Fisheries Monitoring and Analysis Division's North Pacific Observer Program

Pre-class Reading Study Guide

Congratulations on being accepted into job training and welcome to the Fisheries Monitoring and Analysis Division's North Pacific Observer Program!

You will soon be attending a 15 day (3-week) training course that has been called "intense" by many observer trainees. To prepare for training, you are required to read the documents outlined below. These documents should be provided to you by your employer or they can also be found on the Fisheries Monitoring and Analysis Division's web site by clicking the *Pre-Class reading material* link at: http://www.afsc.noaa.gov/FMA/training.htm

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 the Observer Sampling Manual as described below. It is "open book", and you will be provided with all the needed materials on the first day of training. The attached sample quiz questions will illustrate the level of difficulty you can expect in the "Pre-Class Reading Quiz". Although failure of the pre-class reading quiz will not result in immediate dismissal, your quiz score will be considered when evaluating your overall success in the course and your ability to be deployed as an observer in the Alaska fisheries.

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. This guide is intended to provide you with a basic understanding of the management programs in Alaska and may be used as a reference.

Selected Sections of the 2015 Observer Sampling Manual

Introduction Chapter, Essential Information Chapter, Trip Data Chapter, Inseason Advising, Mid-Cruise and Final Debriefing Chapter, Glossary

These are five select sections of the large "Observer Sampling Manual" that will be supplied to you in class. The "Observer Sampling Manual" is your primary source of information to use during your deployment and provides all the information you need to successfully collect quality data for the FMA Observer Program. Read these sections carefully. They are essential, yet not all of this information will be covered in detail during training. Reading theses sections is intended to familiarize you with the basic information that is presented during the first days of class. You will refer to the manual often in class and at sea.
It is strongly encouraged that you review the entire observer manual before coming to class. The entire manual can be found on the Fisheries Monitoring and Analysis Division's web site at: http://www.afsc.noaa.gov/FMA/document.htm. The current year's manual will be available in mid December. In the interim, the previous year's manual will suffice for your review.

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

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 15 Data Collection Priorities in order of their priority:

_____ 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 injured short-tailed albatross and other species of interest 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 for species composition per protocols in this manual.

_____ Collect data and specimens for standard projects.

_____ Record sightings of marine mammals.

_____ Record sightings of or interactions with other seabird species.

_____ Collect salmon retention data

7. What is a *deck form*?

a. The shape of a trawl deck

b. A waterproof form for recording all raw data

c. Something you fax to NMFS

d. The shape a fish assumes when lying on a deck.

8. Is the following statement true or false?

Any photos taken by an observer while assigned to a vessel, even if taken with a personal camera, are the property of the National Marine Fisheries Service.

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

_____ Number the units in the sample frame consecutively

_____ 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?

A trip is defined as any time a vessel that you are assigned to unties from the dock at a port, floating processor, or tramper; and upon completion of that trip the vessel returns and ties up to a dock in a port, at a processor, or a tramper.

12. What section of the Observer Logbook may be recorded in pencil?

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 will **NOT** result in an increase in the quality of composition data?

a. Develop a sample frame of equal size units and collect random samples

b. Take multiple samples

c. Make sample units as large as possible, while maintaining a consistent sample size within each haul.

d. Grab extra fish from the population to make your samples more representative of what you are seeing

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. 7,2,3,14,6,1,9,8,10,13,5,11,12,15,4
7. b. A waterproof form for recording data
8. True
9. Every day
10. 2, 1, 4, 5, 3, 7, 6
11. True
12. Calculations
13. d. Sablefish
14. Ten
15. d. Grab extra fish from the population to make your samples more representative of what you are seeing

Observer's Guide

To

Federal Groundfish Management

off Alaska

2012

Revised 11/7/2011

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.

Catch Shares – A fishery management term used to describe limited access fisheries that allocate fishery resources to certain groups, individuals, or communities.

Limited Access Privilege Program – A management program that gives entities exclusive rights to a resource, as defined by the Magnuson-Stevens Act.

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	http://www.afsc.noaa.gov/FMA/default.htm
U.S. Coast Guard 17th District	http://www.uscg.mil/d17/

Federal Fisheries Management

This overview describes the general framework for Federal management of fisheries.

