

NMFS Groundfish Observer

Pre-class Reading Study Guide

Preparation for Groundfish Observer Training

Congratulations on your new job and welcome to the Alaska Groundfish Observer Program!

You will soon be attending a 15 day training course that has been called “intense” by many observers. To prepare for training, you are required to read the following two documents:

Sections 1 and 2 of the 2011 Observer Sampling Manual.

These are two sections of a large document that will be supplied to you in class and is your primary source of information to use in your deployment at sea. Read these sections carefully. They are essential, yet not all of this information will be covered in detail during training. You will refer to the manual often in class and at sea.

The “Observer’s Guide to Federal Groundfish Management off Alaska”

This is a reference document that describes Federal Fishery Management and its application in Alaska’s groundfish fisheries. It is supplemental information and describes management programs that use observer data and affect observer’s duties. You are expected to be familiar with the "Observer's Guide to Federal Groundfish Management off Alaska" and be able to use this document as a reference.

On the first day of your training, you will be given a Pre-class reading Quiz over these materials. The emphasis of the quiz is upon the material contained in Sections 1 and 2 of the Observer Sampling Manual. It is “open book”, and you will be provided with copies of both documents to use in training. The attached sample quiz questions will illustrate the level of difficulty you can expect in the Pre-class reading Quiz.

See you soon!

Updated 11/12/2010

Sample Quiz

1. Write out words that make following acronyms:

D
O
C

N
O
A
A

N
M
F
S

A
F
S
C

F
M
A

2. Name three gear types used in Alaska groundfish fisheries.

3. What is the Exclusive Economic Zone?

- a. The territorial waters of the United States.
- b. An area where only US vessels are allowed to travel.
- c. A claim to management of resources up to 200 nautical miles from the US coast.
- d. An area managed by the state of Alaska.

4. Who manages king and Tanner crab?

- a. ADFG
- b. IPHC
- c. NMFS
- d. USCG

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5. If your assigned vessel provides you with an email access for personal communication, what is important for you to know?

6. Rank the following 14 Data Collection Priorities in order of their priority:

_____ From hauls sampled for species composition, collect additional biological data on prohibited species.

_____ Record incidental takes of short-tailed albatross and other seabird species of interest. Collect seabird species of interest specimens. Rehabilitate live short-tailed albatross and Steller's eiders if possible.

_____ 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.

_____ Complete research projects as assigned.

_____ Send your data to the Observer Program in Seattle.

_____ Record takes of marine mammals. Collect snouts or heads from pinnipeds (except walrus), and tissue samples from cetaceans.

_____ From hauls sampled for composition, collect sexed length frequency samples from the appropriate species.

_____ From hauls sampled for composition, collect otoliths from the appropriate species.

_____ From hauls sampled for species composition, record seabird specimen and tag information.

_____ Record sightings of seabird "species of interest."

_____ Sample randomly selected hauls for species composition

_____ Collect data and specimens for standard projects.

_____ Record sightings of marine mammals.

_____ Record sightings of or interactions with other seabird species.

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7. What is a *deck form*?
- a. The shape of a trawl deck
 - b. A waterproof form for recording data
 - c. Something you fax to NMFS
 - d. The shape a fish assumes when lying on a deck.
8. Observers may not be assigned to more than _____ vessels and/or plants during one cruise.
9. How often should you make an entry in the Daily Notes section of the Observer Logbook?
10. Number the steps to random sampling in order:

_____ Determine the type of sample frame best suited to the target population and the vessel.

_____ Define the target populations.

_____ Consecutively number the units in the sample frame.

_____ Pick random numbers.

_____ Define your sample units and sample population.

_____ Sample the randomly chosen units.

_____ Select the units from which to sample.

11. Is the following statement true or false?

On vessels requiring two observers, the lead observer will supervise the second observer and be responsible for the quality and integrity of sampling on the vessel.

12. You are on a vessel regulated under the American Fisheries Act (AFA). What should you do when the motion compensated platform scale (MCP) fails the daily test?
- a. Retest several times. If it continues to fail, discontinue sampling because this scale is required under the AFA.
 - b. Perform a diagnostic check of the electronic components, then retest and inform the factory manager.
 - c. Calibrate and retest. If it continues to fail, inform the captain.
 - d. Inform the deck boss of the problem.
13. Which fishery is managed by an Individual Fishing Quota (IFQ) system?
- a. Pacific cod
 - b. Atka mackerel
 - c. Pollock
 - d. Sablefish
14. How many National Standards for Fishery Conservation and Management are contained in the Magnuson-Stevens Fishery Conservation and Management Act?
15. Which of the following is not a benefit of limited access fisheries?
- a. Bycatch may be reduced.
 - b. May reduce overcapitalization.
 - c. May create more jobs in the fisheries.
 - d. Safety may be improved.

Sample Quiz Answers

1. Department Of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center
Fisheries Monitoring and Analysis Division
2. Trawl, Longline and Pot vessels
3. c. A claim to management of resources up to 200 nautical miles from the US coast.
4. a. ADFG
5. The messages sent and received on these systems are not secure or confidential.
6. 6, 2, 3, 13, 5, 1, 8, 7, 9, 12, 4, 10, 11, 14.
7. b. A waterproof form for recording data
8. four
9. every day
10. 2, 1, 4, 5, 3, 7, 6
11. False
12. c. Calibrate and retest. If it continues to fail, inform the captain.
13. d. Sablefish
14. Ten
15. c. May create more jobs in the fisheries



INTRODUCTION

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THE OBSERVER PROGRAM

The Fisheries Monitoring and Analysis (FMA) Division’s 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 Division 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 Division 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, observers collected data on bycatch of other commercially important species including king crab, Tanner (snow) crab, and salmonids.

INTRODUCTION: History of the Fishery

ABC- Acceptable Biological Catch	MSFCMA- Magnuson-Stevens Fishery Conservation and Management Act
ADF&G- Alaska Department of Fish and Game	MSY- Maximum Sustainable Yield
AFA- American Fisheries Act	NMFS- National Marine Fisheries Service
AFSC- Alaska Fisheries Science Center	NMML- National Marine Mammal Laboratory
ALT- Alaska Local Time	NOAA- National Oceanic and Atmospheric Administration
BBL- The Bird Banding Laboratory of the U.S. Geological Survey	NORPAC- North Pacific database (Observer Program database)
BSAI- Bering Sea & Aleutian Islands	NPFMC- North Pacific Fishery Management Council
CP- Catcher/Processor	NPFOTC- North Pacific Fisheries Observer Training Center
CDP- Community Development Plan	NPGOP- North Pacific Groundfish Observer Program (FMA Division)
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 Division - 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	
MRA- Maximum Retainable Amounts (was Maximum Retainable Bycatch)	

Figure 1-1: Commonly Used Abbreviations and Acronyms



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.

THE FISHERY TODAY

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. Observer coverage requirements for vessels are based on vessel size and gear type, and observer coverage at processing plants is based on the amount of groundfish delivered each month. Vessels and plants in Limited Access Privilege Programs (LAPP) have additional coverage requirements. Vessels and plants arrange for observer coverage through a NMFS-permitted observer provider, and the vessel or plant pays for the cost of the observer. The Federal government covers the costs associated with the operation of the Observer Program, observer certification training and briefing, observer debriefing and management of the data.

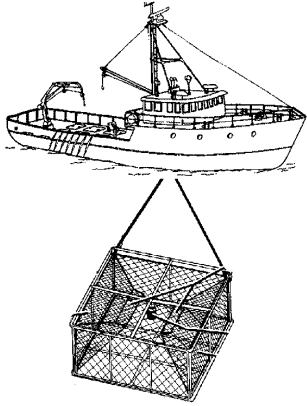
Vessel and Plant Descriptions

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 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

INTRODUCTION: Management Plans

ability to freeze fish that differentiates CPs from catcher boats, and a vessel which freezes whole fish is still considered a CP.

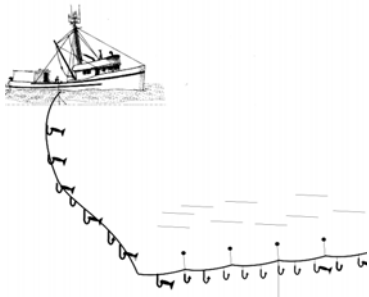
Pot Vessels



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). Observer coverage aboard pot vessels is dependent upon the number of pots retrieved. These vessels must carry an observer during 30 percent of their pot retrievals each quarter.

Longline Vessels

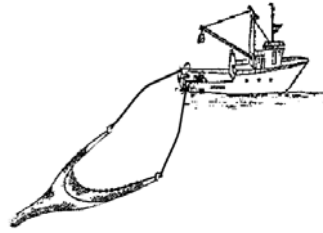


Longline vessels fish with fixed hooks strung along a ground line. The longline can be several miles long, and can have thousands of baited hooks attached. The longline fleet is composed of both

catcher boats and CPs. Longliners target Pacific cod, Pacific halibut, sablefish, turbot and some rockfish species. Longline vessels 125' or greater in length overall (LOA) are required to carry an observer whenever they are harvesting groundfish in the EEZ off Alaska. Longliners between 60-124' LOA must carry an observer for 30 percent of their fishing days for each quarter.

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. They participate in all groundfish fisheries and have the same observer coverage requirements as longline 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. In open-access fisheries, processing plants that process 1,000 metric tons or more of groundfish per month must have an observer present each day they process fish. Plants that process 500-1,000 metric tons each month must arrange for observer coverage for 30 percent of those days.

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 1-6. 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.

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 is 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

About 25% of the groundfish in the North Pacific is harvested in open-access fisheries. These fisheries can be targeted until the entire quota is caught and anyone with a Federal Fishing Permit may participate. LAPPs restrict the number of participants in some fisheries.

The Individual Fishing Quota (IFQ) program gave permits to fish sablefish and Pacific halibut to fixed gear fisherman and vessels which had historically harvested these species. This reduced the number of vessels targeting these species, and lengthened the amount of time over which they are harvested.

The Community Development Quota (CDQ) Program encourages Western Alaskan communities to become involved with the fishing industry by giving them a

percentage of the TAC of all groundfish species. Most of these communities do not have the equipment to harvest and process groundfish yet, so they sell their quota to vessels and processors already involved in fisheries. This arrangement has allowed some communities to purchase fishing vessels or shares in fishing companies. Catch estimates on CDQ vessels are based primarily on observer data, and additional experience is needed to observe during these fisheries.

Congressional legislation has also initiated programs which limit the number of vessels targeting a species. The American Fisheries Act of 1998 (AFA) limited the number of CPs targeting Bering Sea (BS) pollock, and created an opportunity for vessels targeting these fish to form cooperative (co-op) agreements. The AFA also established new allocations for BS pollock. This TAC is divided among the catcher processor, mothership, and inshore sectors. The inshore TAC is further allocated to individual catcher vessel co-ops. Catcher vessels belonging to these co-ops must deliver at least 90 percent of their catch to the co-op processor.

Although not required under the AFA, catcher processors formed a co-op in 1999 and motherships formed a co-op in 2000. These co-ops assign each vessel part of the pollock TAC, much like the IFQ system. Catcher processor vessels and motherships regulated by the AFA carry two observers, one of whom must have additional training to observe aboard these vessels.

Amendment 80 to the BSAI FMP was adopted in June of 2006 and implemented in 2008. This LAPP allocates several BSAI non-pollock trawl groundfish species among the trawl fishery sectors, and facilitates the formation of cooperatives in the non-AFA trawl catcher/processor sector.

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 are occasionally deployed on halibut IFQ vessels.

