pointed, calcareous, median extension on the anterior end of crab carapaces.

Round weight - The weight of the whole fish (or animal) as it was when alive, synonymous with fresh weight and whole weight.

Roundfish - Fish that orient themselves in the water with the dorsal side towards the surface and ventral side towards the bottom and eyes on each side of the head.

RSW - Refrigerated sea water, usually referring to a tank for holding fish.

RSW Tanks - Holding tanks or bins that use refrigerated sea water to keep fish fresh until delivery.

Running line - The length of line connecting the anchor to the baited gear.

"Run pots" - A phrase used interchangeably with "retrieve pots." It is the phrase used in the vessel logbook to indicate the number of pots that have been retrieved from a string.

S

Safety Orientation – instructions given by a qualified crew member to all new vessel personnel (observers included) concerning the safety equipment and procedures aboard the vessel. This is required under 46

CFR Part 28.270 and 50 CFR Part 28.265.Sample size - The portion of the population that is sampled (measured in weight or amount of gear).

Salmon Retention - BSAI vessels and processing plants are required to save all salmon from Bering Sea directed pollock fishing on a haul by haul or delivery basis until these salmon are counted by a NMFS-certified observer. The observer reports the data on the Salmon Retention Form.

Sample station – Area on a vessel where the observer processes (counts, weighs, measures, etc.) samples. On trawl catcher-processors and motherships, the sample station is required to be inspected and approved by the FMA. In the longline CDQ fisheries, the sample station on catcher-processors is required to be inspected and approved by the FMA.

Sample weight - The actual weight in kilograms of a composition sample.

Sampling - The process of selecting part of a population for the purpose of determining the parameters, or characteristics, of the whole population and recording data regarding all individuals in the population. Composition sampling refers to taking samples of a haul in order to determine the fishing mortality of species occurring in the sample.

Scupper - A hole in the bulwarks which allows water to drain from the deck.

Seabird Deterrence (seabird avoidance) – measures to avoid seabird bycatch by groundfish fishing vessels. These are required by regulation for longline vessels and include offal discharge restrictions and the use of streamer lines.

Segment of Gear - In this manual a segment of gear refers to the standard unit a longline vessel uses for measuring gear. This could refer to a mag, skate, tub, or coil of gear.

Set - The entire length of groundline from the first hook to the last hook, also referred to as a “string” of gear.

Setting chute - A metal trough that guides baited longline gear out of a hatch or off the stern of the vessel.

Sex/length data – sample collected by observers in which the sex and fork length are documented and entered into the database.

Sheave - A wheel with a grooved rim, such as is mounted in a pulley block to guide the rope or cable.

Short-wiring - Occurs when a codend is brought from fishing depth to near the surface, the trawl doors are held at or above the surface, and the net is towed behind the vessel until it is brought on board.

Shot - A pre-measured length of buoy line, usually 10 to 20 fathoms long. Normally there are two set lengths, a “Long” shot and a “Short” shot. When setting a string, the skipper will tell the crew how many shots to tie to a pot for various bottom depths.

Skate - A segment of longline gear containing approximately one hundred to as many as three hundred hooks.

Skate bottom - A fabric square with lines on the corners to tie it into a bundle once a longline “skate” has been coiled onto it Skate or Mag markers - Markers in the groundline that separate the sections of gear. These may be fluorescent tape woven onto the line, knots, line splices, carabineers, or magazine (mag) clips.

Skates/Tubs/Coils - Terms used to describe the smaller segments of gear within a set or a magazine.

Spatial - Referring to a unit of space used in random sampling. For example: a third of a bin, or a section of trawl alley, are spatial units.

Special Project data - Temporary data collection project for the FMA Division. Most projects last two to three years.

Species composition sample - To sort a defined weight of catch such that each organism sampled for is grouped by family or by species and to determine the number and weight of the organisms in each group.

Spring line - A mooring line attached amidships.

SRS – Simple Random Sample - A basic type of sampling design where random numbers are selected from the population and each member of the population is equally likely to be chosen at any stage in the sampling process.

SSB - “Single Side Band” radio used for long distance contact.

Stack - This term is used on pot vessels to refer to pots stacked on the back deck.

Standard Project Data – Data collection project for the FMA division that continues from year to year (e.g., stomach collection).

Starboard - The right side of a ship (when one is looking forward).

Stern - The aft or back end of a vessel.

Stern ramp (slip) - A sloping ramp in the stern of a trawler between the deck and the water line, through which the net is set and hauled.

Stern trawler - Any of various sized fishing vessels which trawl a conical shaped mesh net through the water, haul it up a ramp through the stern of the ship, empty, and process the catch to make a wholesale fish product. These vessels may fish for a month or more at sea without support.

Stock - A grouping of fish usually based on genetic relationship, geographic distribution and movement patterns; managed as a unit of fish.

Stock assessment - An evaluation of the size and/or health of a predefined population including all activities that fishery biologists do to describe the conditions or status of a stock; the result is a report on the health of a stock and recommendations that would maintain or restore the stock.