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. It 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. This was achieved by 1992. The focus of the current MSA is "sustainable fisheries".

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 EEZ. 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.

Essential Fish Habitat (EFH). The MSA mandates that councils and federal agencies describe and identify EFH, including adverse impacts and conservation and enhancement measures. 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.

Observers. The MSA does not mandate observers in any fishery, but does set standards for 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, the MSA allows the North Pacific Fishery Management Council to establish a system of fees to pay for the observer program.

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

Limited Access Privilege Programs (LAPPs). 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.

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. The Regional Administrator of NMFS is a voting member of any council. Each member state's fishery agency also has a voting seat. 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).

Appointed members represent their states and are experienced and knowledgeable in fisheries. Appointed members are nominated by the Governors of member states and approved 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 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. 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 annually and serve 3 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 an 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. 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.

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

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 the federal agencies. Federal agencies write regulations to support new legislation, and change regulations to meet the intent of public laws or keep up with changing conditions.

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.

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. The minimum time for public comments is 30 days.

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. The publication includes responses to all comments received on the proposed rule, any changes from the proposed rule, and the changed regulations as they will appear in the CFR. If 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

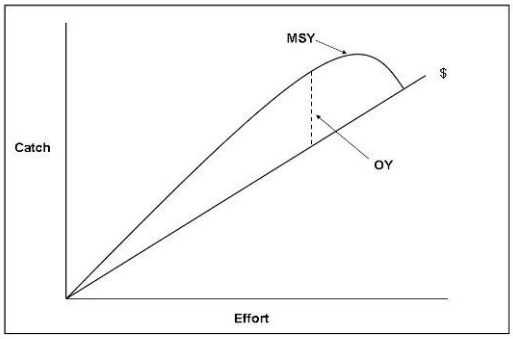


Figure 1. Maximum Sustained Yield and Optimum Yield.

Optimum Yield

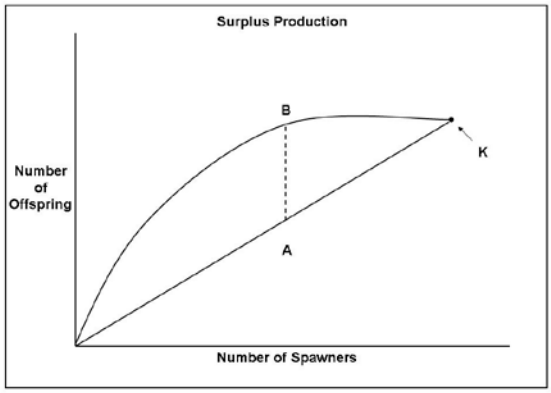
Federal Fishery Management Plans meet the MSA standards and the specific needs of the fisheries in a way that is fair and equitable to all, with the greatest benefit to the nation.

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.



Open Access Fisheries

By definition, an open access fishery is open for anyone to participate. 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. 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 allows fish to be found, caught, 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 may not 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 and licenses limit access to marine resources. Overcapitalization has been addressed in the North Pacific with measures such as License Limitation and Limited Access Privilege Programs.

- 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 Quota programs (CDQ) allocate 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. *Catch Shares* is a general term used to describe these programs.
    - 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. The IFQ fisheries off Alaska include sablefish, halibut, and Bering Sea king and Tanner crab.
    - 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 regulations specify rules concerning the formation of these co-ops.
    - Amendment 80 to the BSAI Groundfish FMP allows non-AFA catcher processor trawlers in the BSAI to form fishery cooperatives and receive a specific allocation of Atka mackerel, yellowfin sole, rock sole, flathead sole, Pacific Ocean perch, and Pacific cod.
    - Central Gulf of Alaska Rockfish program vessels share the GOA rockfish quota through the formation of cooperatives.

Benefits and Costs of Limited Access Fisheries

Benefits

- 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.
- Fish can be caught when the market dictates a need, resulting in higher prices.
- Safety may be improved since the pressure to fish in unsafe conditions is reduced.