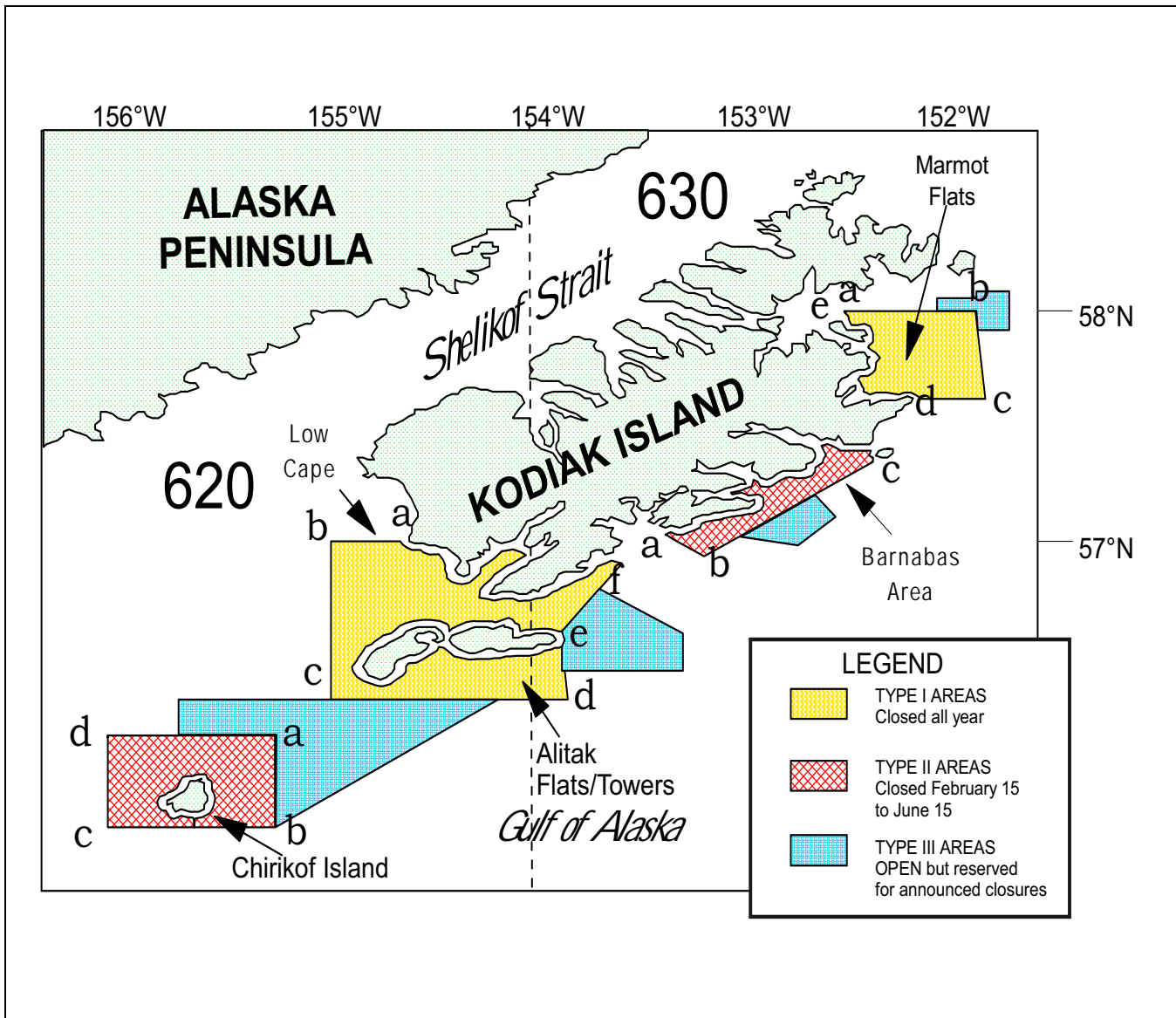


Figure 1-2: Example of Kodiak Island Time-Area Closures for Non-pelagic Gear

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 job training is required of all new observers, and for prior observers who have not been to sea in more than 18 months. Training can take place at

either the Alaska Fisheries Science Center in Seattle or at the North Pacific Observer Fisheries Training Center (NPFOTC) in Anchorage. The NPFOTC is part of the University of Alaska-Anchorage. The NPFOTC works closely with FMA Division Observer Program staff to provide consistent training at both locations.



Trainees must be sponsored by a NMFS-permitted observer provider. A list of these companies can be found on page A-83.

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

The logistical arrangements of your travel, assignments, and debriefing appointments are made by your company. 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. 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 and NPFOTC staff. Generally, first time observers bring too much with them. In one contract 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 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 (no storage

INTRODUCTION: Deployment

This list of items is approximately what you will need for a 60-90 day contract. 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-** 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. This will allow you to wear a PFD while maintaining your range of motion.

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, 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
- 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** and 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,** envelopes, stamps, and a small address book
- Books** and/or a journal
- Music** and mp3 player/Discman
- Water Bottle-** for keeping water near your bunk

Figure 1-3: :List of Personal Equipment

is available in Anchorage). 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 sheets, 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. You will not be charged for equipment damage or loss due to documented circumstances that were out of your control.
6. Keep your equipment centralized; you will be less likely to forget something when disembarking.



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

NMFS will also issue you some safety equipment, including an immersion suit and strobe light, 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 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 or Anchorage. 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 company know your needs so they can arrange the logistics with the vessel.

Assignments

The 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. Often, observers work less than 90 contiguous days because of fishery closures, weather and erratic vessel schedules.

Observers 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 contract by a specific date, tell your company logistics coordinator and get this date written into your contract. You should also have a written understanding of payment and

INTRODUCTION: Deployment

reimbursement agreements prior to leaving, since traveling in Alaska can be unpredictable and expensive.

When beginning 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 page 19-3. Read the “Trip Information,” section beginning on page 3-1 to get an idea of what to look for in a 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. Vessels requiring 100% observer coverage will 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 e-mail messages to Program staff. The e-mail you send is read and responded to by a member of the FMA Division'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 on communicating with the NMFS, refer to the Sending Data section beginning on page 2-30.

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.

Vessel operators are required by law to allow observers free access to communication systems for work purposes. Their communication systems are not usually



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

for personal use. If they allow you to use the phone or fax for personal use, you may be responsible for the charges incurred.

Using the Vessel's E-mail System

Some vessels may allow you to use the onboard e-mail system for personal communication. ***The messages you send and receive on these systems are not secure or confidential!*** Consider all communications through vessel e-mail as completely public, even if you are accessing your own e-mail account! Never discuss work, catch, vessel design or other “shop talk” that could be considered a breach of confidentiality, which is grounds for decertification.

Mid-cruise and Field Support

The FMA Division 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 21-3.



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

Observer Provider Responsibility

Federal regulations stipulate that you must have a signed contract with your company 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 phone or fax mid-deployment review as described on page 21-3.

Debriefing

When you complete your cruise, you will debrief with an FMA Division staff member. The main parts of debriefing are to:

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



Debriefing is generally done in Seattle or Anchorage.

Your debriefing is a vital part of your contract 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. The “Observer Survey” is an anonymous questionnaire about your training, deployment and debriefing experience. This is a chance for you to tell FMA Division staff how well you feel you were prepared to do your job and let the Program 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



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INTRODUCTION

As an observer, you will need to refer to this manual frequently. 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 2-22 for specific information regarding scales.
- Complete species identification forms.
- Complete your mid-cruise and final debriefing requirements.

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.
7. Collect additional biological data on prohibited species.
8. From hauls sampled for composition, collect otoliths from the appropriate species.
9. From hauls sampled for composition, collect sexed length frequency samples from the appropriate species.
10. From hauls sampled for species composition, record seabird specimen and tag information.
11. Collect data and specimens for standard projects.
12. Record sightings of marine mammals.
13. Record sightings of seabird “species of interest.”
14. Complete research projects as assigned.
15. Record sightings of or 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 on 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.

ESSENTIAL INFORMATION: Standards of Observer Behavior

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.

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 under contract 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 standards of behavior, 50 CFR 679.50 sets the following limitations on conflict of interest. "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.***

Providing Data to 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.

If you are on several vessels or plants during your deployment, keep all of your data, including “goldenrod” copies from a vessel logbook, in a safe and secure place. No crew member should ever be allowed to see another vessel/plant’s data. 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 e-mail. You may inadvertently give more information than you mean to.

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.

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-49).

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 21-2. 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.

ESSENTIAL INFORMATION: Completing and Organizing Forms

- **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 the hook count information collected by observers that is critical to longline fisheries management.
- **Salmon Retention Data:** Observers on CP trawlers, motherships, and at processing plants targeting or receiving Bering Sea/Aleutian Islands 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 will enter bird data into ATLAS.
- **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. This data does not go into ATLAS and the form is not faxed.
- **Species Identification Form:** All observers, whether at a plant or on a vessel, 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 fill in columns 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, may cause data to 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 the Trip Forms, Offload Forms, Vessel and Observer Haul Forms, Deck Forms, Hook Count and Spacing Forms, and Marine Mammal Sighting Forms.***

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 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. If it is not, the Species ID Form will not 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.***
- Species should be identified to the level provided in the keys and guides issued by NMFS.
- If you further identify an organism that only needs to be keyed to family, you must fill out a new form for the identified species (*e.g.*, red Irish lord would need a separate form than Irish lord unidentified).
- Sharks should be identified to species using the Family Key and/or Eschmeyer.
- 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 have an incomplete ID form, or none at all. 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 at your debriefing interview.

Failure to complete Species ID Forms is considered not meeting the expectations of the Observer Program and this would 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.** If you are unable to bring the fish back, please take photographs of the specimen for ID purposes.

Miscellaneous Species Description Form

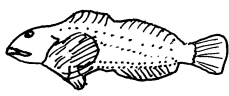
Vessel name: Fishin' Impossible Vessel code: A123
 Species common name: Mystery fish #5
 Observer: John Doe Cruise: 8800
 Haul #: 1b4 Fork length: 40 cm
 Specimen collected? Yes Weight: 0.6 Kg

FISHES:
 How many dorsal fins does the fish have? 1 2 3
 Is an adipose fin present? YES NO
 Pelvic fins? Present Absent very small
 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 find that you are using the fish unident. (901), flatfish unident. (100), rockfish unident. (300) or roundfish unident. (200) to identify fish on a regular basis, please notify your inseason advisor immediately.**

Green Sturgeon

Green sturgeon data are collected and recorded on the Length and Specimen Form; see “Green Sturgeon” on page 13-17 for more information.

Bag and Tag Specimen Label

The Bag and Tag Specimen Label is designed to ensure sufficient information is provided with specimens that are frozen and returned to NMFS offices. Specimens are collected for various reasons such as, but not limited to, verification of species identification, range extensions, and fish collections for training.

Bag and Tag Specimen Collection Label

Cruise	Permit	Haul No.	Offload No.	Sample No.	S-Sample No.
45591	1234	5		2	
<input type="radio"/> Lead <input checked="" type="radio"/> Second <input type="radio"/> Sole			Lead Cruise No. If Second Observer: <u>45588</u>		
Species Code: <u>211</u>		Species Name: <u>Arctic Cod</u>			
Reason for Collection					
<input checked="" type="radio"/> ID Verification		<input type="radio"/> Out of Range		<input type="radio"/> Training Specimen <input type="radio"/> Other <input type="radio"/>	
Comments: <u>specimen collected for confirmation</u>					

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

Follow these steps when collecting specimens:

- 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.

Place the specimen in the vessel freezer and bring it to a NMFS office as soon as possible.

OBSERVER LOGBOOK ENTRIES

Your logbook is probably the single most important piece of data because it contains additional information about all other data. 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 potential regulation issues. Many observers make

ESSENTIAL INFORMATION: Calculations

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).

DAILY NOTES - INCLUDE DATES
VESSEL/PLANT NAME <i>M/V Whistler continued...</i>
<i>02/24 continued</i>
<i>To, 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</i>

Figure 2-2: Properly Corrected Logbook Entries

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.

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 972.8226 kg/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 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-49) and document the problems in your observer logbook.

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

ESSENTIAL INFORMATION: Selecting Hauls to Sample

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 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 Random Break Table (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	N
A	2	3	2	4	4	2	3	2	4	3	4	2	4	2
	1	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	2
	1	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	2
	1	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	3
	1	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	2
	1	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 Random Break Table (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 time after the end of your six-hour break.
- Hauls retrieved during your break continue to be counted against the Random Sample 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.

ESSENTIAL INFORMATION: Selecting Hauls to Sample

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

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-49). 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

ESSENTIAL INFORMATION: Introduction to Sampling Theory

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 scales 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 *n*th 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

ESSENTIAL INFORMATION: Sample Design Codes for Species Composition

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.

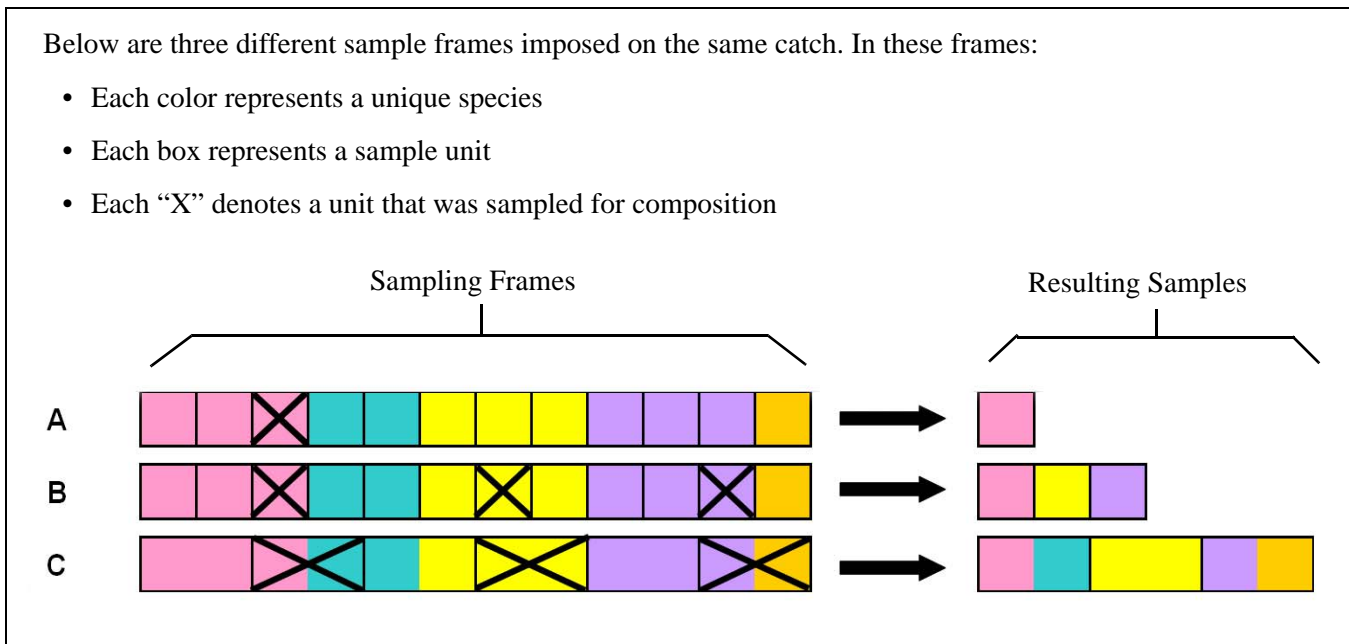


Figure 2-5: Sample frame examples showing benefits of multiple large samples over fewer small samples.