String - Pots deployed individually and are not attached to one another in any way. This term refers to pots set at a similar time in a similar area and depth. What a skipper calls a string varies considerably between vessels. Strings are analogous to sets.

Subsample – A sample with that provides specific information about a species composition sample (parent sample). On a trawler, a subsample is used when there are two predominant species not weighed or counted in the parent sample. On a longliner, a subsample is used to provide weight and other biological information for the target species; and weight information for other species when the observer was not able to collect enough in the parent sample.

Subset sample - A random sample taken within a species composition sample that provides a weight and/or number of a species when they are too numerous to count or weigh, or for the identification of individuals of a species group which are difficult to distinguish from one another. Specific rules apply according to the vessel type and the species.

Surimi - Minced fish meat paste usually produced from pollock.

Systematic - Refers to methodical sampling throughout an entire population.

T

Table - Some vessels have a sorting table on the back deck that pivots on one axis. The contents of a pot are dumped onto the table, and the table is swung out of the way to re-launch the pot.

TAC - “Total Allowable Catch” - Annual recommended harvest levels based on biological, economic and social factors that is still within the range of the ABC.

Take (MM) – The incidental catch or harassment of a marine mammal by a vessel. A take may or may not lead to a fatality.

Tare -The deduction from the gross weight to allow for weight of a container.

Tally data - Species identifications and counts gathered during the tally period on a longliner.

Tally period – Segments of time on a longliner when the observer counts and identifies organisms as they come up on the line.

Tally Station – Area on a longliner where the observer counts and identifies organisms as they come up on the line. In the CDQ fisheries, the tally station on catcher-processors is required to be inspected and approved by the FMA.

Taper - To cut webbing according to a given formula for fitting into a trawl.

Tare - A deduction from gross weight to obtain net weight. Usually made to allow for the weight of a container.

Target species - Vessel personnel will generally call the species they wish to catch the target species. For Observer Program purposes, target species is what the vessel claims as their target. The Sustainable Fisheries Division of the NMFS Alaska Region uses delivery and production data to determine target fishery, which may differ from what the vessel claims as their target.

Temporal - Referring to a unit of time used in random sampling. For example: one hour of processing time, or systematic intervals of ten minutes, are examples of temporal units.

Temporal-spatial sampling – a spatial sampling frame and sample unit type using a temporal means to select units.

Tender vessel - Vessels that receive catch from catcher boats and deliver it to a processing plant Third wire – cable extending from the vessel to the trawl sonar system attached to the head rope of the trawl net.

Third wire – Cable extending from the vessel to the trawl sonar system attached to the head rope of the trawl net.

Tote – Large PVC containers used to separate and store catch on fishing vessels and at processing plants.

Trawl - A cone shaped net, towed through the water to catch fish.

Trawl Alley - The central passage on a trawl vessel where the codend is placed after haulback.

Trawl Doors - Often referred to as “doors,” these are two metal plates, each attached to a main wire, designed to keep the mouth of the net open while fishing.

Trip –Any time a vessel unties from the dock at a port, floating processor, or tramper, and upon completion of that trip the vessel returns and ties up to a dock in a port, at a processor or a tramper.

Tunnel - Short mesh-lined openings on two or three sides of a pot. These are the entrances to the trap. Fish and crab are able to swim in but are unable to make their way back out due to the fingers/triggers.

Turning/Overhauling Gear - Term used on longliners to describe the work to straighten hooks, replace gangions, or repair damaged groundlines.

U

Under way - Vessel in forward motion, running. According to Coast Guard regulation, a vessel is under way if it is not at anchor or at dock, so a vessel adrift is technically under way.

V

Vessel Code - A code used only by the Observer Program to identify a ship

Vessel Strike (seabirds) - Incidental seabird mortality due to a bird or flock of birds colliding with a vessel. It appears that birds may become confused, primarily at night during inclement weather, and when bright lights are being used.

W

Warp (main wire) - The cables on a trawler which run from the main winches to the trawl doors on the net.

Watertight doors – a door or hatch on ships that, when closed, blocks the passage of water and withstands its pressure. These doors are vital to control and prevent flooding.

Weighed sample - The catch sampled by the Observer is weighed on a scale.

Weight data (longliner) – Species identifications, counts and weights of organisms that were collected during the tally period or collected as a subsample. This task is accomplished during the non-tally period after completion of the tally.

Wheelhouse – The control center of the ship (bridge).

Winch - A hydraulic machine with one or more drums on which to coil rope, chain, or cable for hauling or hoisting.

Wing - The sides off a trawl net near the opening, usually with larger mesh than the rest of the net

Wrister - A coated vinyl sleeve worn on the arm, extending from the elbow and covering the wrists. Keeps arms warm and dry. Fish blood and slime are more easily washed out from these than from shirt sleeves.

X,Y,Z

No entries.

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