Costs

- Communities that have been dependent on fisheries may lose jobs and revenues.
- Fewer processors and vessels are needed, reducing the number of employees needed.
- The assignment of ownership is a politicized process. Individuals or groups are inevitably excluded. Some individuals profit from the "windfall" 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 is increased.
- Administrative costs for management and enforcement can be higher.
- Sometimes licenses are issued to more participants than the fishery can support, and some type of capacity reduction (buyout) is necessary to fully achieve the intended benefits of limited access.

Common Property Resources: The Tragedy of the Commons

A common property resource, by definition, has free and open access to users. 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 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. Greed and lack of management caused "The Tragedy of the Commons", which 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.

This can result is the 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 them.

Fisheries Management in the EEZ off Alaska

Observers are an essential part of the management of the federal fisheries in the EEZ off Alaska. A basic knowledge of federal groundfish management in Alaska will help you perform as an 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 20 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.

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

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

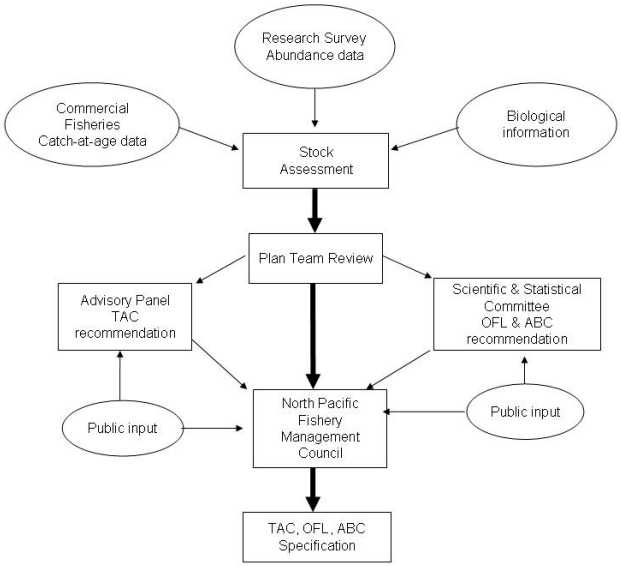


Figure 2. Annual harvest specification process for the Federal groundfish fisheries of Alaska (Witherall 1997).

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.

The Non-Specific Reserve (NSR) is a management tool that acts as a "safety margin" and allows for uncertainty in ABCs. 15-20% of some TACs are set aside, leaving the remainder as the quota. The NSR is "Non-specific", meaning that it is a total tonnage, not any specific species or species group. NMFS may apportion NSR to any contributing 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 certain species, 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.

The BSAI Pacific cod TAC has the most complex allocation scheme (Figure 4). 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.

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, changing areas, or switching gear. Once a vessel or a processor is determined to be in a target fishery, the regulations of that specific 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 vessel targeting Pacific Cod in the BSAI can retain pollock up to 20% of the round weight of retained P. Cod, but can 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.

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. Some examples are poachers, lumpsuckers, and grenadiers. These species are not considered to be of economic importance and are not included in annual specifications.