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).***

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 2011. (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 13-18.

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 8-4, 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 8-4, 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 “Offload Census Sample: All Pollock Catcher Vessels” on page 5-26. 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

ESSENTIAL INFORMATION: Sample Unit Type for species composition

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 type is used anytime that the unit defined within the sample frame cannot be collected in its entirety. This unit type is used to describe occurrences 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 blue 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

ESSENTIAL INFORMATION: Using Your Scales

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 5-14 on page 5-47.

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-53.

Testing Your Scales

Bring your scales into a field station at some point during 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 “Scale Verification Record” section of your logbook and in your daily notes. If your scales do not pass testing, obtain replacement scales as soon as possible and document this 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 will have a flow scale and a platform scale on board and longliners will have a platform scale on board. A few catcher vessels have flow scales, but it is unlikely that these are NMFS certified. Flowscales 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.

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 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 $\pm 0.5\%$ from the test weight.

When you test the platform scale, the displayed weight should be off by no more than $\pm 0.5\%$ 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.

Marel and Pols Platform Scales

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.

Skandvaegt Platform Scales.

The only thing you need to do with Skandvaegt 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 Skandvaegt 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

ESSENTIAL INFORMATION: Using Your Scales

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.

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 $\pm 3.0\%$ 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 $\pm 3.0\%$. 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

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

SAMPLE STATION REQUIREMENTS

Observer sampling stations and motion compensated scales are not required on all vessels participating in CDQ and AFA fisheries. Though they are required to carry a Level 2 observer, CDQ trawl catcher vessels are not required to provide an observer sampling station or motion compensated scale and, under certain circumstances, non-trawl catcher vessels are not required to provide observer sampling stations or scales. In addition, catcher vessels less than 60 ft LOA that deliver all groundfish CDQ, halibut CDQ, and salmon PSQ to an approved processor are exempt from observer coverage, sampling station, and scale requirements.

Vessels required by regulation to have an observer sampling station or motion compensated scales must have those items certified before participating in LAPPs such as the CDQ, AFA, or limited access non AFA groundfish fisheries. 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 and/or 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

When boarding a CDQ, AFA or other LAPP vessel read the Observer Sampling Station Inspection Report. 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. Before you complete your inspection of the sampling station, make sure the station is completely setup. Many vessels store their motion compensated platform scales when they are not CDQ or AFA fishing or disassemble the observer sampling station. 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 should 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.

Completing the Observer Sampling Station Verification Checklist

The following should be used to fill out 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

ESSENTIAL INFORMATION: Sample Station Requirements

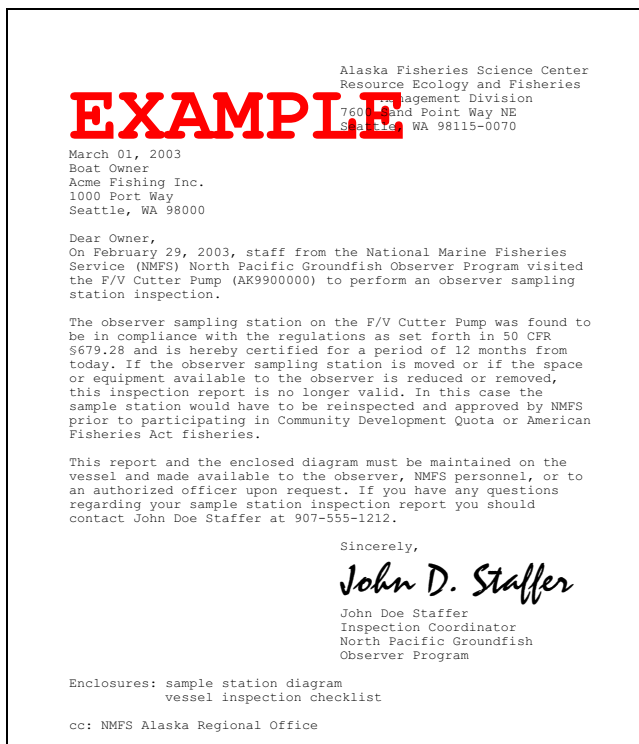


Figure 2-6: Sample Station Certification Letter

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 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 4.5m², 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 a blue 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 a blue 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: 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 as 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 CDQ, AFA, or other 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.

Vessel Types Fishing CDQ, AFA, or LAPP	Sampling Station?	Flow Scale?	Platform Scale?
Vessels < 60 ft (no observer required)	No	No	No
Trawl catcher vessels (delivering all catch)	No	No	No
Trawl catcher/processors and motherships	Yes	Yes	Yes
Non-trawl catcher vessels (discarding at sea)	Yes	No	Yes
Non-trawl catcher vessels (delivering all CDQ catch)	No	No	No
Non-trawl catcher/processors	Yes	No	Yes
Non-AFA groundfish BSAI CP trawl (LAPP)	Yes	Yes	Yes

Figure 2-7: Sample Station Requirements by Vessel Type

ESSENTIAL INFORMATION: Working with Two Observers

<i>Component</i>	<i>Requirement (all 100% coverage unless stated otherwise)</i>
CDQ (Non Pollock)	
Catchers ≥ 60 ft	One observer, level 2 not necessary, with 30% or 100% coverage subject to LOA
Catcher/Processors, Trawl	2 observers, at least one must be lead level 2
Motherships	One lead level 2 and one level 2 observer
Catchers ≥ 60 ft fixed gear sablefish	One observer, level 2 not necessary, with 30% or 100% coverage subject to LOA
Catcher/Processors, Longline	One lead level 2 and one level 2 observer
Shoreside and Floating Processors	One level 2 observer for each CDQ delivery
AFA & CDQ Pollock	
Catchers ≥ 60 ft	One observer, level 2 not necessary, with 30% or 100% coverage subject to LOA
Catchers, AFA Pollock	100% coverage
Catcher/Processors and Motherships	2 observers, at least one must be lead level 2
Shoreside and Floating Processors	One observer, level 2 not necessary, for each 12 hours of AFA or CDQ processing
Amendment 80 (Trawl CPs)	
Catcher/Processors in BSAI	2 observers, at least one must be lead level 2
Catcher/Processors in GOA	One observer, level 2 not necessary
Rockfish Pilot Program	
Catcher/Processor	2 observers, at least one must be lead level 2
Catcher Vessels	One observer, level 2 not necessary
Shoreside and Floating Processors	One observer, level 2 not necessary, for each 12 hours of receiving deliveries from catcher vessels cooperatives, limited access or entry level

Figure 2-8: Coverage Requirements for Limited Access Privilege Program Fisheries

WORKING WITH TWO OBSERVERS

There are several North Pacific fisheries that require two observers aboard a CP vessel. These include the CDQ, AFA, LAPP and Atka mackerel fisheries. Some vessels voluntarily carry two observers, even during an open access fishery. 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.

The 12 Hour Rule

In 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.

Level 2 and Lead Observers

CDQ and LAPP fisheries operate under additional regulatory requirements. These regulations specify that one or more of the observers on board have proven their ability to collect quality data via previous experience on similar vessel types and or/fisheries.

To achieve level 2 status, an observer must successfully complete a cruise that involved at least 60 days of data collection. A successful cruise is defined as one for which you received a debriefing score of “1.” A debriefing score of 1 indicates that you met expectations for data produced throughout your deployment. In order to maintain level 2 status, you must have a “met expectations” score for your most recent assignment. Those who receive a score other than 1 for a cruise will lose their level 2 status and must successfully complete a cruise before they can regain that status.

A lead observer is an observer that has met the requirements to become level 2 certified, as well as additional experience requirements on specific vessels and gear types. To become a lead observer, you must have successfully completed two cruises and met the experience requirements below.

- Trawl CP and Motherships: 100 sampled hauls.
- Trawl CV: 50 sampled hauls.
- Fixed gear CP and CV: At least 2 cruises over 10 days and 60 sampled sets.

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.

ESSENTIAL INFORMATION: Inseason Advisors and Text Messages

When you collect salmon scales, these should be recorded under the lead observer's cruise number 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.

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 CDQ, AFA, and other 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 sheet 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.

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. They will answer questions, review inseason data and request corrections. Any time you are uncertain about anything, send a message to your inseason advisor. Quick responses to these questions and corrections will aid in effective communications ensuring quality data for your cruise.

It is important to respond promptly to any directions given to you by your inseason advisor or other FMA staff. Delays in following directions or answering questions in a timely manner can negatively impact data quality. Failure to respond promptly to directions would be considered "not meeting expectations" and will be reflected in your final evaluation.

First Message to Inseason Advisor Example:

"Hello! We are settling in pretty well here. We verified the Safety Checklist and the captain ran a hands-on man-overboard drill. The sample design we are using is a systematic spatial design. The haul is divided into 9-12 equal units based on the vessel estimate. 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, 15-20, 30-35, and so on). We may need to modify this for small hauls, but we haven't

had any yet. Within the sample frame the RNT is used to select a sample unit and then a basket within that unit to collect sex length fish (if there are too many fish in the basket, we 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 of those for our sample, and 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) from the sex length fish. If we have hauls with 2 predominant species a subsample will be collected from the sample that was collected for sex length. Let us know if you have any questions. Thanks! Wally and Polly.

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.

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 rule applies to both ATLAS and fax data.

Inseason Messages Do and Don't

Do

- *Write to your inseason advisor as soon as you board the vessel.*
- Proofread your messages.
- Be precise when asking a question or describing your methods.
- Notify your advisor when your partner or the target species changes.
- Contact your advisor immediately if any injury, illness, or marine casualty occurs.

Don't

- Discuss vessel personnel in a derogatory manner.
- Use inappropriate language.

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 2-9 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.

ESSENTIAL INFORMATION: Sending Data

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 Receiving AFA pollock deliveries	Once per day
Processing plants	3-4 times per week
Trawl catcher vessels All fisheries	Once per day

Figure 2-9: 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, and the corresponding forms for species

composition, lengths and specimen data, marine mammal interaction and specimen data, and seabird 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 text 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.

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.

Cruise			Permit			Year			Observer Haul Form												
20778			1239			2011			Observer Name <u>Juan DeFuca</u>					Vessel Name <u>Astoria Queen</u>							
												Trawl Vessels									
Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (Y=On, N=Off, or 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)		Observers Catch Estimate (kg)		B, C, or W	Density (kg/m ³)	Volumetric Estimate (m ³)	Short Wired? (Y/N)	Catcherboat's ADF&G # (Mothership Only)			
								(Resubmission) (Circle All Changes)													
0								.	.	.	.	.	.	.	.	.	.	.
200	20778	X	N	7	3	100	4.00	250	4250	W	.	.	2	N							
201	20752	X	N	7	3	100	(18.00)	0	(19123)	W	.	.	2	N							
202	20778	X	N	7	3	100	22.00	0	23151	W	.	.	2	N							
203	(20752)	X	N	7	3	100	(16.00)	0	16564	W	.	.	2	N							
204	20778	X	N	7	3	0	18.00	0	17120	W	.	.	0	N							
205	20778	X	N	7	3	100	27.00	0	30452	W	.	.	2	N							
206	20752	X	N	7	3	100	24.00	190	24193	W	.	.	2	N							
207	20752	X	N	7	3	100	15.00	0	16572	W	.	.	2	N							
208	20752	X	N	7	3	100	17.00	0	18418	W	.	.	2	N							
209	20778	X	N	7	3	100	20.00	0	21922	W	.	.	2	N							
210	20778	X	N	7	3	100	25.00	0	25491	W	.	.	2	N							
0							.	.	.	.	.	.	.	.	.	.	.	.
Comments:																					

Figure 2-10: Resubmitted Fax Data (example)

Observer's Guide
To
Federal Groundfish Management
Off Alaska

2009

Revised 10/27/2008

Acronym Guide

ABC	Allowable Biological Catch
ADFG	Alaska Department of Fish and Game
AFA	American Fisheries Act of 1998
BSAI	Bering Sea & Aleutian Islands
CDP	Community Development Plan
CDQ	Community Development Quota
EEZ	Exclusive Economic Zone
GOA	Gulf of Alaska
IFQ	Individual Fishing Quota
IPHC	International Pacific Halibut Commission
MRA	Maximum Retainable Amount
LAPP	Limited Access Privilege Program
MSCDQ	Multi-species Community Development Quota
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
NSR	Non-Specific Reserve
OFL	Over fishing Level
OY	Optimum Yield
PSC	Prohibited Species Cap
PSQ	Prohibited Species Quota (for CDQ)
TAC	Total Allowable Catch

Observer's Guide to Federal Groundfish Management off Alaska

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Fishery Management Terms

Allocation - Distribution of the opportunity to fish among user groups or individuals.

Acceptable (or allowable) Biological Catch (ABC) - The amount of harvest a stock can sustain in a given year to maintain MSY (see below).

Catch Per Unit of Effort (CPUE) - The number of fish caught per amount of effort. Typically, effort is a combination of gear type, gear size, and length of time gear is used. CPUE is often used as a measurement of relative abundance for a particular fish.

Maximum Sustainable Yield (MSY) - The largest average catch that can be taken continuously from a stock under average environmental conditions.

Optimum Yield (OY) - The harvest level for a species that achieves the greatest overall benefits, including economic, social, and biological considerations. Optimum yield is different from maximum sustainable yield (MSY) in that MSY considers only the biology of the species.

Overcapitalization - A high level of investment in a fishery results in a fishing effort level that is not economically productive. Too many vessels operating in a fishery or increased effort through technological advances may drive down profits.

Overfishing - Harvesting at a rate that will exceed the management goal (general definition). A rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce MSY on a continuing basis (MSA definition). An Overfishing Level (OFL) is determined for every species or species group for which there is a TAC.

Stock - A grouping of fish usually based on genetic relationship, geographic distribution, and movement patterns. Also used to describe a managed unit of fish.

Stock Assessment - An evaluation of the size and/or health of a predefined population. It includes all the activities that fishery biologists do to describe the conditions or status of a stock. The result of a stock assessment is a report on the health of a stock and recommendations that would maintain or restore the stock.

Total Allowable Catch (TAC) - The annual recommended harvest level for a species or species group. The Regional Council sets a TAC within the range of the Acceptable Biological Catch (ABC).

Alaska Groundfish Fishery Websites of Interest

NMFS Alaska Region Homepage	www.fakr.noaa.gov
North Pacific Fishery Management Council	www.fakr.noaa.gov/npfmc
NOAA Fisheries Homepage	www.noaa.gov/fisheries.html
Alaska Fisheries Science Center	www.afsc.noaa.gov/
North Pacific Groundfish Observer Program	www.afsc.noaa.gov/refm/observers/default.htm
U.S. Coast Guard 17 th District	http://www.uscg.mil/d17/index.htm

Federal Fisheries Management

Knowing about fisheries management will enhance your perspective as an Observer. This overview describes the general framework for Federal management of fisheries in limited detail. For further information, read *Understanding Fisheries Management* (Sea Grant, 2002, MASGP-00-015) and browse www.nmfs.noaa.gov.

The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA) was enacted to provide for the conservation and management of the fisheries of the United States. The MSA established a management system for the living marine resources of the continental shelf surrounding the United States.

The central goals of the MSA include the long-term health and stability of fisheries; while protecting, restoring, and promoting fisheries through conservation and management.

It has been re-authorized and revised several times, most recently in 2006. At the time of its enactment, a major goal was to replace foreign fishing with U.S. fishing vessels, which was achieved by 1992. The focus of the current MSA is “sustainable fisheries”.

Major Provisions of the MSA

Exclusive Economic Zone (EEZ). State waters extend to 3 miles offshore. U.S. territorial water (i.e.-the U.S. border) extends to 12 miles offshore. The U.S. claims management of the Living Marine Resources (LMR) from 3 to 200 miles offshore. Most coastal nations claim an EEZ.

Regional Fishery Management Councils. Eight regional fishery management councils are established by the MSA to develop Fishery Management Plans for the fisheries in federal waters. Councils are overseen by the U.S. Secretary of Commerce and are composed of members from state and federal agencies, tribes, and private citizens who are knowledgeable about the fisheries.

Fishery Management Plans (FMP). Management plans for the fisheries operating in the federal EEZ are developed by the Regional Councils and submitted to the Secretary of Commerce for approval.

National Standards. Ten National Standards for fishery conservation and management are contained in the MSA. All Fishery Management Plans must comply with these standards. NMFS publishes descriptive guidelines for councils to help them comply with these standards as they develop FMP or FMP Amendments.

Essential Fish Habitat (EFH). The MSA mandates that councils and federal agencies describe and identify EFH, including adverse impacts and conservation and enhancement measures. Since this addition to the MSA in 1996, fishery management councils have mostly acted in the “description and identification” steps. The “adverse impacts” (including impacts of fishing gear) are recently becoming more understood and addressed in FMPs. All federal agencies must consult NMFS about any action they take which may adversely affect EFH.

Bycatch Reduction. The MSA mandates that a standardized reporting methodology be established to assess the amount and type of bycatch occurring in the fishery, and include measures to minimize bycatch and to minimize the mortality of bycatch which cannot be avoided. Additionally, the Secretary of Commerce in cooperation with the fishery management councils is directed to establish a bycatch reduction program to develop technological devices and other conservation engineering changes designed to minimize bycatch, seabird interactions, bycatch mortality and post-release mortality in federally managed fisheries.

Observers. The MSA does not mandate observers in any fishery, but does set standards for those fisheries where federal observers are required. For example, there is a requirement for observer programs to have vessel safety standards, and to specify circumstances when a vessel would not be required to have an observer. Under Section 307, it is prohibited to “assault, resist, oppose, impede, intimidate, sexually harass, bribe, or interfere with any observer or data collector employed by NMFS or contracted to carry out responsibilities under this Act”. Specifically for Alaska, section 104 allows the North Pacific Fisheries Management Council to establish a system of fees to pay for the observer program in the North Pacific off Alaska.

North Pacific Fisheries Conservation. Section 104 of the MSA has specific instructions for the North Pacific Fishery Management Council. The instructions include that the council must take action to reduce economic discards (species with no viable market) on an annual basis, increase total catch measurement accuracy and enumeration, and increase retention/utilization.

Community Development Quotas (CDQ). The North Pacific Fishery Management Council was mandated to establish a CDQ program for Western Alaska. The Act lists which communities are qualified to participate. The Western Pacific is also authorized to have a CDQ program.

Limited Access Privilege Programs (LAPPs). Section 303A of the MSA lists the requirements for establishing LAPPs in fisheries that are overfished or determined to be overcapitalized in order to reduce capacity and promote fishing safety, conservation and management, and social and economic benefits.

MSA National Standards for Fishery Conservation & Management

1. *Conservation and management measures will prevent overfishing while achieving, on a continuing basis, the optimum yield for each fishery.*
2. *Conservation and management measures will be based on the best scientific information available.*
3. *To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.*
4. *Conservation and management measure shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various US fishers, such allocation shall be (a) fair and equitable to all fishers; (b) reasonably calculated to promote conservation; and (c) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.*
5. *Conservation and management measures shall, where practicable, promote efficiency and the utilization of fishery resources, except that no such measures shall have economic allocation as their sole purpose.*
6. *Conservation and management measures shall take into account and allow for variations among, and contingencies in, fishery resources and catches.*
7. *Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.*
8. *Conservation and management measures shall, consistent with the conservation requirements of this Act, take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of those communities, and (b) to the extent practicable, minimize adverse economic impacts on those communities.*
9. *Conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.*
10. *Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea*

Fishery Management Councils

The MSA stipulates the makeup of each council. Members represent NMFS, state fishery agencies, persons knowledgeable about the fisheries, and federally recognized tribes. Non-voting members include the U.S. Coast Guard, U.S. Fish and Wildlife Service, the U.S. Department of State, and the Interstate Marine Fisheries Commission of that area (Atlantic, Gulf, or Pacific States Marine Fisheries Commission). For example, The North Pacific Fishery Management Council, based in Anchorage, Alaska, has authority over the federal fisheries off Alaska. The NPFMC has 11 voting members and 4 non-voting members (see “Fisheries Management in the EEZ off Alaska”.)

The Regional Administrator of NMFS is a voting member of any council. Because there are eight councils and six NMFS regions, some Regional Administrators are on several councils. Each member state’s fishery agency also has a voting seat. Officially, it is the head of the state fishery agency that is named as the council member, but usually a designated alternate attends the meetings. Being a council member is a full-time responsibility for many members, and agency representatives become specialists in this particular arena of fishery management.

Appointed members represent their states and are experienced and knowledgeable in fisheries. For example, the NPFMC has five appointed members from Alaska and two from Washington. Appointed members are nominated by the Governors of member states and appointed by the Secretary of Commerce. The Governor must consult with representatives of commercial and recreational fishing interests before submitting three names, one of which is the preferred choice. The Secretary reviews the qualifications of the Governor’s choice and two other candidates before approving the new council member. The Secretary must also receive disclosures of the individual’s financial interests because that person may not vote on matters that will have a pronounced effect on that appointee’s financial interests. Once appointed by the Secretary, they serve a three year term, and cannot serve more than three consecutive terms. Terms begin August 11 each year.

Councils have Scientific and Statistical Committees (SSC) and Advisory Panels (AP) that make recommendations to the Council. Scientific and Statistical Committees are made up of professionals knowledgeable in technical areas such as fisheries biology, statistics, economics, etc. Advisory Panels are made up of people knowledgeable in commercial or recreational fisheries, or who represent other interests. The members of these committees are appointed by the council for one year terms.

Each council has a full time Director and staff to assist in writing FMPs, coordinate meetings, conduct public hearings, provide information to the public, conduct research, and write reports to the Secretary of Commerce (when requested).

Fishery Management Plans

States have management authority over the fisheries out to 200 miles until a Regional Council (or the Secretary of Commerce) develops a Fishery Management Plan (FMP). A Fishery Management Plan describes the fishery’s species, biology, participants, problems, and management measures. Once a FMP is in place, it can be altered by the amendment process. Councils, NMFS, the states, and the public all have input on developing and changing FMPs.

Full Amendments change the intent of the FMP and must be approved by the Secretary of Commerce. An amendment must conform to federal laws and the National Standards of the MSA. Amendments often address several issues. For example, in 1989, BSAI Amendment 13 established the observer program, set target species definitions and seasons, established areas closed for walrus protection, and allocated sablefish by gear type.

Regulatory Amendments change a FMP, but are within the framework and intent of the FMP, including any full amendments. They are initiated at the council level and must be approved by the regional director of NMFS. They are the most common type of council action.

Emergency Actions are a council level implementation of regulatory policy in response to urgent issues. They are valid for 180 days, and can be extended another 180 days. Emergency actions are usually followed by a full or regulatory amendment if they are addressing a permanent need for a management measure. Emergency Actions are often put in place while regulatory amendments are under the public review process.

Secretarial Plans are written by the Secretary of Commerce for highly migratory species, or if a council is unable to act on a fishery problem in a timely manner.

Implementing Fishery Management

Commercial fisheries that take place in the EEZ are federal fisheries managed by federal regulations. Some state regulations also apply. The crab and scallop FMPs in Alaska, for example, name the State of Alaska as having the management authority for the fishery. The following section briefly describes how federal management is implemented.

The Code of Federal Regulations

The Code of Federal Regulations (CFR) is the civil laws of the United States. Federal laws are derived through legislation passed by Congress and signed by the President (or sometimes by overriding presidential vetoes). These laws give authority and direction to various federal agencies that write and publish regulations. Federal agencies write regulations to support new legislation, to change regulations when necessary to meet the intent of public laws, or to keep up with changing conditions in their area of authority.

Regulation changes made by councils, NMFS, or other federal agencies must be preceded by either an Environmental Impact Statement (EIS) or an Environmental Analysis/Regulatory Impact Review (EA/RIR) to meet the National Environmental Policy Act (NEPA). These documents address the effects of the new regulations on the natural and socioeconomic environments, and allow for public review of the effects.

To become a federal regulation, the public must be given proper notice and have opportunity to comment on the new rules. Agencies provide this via the Federal Register, which is published every business day of the federal government. Three major parts of the Federal Register are Proposed Rules, Rules and Regulations (Final rules), and Notices.

Proposed Rules include a description of the need for the new rules, the proposed text of the regulations to support the new rule, descriptions of the affected businesses and entities, and instructions on whom to contact and how to submit comments on the new rules. Thirty days from the date of publication is the minimum time allowed for public comment.

Eventually, the new rule may be published as a “**Final Rule**.” The Final Rule goes into effect no sooner than 30 days from its published date in the Federal Register. The Final Rule publication includes responses to all comments received on the proposed rule, any changes from the proposed rule, justification for those changes, and the changed regulations as they will appear in the CFR. In the case of an FMP amendment, the Secretary of Commerce must approve the Final Rule before publication.

Fisheries Management Tools

The agencies responsible for managing fisheries use various tools to maintain a target level of fishing. Some examples are:

- Quotas (limiting catch)
- Time/area closures (seasons)
- Trip limits
- Gear/vessel type restrictions
- Retainable bycatch restrictions
- Limited access (license limitation)
- Sex or size restrictions

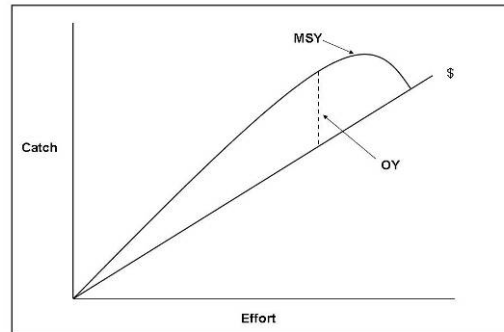


Figure 1. Maximum Sustained Yield and Optimum Yield.