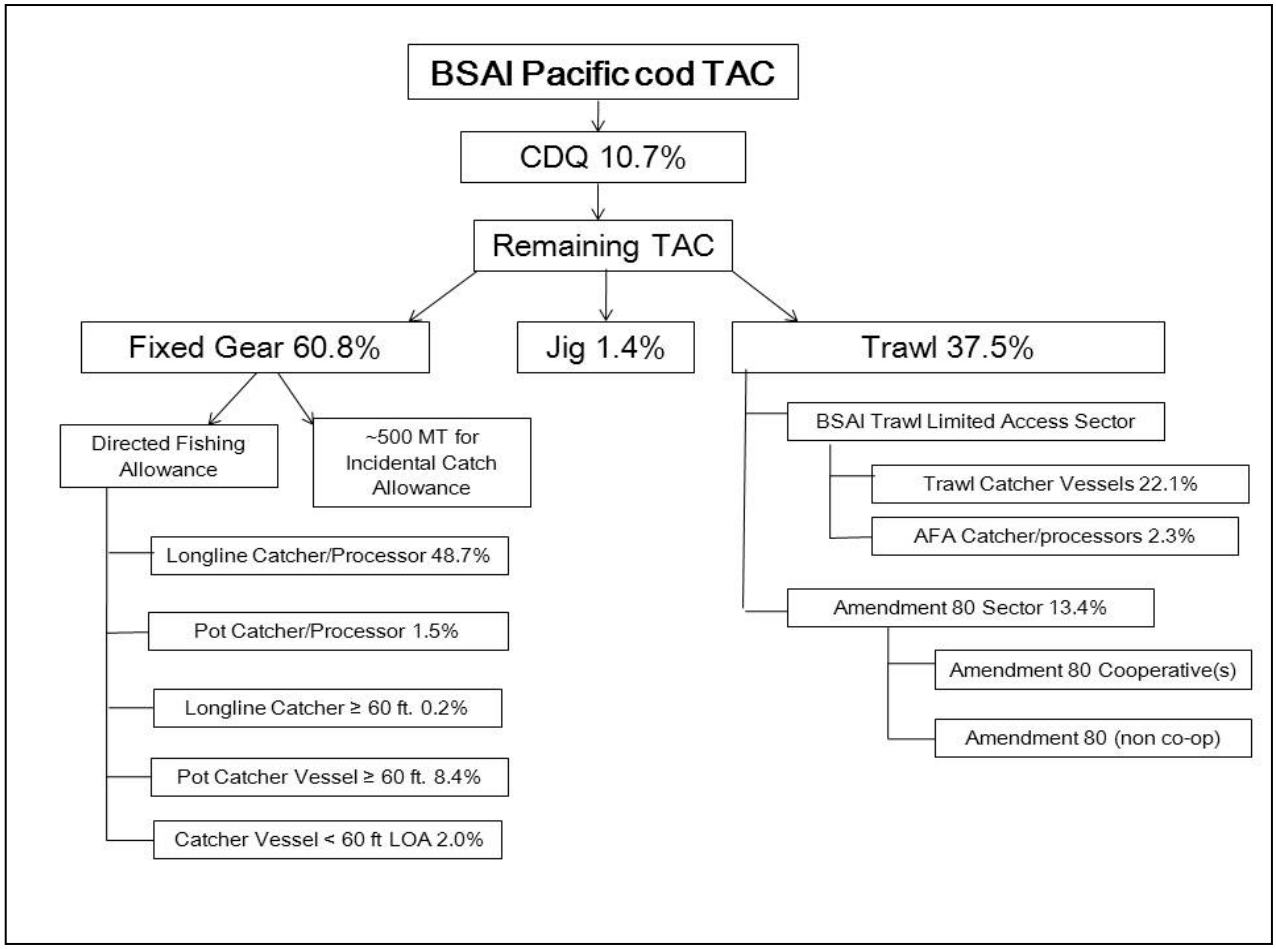


Figure 3. Pacific cod allocation in the BSAI (as of 2011). This species is harvested by all gear types and sectors. Over time, the allocations have been separated to various sectors.

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. Pot and jig gear have no PSCs. Exceeding these caps triggers time and area closures. Halibut and salmon 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.

During the fishery, halibut catch is extrapolated based on observer data and processor reports, then the mortality rate is applied. The fishery is closed (i.e.-cannot target that species) when it reaches the PSC. Because a fishery cannot occur without a halibut bycatch allocation, it is essentially closed until more halibut mortality is available. In some fisheries, halibut mortality is allocated seasonally. "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.

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. 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, 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 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. GOA shallow water flatfish were added as IR/IU species in 2003.

In 2008, a new Groundfish Retention Standard was added to the BSAI FMP for non-AFA catcher/processor trawl vessels (Amendment 80 fleet). Amendment 79 began with 65% retention of all groundfish caught by and increased 5% each year to 85% in 2011. Because of the difficulty in calculating and enforcing the GRS standard, it has been temporarily suspended while alternatives to the current regulations are explored.

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. 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 NMFS. The landings of fish at processing plants are logged against the IFQ by using electronic cards similar to debit cards.

Community Development Quota

The Western Alaska Community Development Quota (CDQ) Program allocates a percentage of the Bering Sea and Aleutian Islands fisheries quotas to eligible communities.

The purpose of the CDQ program is to:

- Provide 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 since the early days of the domestic groundfish fisheries as a means to develop long-term economic stability for remote communities in western Alaska. After passage of the MSA, the U.S. fleet expanded and foreign fishing phased out. By the early 1990's, the fishery was already “Americanized” and being labeled as “overcapitalized”.