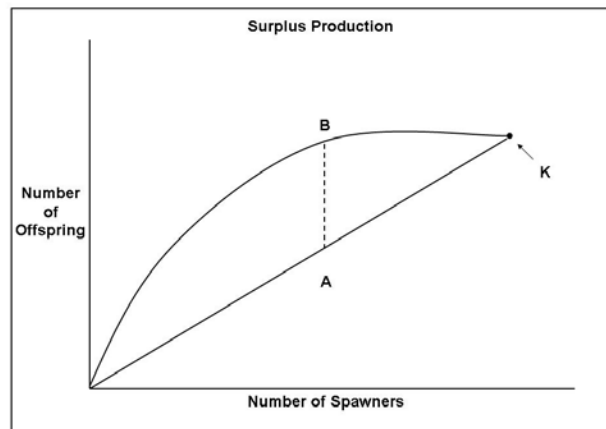
These tools are used to meet goals set out in the Magnuson-Stevens Act—conservation of the resource, while enabling the optimum yield of the various fisheries. Councils and NMFS strive to design and carry out Fishery Management Plans to meet the MSA standards and the specific needs of the fisheries in a way that is fair and equitable to all, with the greatest benefit to the nation.

Maximum Sustainable Yield (MSY) is the most removal a biomass can continually support. If the catch level consistently exceeds MSY, the biomass will reduce. A decline in catch-per-unit-effort (CPUE) may be an indicator of exceeding MSY.

Optimum Yield (OY) is defined in the MSA as 1) the yield that will produce the greatest overall benefit to the nation, 2) MSY reduced by economic, social, or ecological factors, and 3) a level of fishing that provides for rebuilding of overfished stocks. In federal fishery management, stocks are managed at OY, which is less than MSY.

Surplus Production

Natural (unfished) populations tend to increase until reaching the Carrying Capacity (K) of their environment. The straight line (origin to K) represents the situation where the number of offspring increases on a one-to-one basis with the number of spawners. The curved line shows that the number of offspring increases faster than the number of spawners, until some point where additional spawners do not significantly increase offspring numbers. Fishing reduces the number of spawners, moving to the left from K. The line A-B represents the maximum “surplus production” created by fishing and the removal of adult fish.



Common Property Resources: The Tragedy of the Commons

A common property resource, by definition, has free and open access to users. Examples include the air we breathe, large bodies of water, and public outdoor recreation lands. There are no exclusive rights and no controls over the amount of capital and labor that can make use of the resource.

This freedom to use, however, can lead to waste. Garret Hardin, in 1968, described problems associated with common property resources using the “commons”-- public grazing land in old England. In the commons, the grass disappeared as more and more sheep were allowed to graze. Eventually, the commons were depleted and useless to all, including those who had invested capital (sheep). Greed and lack of management caused the downfall of the commons. This “tragedy” illustrates several problems with common property resources.

- For each user, the individual benefits of obtaining more livestock outweighed the individual loss of a little more grazing space. One more sheep directly increases the profits of a single individual, but the cost of the extra grazing is shared among all users.
- As an individual, there is little incentive to conserve the resource. If you curtail your own resource use, others will use it up and benefit from it without you.
- If you don't keep up or keep ahead of your neighbor you will lose out, and you won't be able to make a living or provide for your family.

The result is abuse and the possible loss of the resource. There must be rules (regulations) to guide the use of common property. The government regulates the use of common property resources to ensure future benefits. Some entity needs to make the rules and manage the resource, and some entity has to enforce these

Open Access Fisheries

By definition, an open access fishery is open for anyone to participate. Throughout history, almost all fisheries were open to anyone with the means to fish. In an open access fishery, those fishermen who can catch the most will profit the most. Those who cannot compete get smarter, bigger, or quit. This is the way fisheries have been conducted for years--where everyone has an equal chance at the fish, and those who are most successful prevail.

Historically, North Pacific fisheries have been “open access,” with Total Allowable Catch (TAC) quotas as a primary fishery management tool used by the North Pacific Fishery Management Council. A TAC without limits on participation provides incentives for each vessel to harvest as much fish as quickly as possible before the fishery is closed.

There are problems with open access management. Modern fish harvesting and processing techniques allow fish to be found more easily, caught in larger amounts, and processed faster. Often, more and larger vessels enter a fishery than the resource can support. The result is very competitive fishing, and the total catch is taken with a smaller profit for each vessel. Eventually, those profits could fail to support their investments, a result of “overcapitalization”.

Limited Access Fisheries

Open access and overcapitalization can create fast-paced, intense fishing that is often called “derby fishing” or an “olympic style” fishery. The fishery is difficult to manage at Optimum or Maximum Sustainable Yield because the catch rate is high and seasons are short. In the competition to catch as much as possible, fishermen have little incentive to avoid bycatch and high discard rates, or produce a higher quality product. The fishery creates a surge of product in the market leading to lower prices for the fishermen and lower quality for consumers.

Since the implementation of the MSA, most federally managed fisheries have become limited access fisheries. Permits, licenses, and moratoriums on new entrants limit access to marine resources. Overcapitalization has been addressed in the North Pacific with measures such as License Limitation and Limited Access Privilege Programs (LAPPs).

By limiting access, common property resources (e.g., fish) are, in effect, changed into private property resources for individuals or specific groups of fishermen. Sometimes the term “restricted access” is also used for these management programs. Some examples:

- License Limitation or Limited Entry Programs restrict the number of vessels or permits that participate in a fishery. To qualify, vessels must have had participation in the fishery. The North Pacific groundfish, scallop, and crab fisheries are under a License Limitation Program.
- Community Development Quotas (CDQ) allocates fish and crab to qualified groups for economic development.
- Limited Access Privilege Programs (LAPPs) provide a group of harvesters with exclusive harvest privileges to a resource. North Pacific LAPPs include:
 - Individual Fishing Quotas (IFQ) assigns percentage shares of the TAC 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.
 - American Fisheries Act (AFA) pollock vessels in the BSAI form private agreements (known as fishery cooperatives) between the fishery participants. The participants agree to catch limits for each company or vessel. Fishery cooperatives are not formed by laws or regulations, but AFA regulations specify limitations or rules concerning the formation of these co-ops.
 - Amendment 80 sector vessels are non-AFA catcher processors in the BSAI. Under Amendment 80 these entities may form fishery cooperatives to share a specific portion of the harvest of six non-pollock groundfish species in the BSAI.
 - Central Gulf of Alaska Rockfish program vessels share the GOA rockfish quota through the formation of cooperatives. This is a pilot program set to sunset in 2009.

Benefits and Costs of Limited Access Fisheries

Benefits for Conservation and Economic Efficiency

- Limiting access slows down the “race for fish”. Managers are able to monitor the catch levels of the fleet, avoid overfishing and maintain Optimum Yield.
- Reducing the “race for fish” may reduce bycatch or fishing for immature fish.
- Limiting participation and making the participants “stakeholders” in a fishery may provide more incentive to conserve the resource.
- Excess harvesting and processing capacity (overcapitalization) may be reduced.
- Product quality and value may increase in a slower-paced fishery where processors can produce a higher quality and higher value product. Also, fish can be caught when the market dictates a need, resulting in higher prices paid to the fishermen.
- Safety may be improved since the pressure to fish in unsafe conditions is reduced.

“Costs” of limited access fisheries:

- Communities that *have* been dependent on fisheries may lose jobs and revenues.
- Fewer processors and vessels are needed, reducing the number of employees needed to participate in the fishery. The assignment of ownership to a former common property resource is a politicized process. Individuals or groups are inevitably excluded. Some individuals profit from the “windfall” of a new limited access system where licenses and IFQs granted to them for free can be sold for profit.
- The cost for new fishermen and vessels to enter the fishery and replace older and retiring fishermen and vessels is increased.
- Administrative costs for management and enforcement can be higher.
- The problems that limited access programs are meant to address can worsen if the programs are poorly designed. For example, limiting access without also limiting fishing capacity expansion leads to fewer, but larger vessels engaged in a race for fish. Sometimes licenses are issued to more participants than the fishery can support, and some type of capacity reduction (buyout) is usually necessary to fully achieve the intended benefits of limited access.

Fisheries Management in the EEZ off Alaska

Observers are an essential part of the management of the federal fisheries in the EEZ off Alaska. Level 2 Observers are placed in fisheries that have specific management needs and a more specific catch accounting system (such as CDQ group allocations or AFA sideboard limits). A basic knowledge of federal groundfish management in Alaska will help you perform as a Level 2 Observer.

The federal fisheries in the EEZ off Alaska are managed by the Alaska Region of the National Marine Fisheries Service, based on FMPs developed by the North Pacific Fishery Management Council (NPFMC). The makeup of the NPFMC is set by the Magnuson-Stevens Act to be eleven voting members, representing Alaska, Washington, and Oregon; and four non-voting members.

The Scientific and Statistical Committee (SSC) of the North Pacific Council has 15 members. The SSC assists in the development, collection, and evaluation of scientific information that is relevant to the council’s development and amendments to fishery management plans.

The Advisory Panel (AP) of the NPFMC has 21 members representing industry sectors, communities, sport fishing, environmental groups, observers, and other special interests. As the name implies, the panel advises the council and makes recommendations to assist in the development of fishery management plans.

Plan Teams, comprised mostly of scientists, produce the annual Stock Assessment and Fishery Evaluation (SAFE) reports. The stock

The North Pacific Fishery Management Council

Voting members:

NMFS Alaska Region Administrator
Alaska Department of Fish and Game
Oregon Department of Fisheries and Wildlife
Washington Department of Fisheries and Wildlife
5 appointees from the Governor of Alaska
2 appointees from the Governor of Washington

Non-voting members:

U.S. Coast Guard 17th District Commander
U.S. Department of State
Pacific States Marine Fisheries Commission
U.S. Fish and Wildlife Service

assessment section includes recommended acceptable biological catch (ABC) levels for each stock and stock complex managed under the FMPs. The fishery evaluation section describes the socioeconomic status of the fisheries. The ABC recommendations, together with social and economic factors, are considered by the Council in determining total allowable catches (TACs) and other management strategies for the fisheries.

Other committees are formed when needed. For example, the NPFMC has an Observer Advisory Committee, a Crab Rationalization Committee, an Essential Fish Habitat Committee, and others. Like the SSC and AP, members are appointed by the council members for one year terms.

BSAI and GOA FMP Elements

Groundfish Catch Quotas

Annual quotas for each species or species groups are set by the NPFMC. BSAI and GOA plan teams meet and determine a Biomass estimate, Acceptable Biological Catch (ABC), Overfishing Limit (OFL), and recommend a Total Allowable Catch (TAC) to the Council. These are detailed in the BSAI or GOA Stock Assessment and Fishery Evaluation (SAFE) reports. In December, the Council sets a TAC for each species or species group for the upcoming year, which is limited to a total of 2 million metric tons in the BSAI. The FMPs define Optimum Yield as 1.4-2.0 million metric tons in the BSAI and 116,000 - 800,000 metric tons in the GOA. The annual specifications are published in the Federal Register.

As outlined in Amendment 56, the plan teams and council determine OFL and ABC specifications by assigning each stock to one of six “tiers” based on the availability of information about that stock. Stocks in Tier 1 have the most information, and those in Tier 6, the least. Species or species groups are placed into appropriate tier based on several factors. Tier 1 and 2 are based on estimates of MSY. For Tier 1, statistical uncertainty can be estimated; while Tier 2 is used for species for which it cannot. Tiers 3 and 4 are based on spawning per recruit. In Tier 3, recruitment can be estimated; but not in Tier 4. Tier 5 is based on natural mortality rate. Tier 6 is based on average catch.

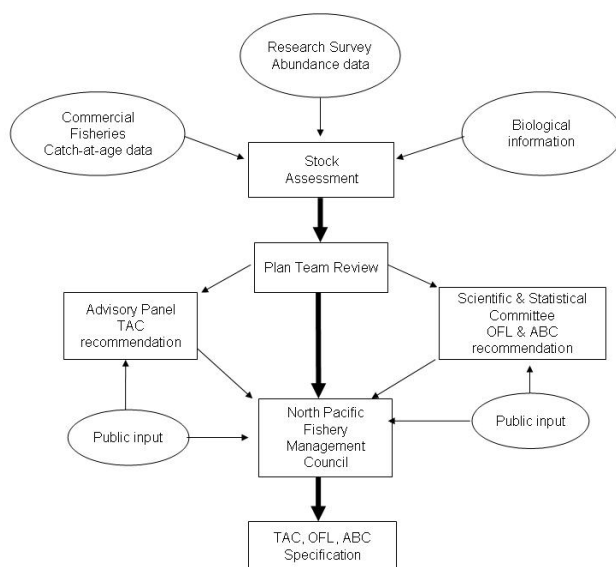


Figure 2. Annual harvest specification process for the Federal groundfish fisheries of Alaska (Source: Witherall 1997).

Once a TAC is determined, the quotas for the various open and limited access fisheries are set by the allocations specified in the FMP. Many of these quotas are allocated by gear type, seasons, and inshore/offshore percentages. NMFS manages the fisheries by tracking the catch (in-season management) and announcing closures.

The Non-Specific Reserve (NSR) is a management tool that acts as a “safety margin” to maintain MSY and allows for uncertainty in ABCs. It was instituted in the early days of the groundfish FMPs when foreign fishing was the predominant harvesting sector and reliability of in-season data was not as accurate as today. Once the NSR of each TAC is determined, it becomes “Non-specific”, meaning that it is a total tonnage, not any specific species

or species group. NMFS may apportion NSR to any species group to allow for overages of quotas, or if determined that a stock size is larger than estimated. In many years the NSR is left mostly unused.

Quota allocation

Once a TAC is specified for a species or species group, the FMP prescribes how it is allocated. The NSR is deducted from all but pollock and sablefish, and then percentages of the available TAC are allocated to sectors of the fishery. Sectors can be gear types, or inshore and offshore sectors within a gear type. BSAI pollock, for example, is not split by gear type; but is allocated to inshore, offshore, motherships, CDQ, and as incidental catch in other (see AFA description in next section).

The BSAI Pacific cod TAC has the most complicated allocation scheme (Figure 4). Besides the quota allocation, each gear type has seasonal allowances of the species quota and halibut Prohibited Species Caps (PSC). Pot and jig vessels have no halibut PSC. Trawl vessels are also subject to time/area closures of other PSCs.

The limited access fisheries of Alaska’s EEZ include all groundfish except fixed gear sablefish, CDQ, and LAPPs. With the License Limitation Program there are no truly open access fisheries in the North Pacific except for some small vessels or jig vessels. The limited access fisheries have one overall quota, and vessels compete for catch until the fishery is closed. These fisheries are often referred to as the “olympic fisheries” or “race for fish”. NMFS uses both industry reported data and observer data to monitor the catch of each species or species group.

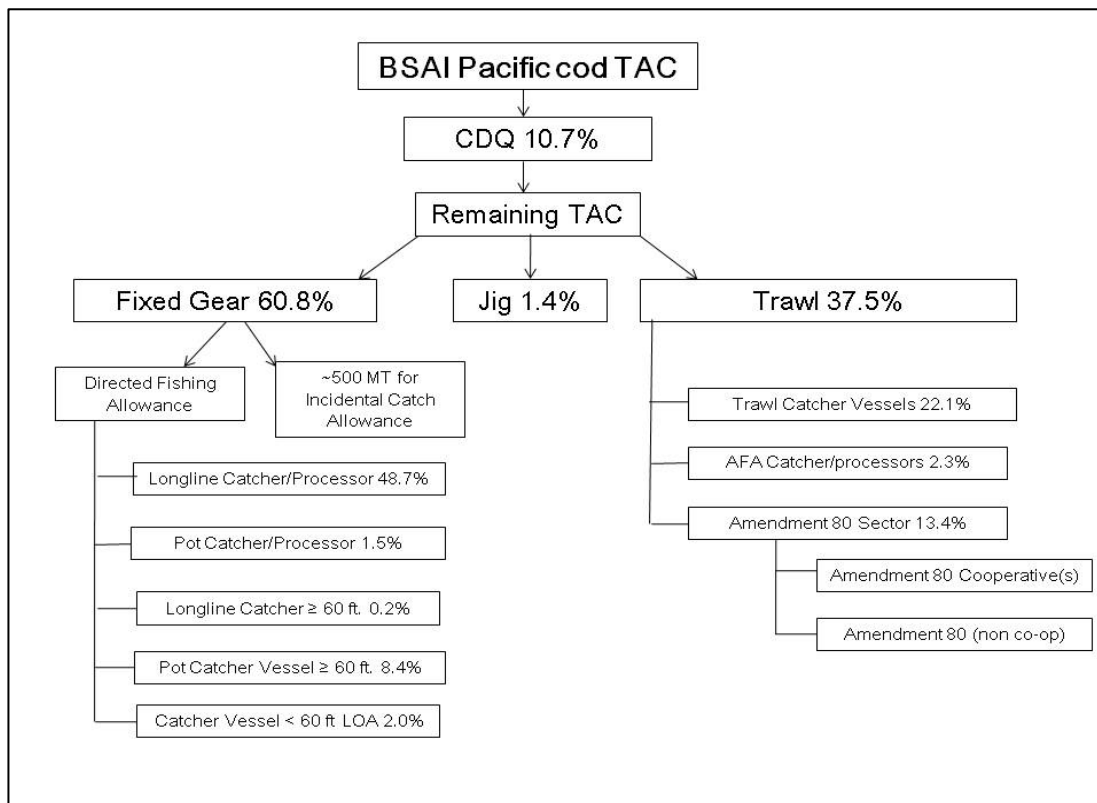


Figure 3. Pacific cod allocation in the BSAI (as of 2008). This species is harvested by all gear types and sectors. Over time, the allocations have been separated to various sectors. This is not the case with most Alaska species.

Directed Fishing. Vessels and plants are determined to be in a target fishery based on the predominant retained species or species group by fishing trip according to Weekly Processor Reports (WPR) and Observer data (species composition data and percent retained). A fishing trip begins by fishing and ends by offloading, season closure, midnight Saturday (one trip = one week in a target fishery), changing areas, or switching gear. Once a vessel or a processor is determined to be in a target fishery, the regulations of that fishery apply.

Retention of bycatch species is limited to a Maximum Retainable Amount (MRA) that varies by the species and target fishery. For example, a P. Cod longliner in the BSAI can retain pollock up to 20% of the round weight of P. Cod they catch, but only retain sablefish up to 1% of the P. Cod round weight.

All managed species or species groups, at any given time, fall into one of three status categories. “Open” species can be a target fishery, where a vessel retains more of them than anything else. After a seasonal allocation of TAC or PSC has been taken, they become “Bycatch” status, and the Maximum Retainable Amount rules apply. Once the entire TAC has been caught, they may be placed in “Prohibited” status, and cannot be retained. Fishing companies and vessels track which fisheries are open and what they can retain and try to maximize the value of their catch.

There are many species affected by fisheries that are “non-specified” or “non-allocated”. There is no quota for these species and no limits placed on their catch. These species are not considered to be of economic importance, are not named to be in any managed group, and therefore are not mentioned in regulations or annual specifications. Some examples are poachers, lumpsuckers, starfish, and grenadiers. The managed groups, sometimes referred to as “report groups” are listed in the Appendix of the Groundfish Observer Manual.

Prohibited Species Caps (PSC). Pacific halibut, salmon, Bairdi Tanner crab, opilio Tanner crab, red king crab, and Pacific herring have catch limits set for the trawl fisheries. The halibut PSC for longliners is the only non-trawl PSC. Pots and jig gear have no PSCs. Exceeding these caps triggers time and area closures. Halibut PSCs close the target fisheries, while other PSCs are applicable to a certain defined area and time.

Halibut PSC is based upon the mortality, not the total catch of halibut. A mortality rate is determined for each target fishery based upon halibut viability (or injury) data collected by observers over multiple years (usually a 10 year average). Every December, the IPHC makes recommendations to the NPFMC, who then adopt a Discard Mortality Rate (DMR) for each fishery. Non-CDQ fishery DMRs are set for three year periods and CDQ fishery DMRs are set annually.

During the fishery, halibut catch is extrapolated based on observer data and the mortality rate is applied. The fishery is closed (i.e. -cannot target that species) when it reaches the PSC. In some fisheries, halibut mortality is allocated seasonally. Because a fishery cannot occur without a halibut bycatch allocation, it is essentially closed until more halibut mortality is available. “Unused” halibut mortality can be re-apportioned to later seasonal allotments. Refer to the BSAI FMP or the annual catch allocations to see details on each fishery.

Endangered Species. The Endangered Species Act (ESA) requires all federal actions (such as FMPs) to minimize impacts on listed species. Several Endangered species interact with Alaska’s groundfish fishery, most notably Steller sea lions and the short-tailed albatross.

Protection of the endangered western U.S. stock of Steller sea lions (west of 144° W) changed the timing and distribution of the pollock, Pacific cod, and Atka mackerel fisheries in 1998. Competition for groundfish is a possible factor that has contributed to the decline, and may impede the recovery of the endangered population. NMFS is the agency responsible to protect and rebuild the Steller sea lion population. NMFS, along with the NPFMC, continue to develop and revise management measures to mitigate fishery-related impacts on the species. To reduce the potential of localized depletion of fish, the

fisheries are temporally and spatially distributed over several seasons. The pollock, Pacific cod, and Atka mackerel fisheries have limits to their catch within the designated Steller sea lion Critical Habitat during the January-June fishing period.

The short-tailed albatross is present in the fisheries. Seabird avoidance measures are required on longline vessels to limit the bycatch of all bird species.

Improved Retention/Improved Utilization and the Groundfish Retention Standard. In 1998, new rules were implemented to improve the retention and utilization of pollock and Pacific cod. In all fisheries, regardless of gear type, those species must be retained up to the Maximum Retainable Amount specified in regulation. This provides incentive to avoid catching these species as bycatch and increases the utilization of those that are caught as target or bycatch species. In 2003, the GOA shallow water flatfish were added as IR/IU species.

In 2008, a new Groundfish Retention Standard was added to the BSAI FMP. Amendment 79 requires 65% retention of all groundfish caught by non-AFA catcher/processor vessels. The retention requirement increases 5% each year to 85% in 2011 and thereafter. To meet the GRS, a vessel or cooperative of vessels must retain products made from 65% of the aggregate groundfish caught. The retention is calculated by use of flow scales, species composition samples, and product recovery ratios applied to retained products.

CDQ Fisheries

CDQ History

The purpose of the CDQ program is to:

- Provide participating communities with the means to develop ongoing commercial fishing activities.
- Create employment opportunities.
- Attract capital for fisheries business investments.
- Develop infrastructure.
- Generally promote positive social and economic conditions.

Community Development Quotas were sought after by Alaskans since the early days of the domestic groundfish fisheries. After passage of the Magnuson-Stevens Act, the U.S. fleet expanded and foreign fishing phased out through several incentive programs. By the early 1990's, the fishery was already "Americanized" and being labeled as "overcapitalized".

Other than a few exceptions, the rural coastal communities of western Alaska were unable to capitalize on the expansion of the U.S. controlled fisheries due to several factors. The area is sparsely populated and economically depressed, having little "cash economy". Much of the population holds strongly to Native Alaskan traditions and relies on subsistence hunting and fishing to supplement modest incomes from salmon fishing or other small businesses. Most villages are not located in major groundfish fishing areas and the communities were not prepared with the knowledge or means to involve themselves in the fishery. Major investments in groundfish fishing came from companies based in Washington and Oregon, and foreign nations such as Japan and Norway.

Visionaries such as the late Harold Sparck (who came to Alaska as a Vista volunteer) saw a means to develop long-term economic stability for these remote communities in Alaska. Precedents had ensured

rural Alaska’s long term benefits from the development of Prudhoe Bay and other natural resource businesses in Alaska, which had a long history of taking the profits out of state. Alaska’s statehood was largely driven by the desire to obtain control of the salmon fisheries, instead of the Federal Government and “outside” interests.

In 1992, Amendment 18 to the BSAI FMP established a pollock CDQ program with an allocation of 7.5% of the TAC (½ of the non-specific reserve). The amendment provided the original framework of the current CDQ program with communities forming CDQ groups, applying for quota, and “partnering” with fishing companies to harvest their quota. In 1995, Amendment 46 established the halibut and sablefish CDQ along with the halibut and sablefish IFQ programs.

In 1998, Amendment 39 of the BSAI FMP expanded the CDQ program to include at least 7.5% of all groundfish and crab species. NMFS developed a new catch accounting system and increased observer requirements for the new program (referred to at the time as Multi-species CDQ). In 1999, The American Fisheries Act increased the BSAI pollock CDQ allocation to 10% of the TAC.

The Coast Guard and Maritime Transportation Act of 2006 amended the MSA and CDQ program, allocating 10% of all directed fisheries in the BSAI (except for halibut, sablefish, Pollock and Crab). Additionally, an allowance for nontarget needs (.7%) based on existing practice was implemented for a total of 10.7% of the TAC of CDQ species (except for halibut, sablefish, pollock and crab) allocated to CDQ. Crab CDQ allocations were increased to 10% in 2006 during the rationalization of the Bering Sea king and Tanner crab fisheries.

The Alaska CDQ program has been accomplishing its intended purpose. CDQ groups have become major investors and business partners in the groundfish fleet and have developed fisheries related businesses and infrastructure. In 2007, there were over 3400 Western Alaskans working in CDQ related jobs and the CDQ fisheries generated almost \$70 million in royalties alone.

BSAI Species	CDQ Program Allocation
(Most) Directed Groundfish Fisheries	10.7% of TAC
Pollock	10% of TAC
Fixed-Gear Sablefish	20% of TAC
Trawl Sablefish	7.5% of the TAC
King & Tanner crab	10% of the GHL or TAC
Halibut	20% of Area 4B, 50%of 4C, 30% of 4D, 100% of 4E

Table 1. CDQ Reserve Amounts

CDQ Groups

A CDQ group is a non-profit corporation formed by an association of Western Alaska communities. The MSA lists the qualifying villages that have formed the six CDQ groups. They must be within 50 nm of the Bering Sea, have a historical dependence on the Bering Sea, and not have previously developed a substantial participation in Bering Sea fisheries. Each village has a member on the board, and the board must consist of at least 75% fishermen. There are currently six CDQ groups.