Most 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 traditions and rely 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 did not have the knowledge or means to get involved in the fishery. Major investments in groundfish fishing came from companies based in Washington and Oregon, and foreign nations such as Japan and Norway.

In 1992, a pollock CDQ program was implemented with an allocation of 7.5% of the TAC. 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, halibut and sablefish CDQ was established along with the IFQ program.

In 1998, The CDQ program expanded to include at least 7.5% of all groundfish and crab species.

In 1999, The American Fisheries Act increased the BSAI pollock CDQ allocation to 10% of the TAC.

In 2006, the amended MSA increased the CDQ allocation to10% of all directed fisheries in the BSAI (except for halibut, sablefish, pollock and crab). Additionally, a 7% allowance for non-target needs was implemented for a total of 10.7% of the TAC of CDQ species. Crab CDQ allocations were increased to 10% of the Bering Sea king and Tanner crab fisheries.

Since the implementation of the CDQ program, CDQ groups have become major investors and business partners in the groundfish fleet and have developed fisheries related businesses and infrastructure.

CDQ Groups

A CDQ group is a non-profit corporation formed by an association of western Alaska communities. The six CDQ groups are comprised of qualifying villages. 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 of their CDQ group, and the board must consist of at least 75% fishermen.

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. 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.

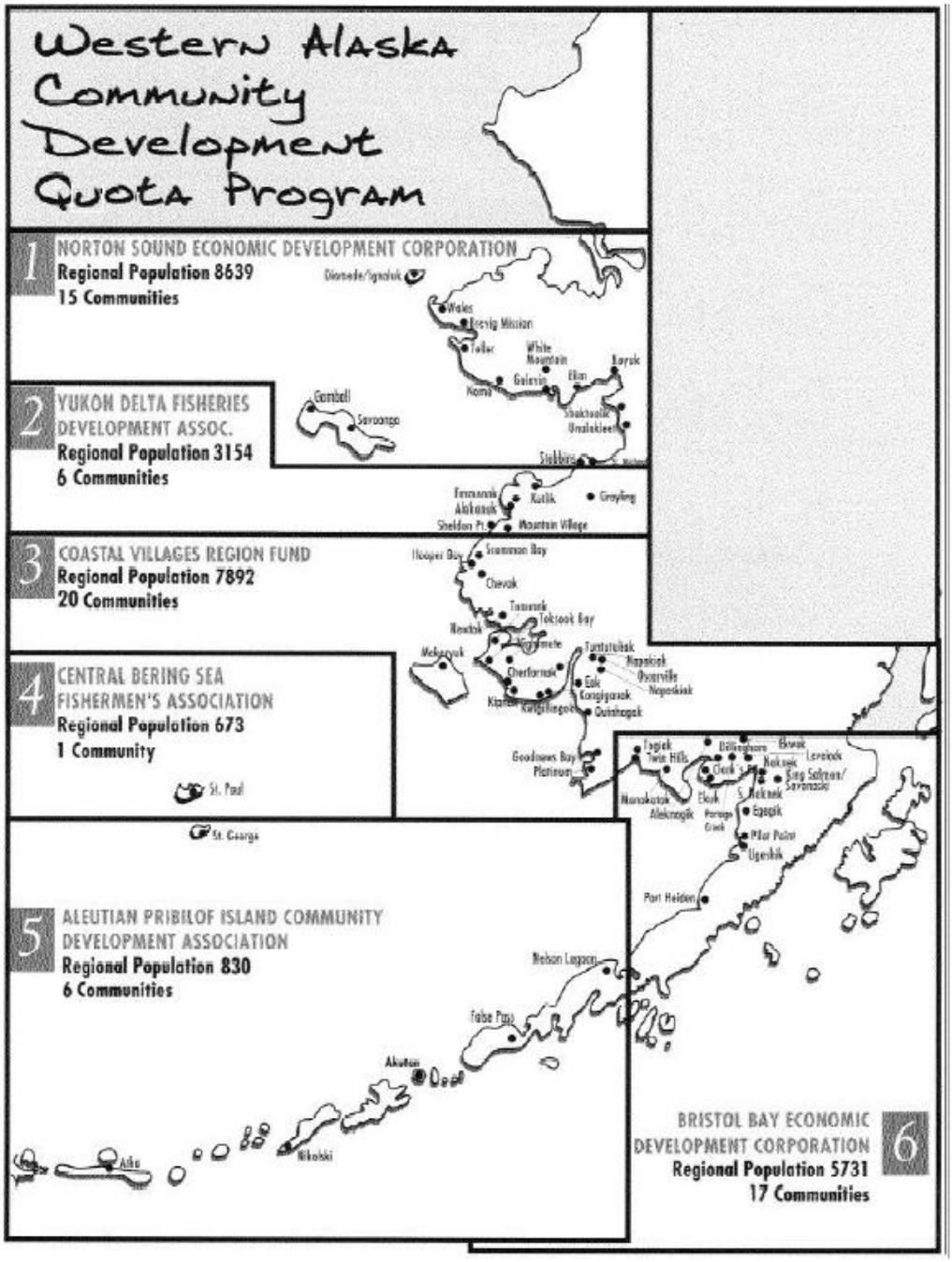


Figure 3. Alaska Community Development Quota Groups (source: NOAA)

Allocation Request

A percentage allocation of each species or species group is requested by the CDQ groups in 10 year cycles. 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. These percentage allocations are applied to the TAC of each CDQ species on an annual basis.

BSAI Species	CDQ Program Allocation
(most) 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 TAC
Halibut	20% of Area 4B, 50%of 4C, 30% of 4D, 100% of 4E

Table 1. CDQ Reserve Amounts

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 and 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. CDQ groups may transfer CDQ and PSQ between groups to avoid an overage 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. 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. CDQ allocations are divided into a directed fishing and incidental catch quotas, seasons, and areas the same as the non-CDQ fisheries. There is a January 1-20 “no trawl” period. Trawling for pollock or Pacific cod closes November 1. The sablefish and 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 and motherships, observer data is the sole source of the catch monitoring and quota tracking.

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.