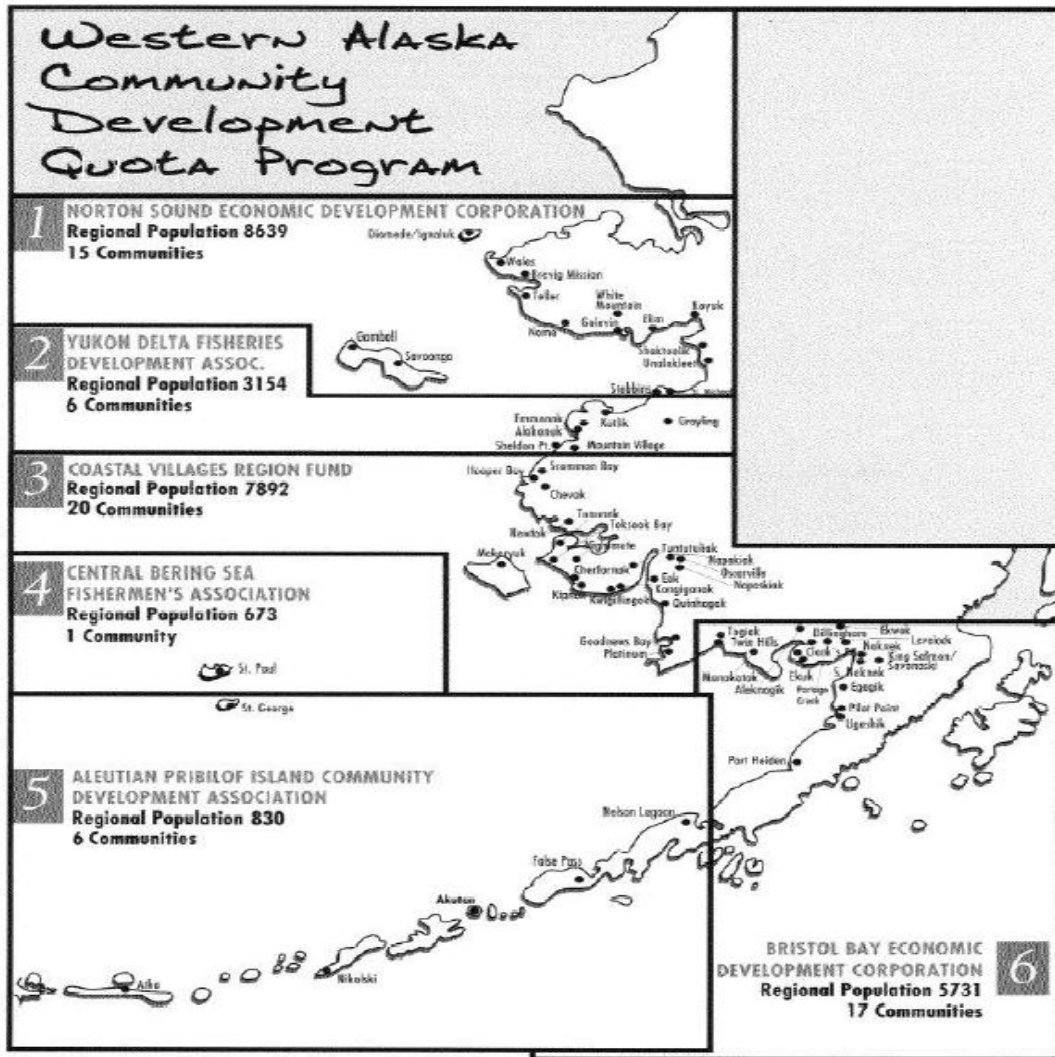


Figure 4. Alaska Community Development Quota Groups (source: NOAA)

Community Development Plans

A CDQ group develops a Community Development Plan (CDP) that includes an allocation request (groundfish, crab, halibut, & PSCs) and economic development projects. From 1992 to 2006, the Community Development Plans were approved by the state of Alaska. They are no longer required to do so, and file a “Statement of Compliance” annually. These CDPs and allocation requests are reviewed and approved by the Western Alaska Community Development Association (WACDA). The six member WACDA is comprised of one representative of each CDQ group and is required to have unanimous approval of any recommendations.

Allocation Request

A percentage allocation of each species or species group is requested by the CDQ groups in 10 year cycles. The next allocation will be reviewed no sooner than 2011. The Council (NPFMC) is consulted, and NMFS has the final approval of the quota allocations. Allocations are granted as percentages of the CDQ portion of TACs and PSCs. On an annual basis, these percentage allocations are applied to the TAC of each CDQ species.

Harvesting Plan

CDQ groups have provided to NMFS information on how they intend to harvest and process their CDQ allocation. They describe the intended target fisheries, type of vessels and processors, locations and methods of processing, and their proposed partners.

Eligible Vessel List

The CDQ groups must designate who will harvest their quota. NMFS approves the vessels as eligible for the list once a CDQ group submits an Eligible Vessel Approval form. Once approved, the vessel is eligible to fish CDQ for the duration of the CDP (unless it is an “Alternative Plan”). Vessels are required to have the Eligible Vessel Approval form aboard while fishing CDQ.

CDQ group responsibilities

50 CFR §679.30 Maintain the capability to communicate with all vessels harvesting its CDQ and PSQ at all times, monitor the catch of each CDQ or PSQ, submit a CDQ catch report, and ensure that no CDQ, halibut PSQ, or crab PSQ is exceeded.

The most important difference between CDQ fisheries other BSAI fisheries is that once any CDQ or PSQ of a CDQ group is reached, the CDQ group has finished fishing for the year. If this circumstance arises, CDQ groups may transfer CDQ and PSQ between groups. They can avoid or amend overages with a transfer request to NMFS.

When target quota is reached or PSCs close other fisheries, vessels have been able to augment their fishing with CDQ after or before the flatfish, Pacific cod, Atka mackerel, and rockfish seasons. Pollock CDQ is mostly fished on a haul-by-haul basis integrated with AFA pollock by AFA catcher/processors.

Some restrictions apply to both CDQ and non-CDQ fishing: There is a January 1-20 “no trawl” period. The Pollock allocation is divided into a directed pollock quota and an incidental catch pollock quota. Pollock and P. Cod trawl fisheries are split into “A” and “B” seasons. No trawling is allowed for pollock or Pacific cod after November 1. The sablefish/halibut season is the same as IFQ.

The mortality rate applied to the halibut catch depends on the target fishery and gear type, which then is accounted for as halibut Prohibited Species Quota (PSQ). If a longline vessel is retaining halibut, that catch is accounted for as halibut CDQ.

CDQ Catch Reporting

The individual allocations to CDQ groups are relatively small—six groups splitting up a small percentage of the various TACs. This is the primary reason for the increased equipment and observer coverage requirements in CDQ. On catcher/processors, motherships, and non-trawl catcher boats fishing under Option 2 (see next section), observer data is the sole source of the catch monitoring and quota tracking.

This can have a pronounced effect upon the vessel and CDQ group's profits. It is the CDQ group, not the observer, who is responsible to know the quota or the estimated catch of any species.

CDQ groups are responsible for reporting their catch to NMFS by submitting CDQ Catch Reports to the Alaska Regional Office within seven days of harvest or landing. CDQ groups access the observer data from a secure NMFS web site, directly from the vessel operator, or through a private data reporting service. Observer data and CDQ Delivery Reports (from plants) are used to monitor catch by both the CDQ groups and NMFS.

BSAI Species	APICDA%	BBEDC%	CBSFA%	CVRF%	NSEDC%	YDFDA%
Pollock	14%	21%	5%	24%	22%	14%
Pacific cod	15	21	9	18	18	19
BS FG Sablefish	15	20	16	0	18	31
AI FG Sablefish	14	19	3	27	23	14
BS Sablefish	21	22	9	13	13	22
AI Sablefish	26	20	8	13	12	21
Atka mackerel	30	15	8	15	14	18
Yellowfin sole	28	24	8	6	7	27
Rock sole	24	23	8	11	11	23
BS Greenland turbot	16	20	8	17	19	20
Arrowtooth flounder	22	22	9	13	12	22
Flathead sole	20	21	9	15	15	20
AI Pacific Ocean perch	30	15	8	15	14	18

Table 2. Current CDQ Allocations

The American Fisheries Act

The American Fisheries Act of 1998 (AFA) requires vessels fishing in the U.S. to be at least 75% owned by U.S. interests. It also changed the management regime for the Bering Sea pollock fishery by reducing the fleet size and allowing for the formation of fishing cooperatives. Observers are an important component in managing the harvests within the co-op sectors.

History of the AFA

By the mid 1990's, the Bering Sea pollock fishery was considered to be "overcapitalized". Another related issue was the level of foreign ownership of vessels fishing in the U.S. Many of the larger pollock vessels were built and financed overseas, violating the intent of the Commercial Fishing Industry Vessel Anti-reflagging Act of 1987.

After passage of the MSA in 1976, allocations to foreign vessels shrank and allocations to domestic vessels grew. The intent of the Anti-reflagging Act was to allow only vessels built or rebuilt in U.S. shipyards to enter the growing fleet, providing more business to economically depressed U.S. shipyards. The Coast Guard had difficulty interpreting what defines "U.S. built or rebuilt". Some large vessels which had major rebuilding in foreign ports were allowed to enter U.S. fisheries, especially the Alaska pollock fisheries. In some cases, 100 foot hulls of US hulls were rebuilt into 300 foot factory trawlers at foreign shipyards.

Early drafts of the AFA intended to increase the "majority owned" standard to 75% U.S.-owned standard. This would have affected some of the newest and most expensive vessels, who had largely been financed by foreign investors. In general, countries such as Japan and Norway were more interested in investing in fisheries (including subsidies for shipbuilding) than U.S. businesses. U.S. businesses were not as eager to invest in the foreign-controlled and risky groundfish business.

Possible changes in the BSAI inshore vs. offshore pollock allocation also created instability for the already struggling and over-capitalized catcher/processor fleet. If the NPFMC shifted more allocation to the inshore fishery, passage of the American Fisheries Act would add to their problems and likely result in the loss of fishing rights and bankruptcies for some vessels.

The senators from Washington and Alaska met with the pollock fishing entities and helped draft a new American Fisheries Act with some specific provisions for the North Pacific pollock fishery. The act provided for the buyout of nine catcher/processor vessels, a permanent inshore-offshore allocation, and exclusive rights to the BSAI pollock for a group of vessels. The vessel buyout was largely financed by a landing tax on the inshore fleet, who received a much larger pollock allocation. Through this Act, the offshore fleet was able to restructure their finances to meet the 75% U.S. ownership standard while protecting their investments. The act was quickly passed by Congress and signed by President Clinton in October of 1998.

The BSAI Pollock Fishery Today

The AFA made profound changes in the management of the Bering Sea pollock fishery. It also affected other fisheries of the North Pacific, including GOA and crab fisheries of the BSAI.

The AFA established a new allocation scheme for Bering Sea Pollock. The CDQ program receives 10% of the TAC. After a deduction for pollock bycatch in other target fisheries (5% in 2006), the remaining quota is split 50% to inshore vessels, 40% to offshore vessels, and 10% to motherships.

Offshore pollock. Twenty eligible catcher/processors are named in the AFA, giving those “listed” vessels nearly exclusive rights to the BSAI offshore (non-CDQ) pollock quota. Flow scales and increased observer coverage requirements were placed on offshore pollock vessels. The buyout and scrapping of nine catcher/processors was funded by a \$20 million appropriation from Congress and \$75 million from a fee of 0.6 cents per pound of pollock delivered to inshore processors. Other vessels may participate in offshore pollock fishing if they caught more than 200 metric tons of pollock in 1997. The same equipment and observer coverage requirements as other pollock processing vessels apply, but only while targeting pollock. The *Ocean Peace* is the only “unlisted” catcher/processor that has these rights, and it has not targeted pollock for several years.

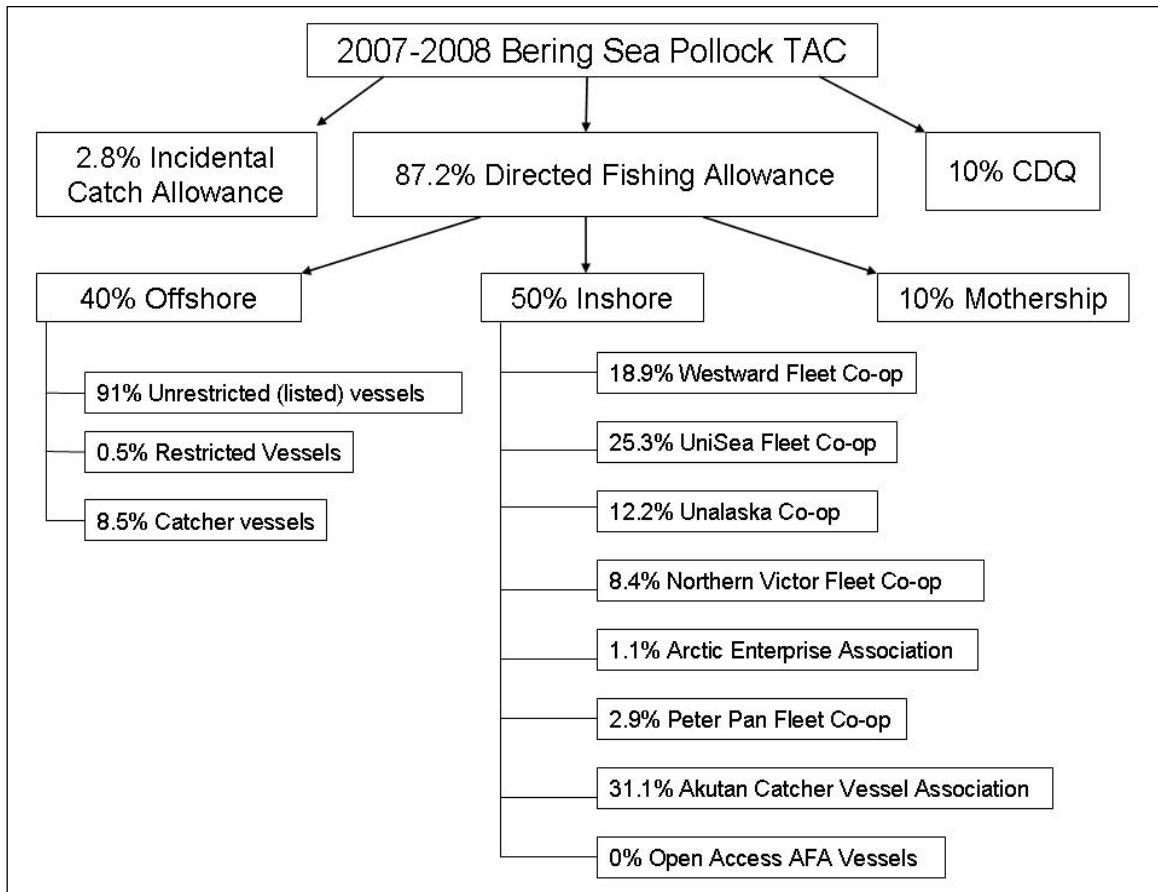


Figure 5. Bering Sea pollock allocation.

The AFA authorized the voluntary formation of fishing cooperatives. The offshore vessels organized into The Pollock Conservation Cooperative and agreed to divide the offshore quota among its members. In effect, it is an individual fishing quota system that is not regulated by NMFS. NMFS monitors the overall offshore quota, not specific vessel quotas.

Motherships. Three motherships are named in the AFA as eligible to receive catch from 20 named catcher vessels and have exclusive rights to ~10% of the BSAI pollock.

Inshore pollock. NMFS makes separate TAC allocations to individual inshore catcher vessel co-ops that form around an AFA inshore processor and meet certain restrictions. The allocations are based on the historical catch of the member vessels and co-op vessels must deliver at least 90% of their catch to the co-op. C/P and mothership co-ops allocations are at the sector level and do not require separate vessel

allocations of pollock. Currently, there are seven inshore cooperatives. If the total catch history of the co-op member catcher vessels does not sum 100% of the available catch history, the left over amount becomes available to all AFA eligible as “open access” AFA pollock.

Sideboards.

Exclusive fishing rights give vessels the ability to fish for BSAI pollock when they choose (within certain seasonal limits). This enables them to fish in other fisheries of the BSAI and GOA, competing with vessels who are not beneficiaries of the AFA. To protect those non-AFA vessels, harvesting and processing restrictions (sideboards) are placed on those who have received exclusive privileges under the AFA. Sideboards prevent directed fishing for those species beyond their historical level of participation. All catch of the species except BSAI Pacific cod (bycatch or directed fishing) is accrued against a sideboard limit. Limitations are also placed upon PSCs other than salmon and herring. In addition, AFA vessels are prohibited from some small directed fisheries in which they had no significant historical participation. In general, 1995-1997 are the years used to calculate historic participation for the sideboards. Some of the sideboards have exemptions for certain qualifying catcher vessels.

The AFA sideboard allocations are monitored and tracked managed separately from the open access quotas for these species. This results in an increased scrutiny of observer data in AFA fisheries, since an AFA sectors may be prevented from directed fishing for species when their sideboard quota has been reached. The catcher/processor sector has a sideboard limit, and the catcher vessel sideboard limits are considered in the aggregate, although it is a number of separate co-ops in three sectors. There are agreements within, or between, co-ops about individual sideboard limits.

Impacts of the AFA

The AFA has resulted in reducing the “race for fish” and the overcapitalization of the Bering Sea pollock fishery. In any given year since its implementation, only 17 catcher/processors have fished of the 20 vessels named in the AFA. Seven catcher vessels that formerly delivered to C/Ps have leased their share of the offshore allocation directly to the C/Ps and no longer fish with them. One C/P vessel surrendered (sold) its catch rights and has left the directed pollock fishery. The inshore sector has seen the “retirement” of vessels, who now lease their catch rights to a co-op to be caught by the other vessels in the co-op. In the mothership sector, several of the 20 catcher vessels have leased their harvest rights.

The 75% U.S. ownership standard (which applies to all fishing vessels in the U.S.) caused the restructuring of investments and consolidated the fishery into fewer vessels. CDQ Groups have become major investors in the catcher/processor fleet, which helps meet the 75% criteria and the requirement to invest CDQ revenues into fishery development.

The fleet has conducted a slower paced and safer fishery for pollock than pre-AFA fisheries. In addition, they have shown a higher utilization of the pollock caught and increased product recovery rates. These changes help meet several National Standards and objectives of the MSA, and the AFA fishery is considered by many to be a successful example of a limiting access to meet the goals of fishery management.

Amendment 80

Amendment 80 to the BSAI FMP was adopted in June 2006 and implemented in the 2008 fishing year. The program allocates several Bering Sea and Aleutian Islands (BSAI) non-pollock trawl groundfish species among trawl fishery sectors, and allows the formation of harvesting cooperatives in the non-American Fisheries Act trawl catcher/processor sector.

Amendment 80 provides a limited access permit program (LAPP) for the non-AFA catcher/processor trawl fleet (often referred to as “the head and gut” trawl sector. The LAPP gives the fleet the benefits of limited access fisheries and is intended to reduce costs of compliance with the new Groundfish Retention Standard by allowing vessels to form cooperatives. The cooperatives, as a group, must meet the GRS on an annual basis. This program would also reduce bycatch and discard of groundfish by reducing the total amount of crab and halibut PSC historically used by sector participants.

“Amendment 80 species” include: Aleutian Islands Pacific ocean perch, BSAI Atka mackerel, BSAI flathead sole, BSAI Pacific cod, BSAI rock sole, and BSAI yellowfin sole. These six species have historically been targeted by 28 trawl catcher/processors and these fisheries have high rates of discard of other groundfish species.

Amendment 80 establishes two sectors of BSAI trawl fishery participants:

- The Amendment 80 sector is comprised of non-AFA trawl catcher/processor harvesters eligible to fish Amendment 80 species.
- The BSAI trawl limited access sector is comprised of AFA catcher/processors, AFA catcher vessels, and non-AFA catcher vessels.

Each year, NMFS allocates Amendment 80 species and crab and halibut PSC to the two sectors, after allocation to the CDQ Program and for incidental catch in other fisheries. This initial TAC (ITAC) is not available to the other sector except for a provision that allows reallocation to Amendment 80 cooperatives if fish are projected to be unharvested by the BSAI trawl limited access sector.

Amendment 80 assigns quota share (QS) for Amendment 80 species to the owners of Amendment 80 vessels based on historic participation 1998 through 2004. QS Allocations are based on the relative proportion of an Amendment 80 species harvested by an Amendment 80 vessel compared with the proportion harvested by all other Amendment 80 vessels.

On an annual basis, QS holders may form cooperatives with other QS holders to receive an exclusive harvest privilege for the portion of the ITAC resulting from their aggregated QS holdings. The members can consolidate their harvest rights to fewer vessels and reduce costs. The cooperatives can trade harvest privileges (Cooperative Quota) with other cooperatives, but not with Amendment 80 limited access sector or the BSAI trawl limited access sector.

In addition to the Amendment 80 species, each cooperative receives an exclusive limit of crab and halibut PSC. This halibut and crab PSC catch quota is assigned to a cooperative proportional to the amount of Amendment 80 QS held by its members, and is not based on the amount of crab or halibut PSC historically used by the members. A cooperative structure may allow Amendment 80 vessel operators to better manage PSC rates than the operators who must “race for fish” before a PSC closes a fishery. A cooperative structure can allow participants to reduce catch of prohibited species and maximize catch of targeted groundfish species.

Amendment 80 cooperatives allow more flexibility to comply with the Groundfish Retention Standard. Amendment 80 vessels harvesting in the BSAI under an Amendment 80 cooperative would be able meet the GRS requirements on an aggregate basis for that cooperative, instead of on a vessel-specific basis.

Gulf of Alaska Sideboards limit the Amendment 80 QS holders to their historic fishing effort for GOA groundfish and halibut PSC.

Amendment 80 Limited Access Fishery

Amendment 80 QS holders that do not to join an Amendment 80 cooperative can participate in the Amendment 80 limited access fishery. The Amendment 80 limited access fishery is allocated the amount of Amendment 80 species ITAC and halibut and crab PSC that remains after allocation to cooperatives.

Vessels in the Amendment 80 limited access fishery do not receive exclusive harvest privileges and compete for Amendment 80 species and PSC. They must meet the GRS annually on each vessel.

All Amendment 80 vessels are required to meet GRS requirements in the BSAI. GRS requirements apply to Amendment 80 cooperatives in aggregate (by cooperative) and on a vessel-by-vessel basis for vessels fishing in the Amendment 80 limited access fishery.

There is a limit to the amount of Amendment 80 QS a person can hold, the amount of CQ they can use, and the amount of ITAC an Amendment 80 vessel can harvest. These caps help to moderate the consolidation of quota and the loss of jobs that result from new limited access programs

Central Gulf of Alaska Rockfish Pilot Program

Gulf of Alaska Rationalization

The Council has been working toward a comprehensive management approach to rationalize the Gulf of Alaska groundfish fisheries since 2003. This rationalization program includes policies and management measures intended to improve conservation, reduce bycatch, and provide greater economic stability for harvesters, processors, and fishery-dependent communities. Rationalization of Gulf of Alaska fisheries should eliminate the current derby-style “race for fish” by allocating harvesting and processing privileges, thus providing economic incentives to consolidate operations, and control and reduce bycatch and gear conflicts.

Rockfish Pilot Program

Although a comprehensive Gulf of Alaska rationalization program has not yet been authorized, there are immediate concerns related to rockfish fisheries in the Central GOA that have been addressed. Several processing plants in Kodiak have closed, there is less work available for Kodiak’s residential workers due to shorter seasons, and the community’s fish tax revenues are decreasing as fish prices and port landings decrease. Congress recognized these problems and directed the North Pacific Fishery Management Council to implement a Gulf of Alaska Rockfish Demonstration Program. This establishes a pilot program that recognizes the historic participation of fishing vessels and fish processors for Pacific ocean perch, northern rockfish, and pelagic shelf rockfish. Additionally, congress directed that the program set-aside up to 5% of the TAC for an entry level fishery for those catcher vessels not eligible to participate in the pilot program.

The Gulf of Alaska Rockfish Pilot Program began in 2007 as a five year program which 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 (dusky, dark, yellowtail and widow rockfish). Additionally, there is an exclusive harvesting and processing allocation for the species incidentally

harvested by vessels in these fisheries. These **secondary species** are Pacific cod, rougheye rockfish, shorttraker rockfish, sablefish, and thornyhead rockfish. The Program also allocates a portion of the GOA halibut PSC to participants based on historic halibut mortality rates in the primary rockfish species fisheries.

Catch history is allocated as rockfish quota share (QS) based on vessels with landings of primary rockfish species. A cooperative receives an exclusive harvest privilege called cooperative quota (CQ) based on the sum of the rockfish QS of the vessels assigned to the cooperative by its members. There is a separate cooperative for catcher vessels (CV) and catcher/processors (C/P). Qualified catcher vessels can form cooperatives only in association with a specific group of eligible processors in Kodiak to whom they have delivered a majority of their catch.

Alternatively, vessels may choose to fish in a limited access fishery within that sector (C/P or CV). The limited access fishery comprises the annual catch amount for the Program that is left after C/P or CV cooperatives form. Rockfish, and other associated groundfish harvested under the catcher vessel limited access fishery must be delivered to the group of eligible processors in Kodiak.

Five percent (2.5 % to trawl gear, 2.5% to fixed gear) of the Central GOA rockfish TAC is allocated to an entry-level fishery for catcher vessels who do not qualify for QS in the Program. Processors that are not qualified to receive cooperative and limited access fish can receive entry-level rockfish.

Finally, C/P vessels otherwise qualified to participate in these fisheries can choose to “opt-out” of most of the aspects of the Program.

Sideboards. The Program establishes a suite of sideboards limits on vessels participating in the Program. They prevent participants from expanding their harvests in other fisheries. Sideboards apply only in July, which is the month that historically has the most rockfish fishing. There are two broad categories of sideboards – those that establish catch limits, and those that prohibit directed fishing. Catch limits are divided further: (1) limits on harvests in other GOA rockfish fisheries; and (2) limits on the amount of halibut mortality PSC that can be used in GOA flatfish fisheries. Once sideboard limits are reached, directed fisheries are closed. Sideboards also apply in State waters.

Individual Fishing Quotas (IFQ)

In 1995, the North Pacific Fishery Management Council implemented the largest IFQ fishery in the world in the Alaska halibut and sablefish fixed gear fisheries. In this system, vessel owners and leaseholders that fished for sablefish or halibut in 1988-1990 were allotted “shares” of the TAC, and these shares are identified by area and three categories of vessel size. The amount of catch allotted was based upon the best year’s landings in the mid to late 1980s. These shares can be sold, leased, or transferred, and those transactions are approved by the Restricted Access Management (RAM) Division of NMFS. The landings of fish at processing plants are logged against the IFQ by using electronic cards (similar to debit cards). Along with the IFQ program, 20% of the BSAI fixed gear sablefish quota is allocated to the CDQ program. 20-100% of the BSAI halibut in several management areas in the BSAI are allocated to CDQ.

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