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.

History of the AFA

By the mid 1990's, the Bering Sea pollock fishery was considered to be overcapitalized. Another concern was foreign ownership of the vessels. Many of the larger pollock vessels were built and financed overseas, against the intent of the Commercial Fishing Industry Vessel Anti-reflagging Act of 1987.

After passage of the MSA in 1976, the fleet of U.S. owned vessels fishing off Alaska quickly 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. 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 with U.S. registrations were rebuilt into 300 foot factory trawlers at foreign shipyards.

The American Fisheries Act contains 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.

Bering Sea Quota Allocations

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, the remaining quota is split 50% to inshore vessels, 40% to offshore vessels, and 10% to motherships.

The AFA authorized the voluntary formation of fishing cooperatives. Vessels in a cooperative agree 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 sector or co-op quota, not specific vessel quotas.

Offshore pollock. Twenty eligible catcher/processors are named in the AFA, giving those "listed" vessels nearly exclusive rights to the Bering Sea offshore (non-CDQ) pollock quota. 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.

Motherships. Three motherships are named in the AFA as eligible to receive catch from 20 named catcher vessels that have exclusive rights to BSAI pollock.

Inshore pollock. NMFS makes separate TAC allocations to the individual inshore catcher vessel co-ops that form around an AFA inshore processor. The allocations are based on the historical catch of the member vessels and the vessels must deliver at least 90% of their catch to the co-op. 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 catcher vessels as "open access" pollock.

Sideboards.

Exclusive fishing rights give vessels the ability to fish for Bering Sea pollock when they choose (within certain seasonal limits). This enables them to fish in other fisheries and compete 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 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. 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 monitoring of AFA sideboard allocations results in an increased scrutiny of observer data, since an AFA sector 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.

The Bering Sea Pollock Fishery Today

The AFA reduced the "race for fish" in the Bering Sea pollock fishery. About 17 catcher/processors are currently active of the 20 vessels named in the AFA. Seven catcher vessels that formerly delivered to C/Ps have lease their share of the 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 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 helped to meet the 75% U.S. owned criteria.

The fleet has conducted a slower paced and safer fishery for pollock than pre-AFA fisheries. They have shown a higher utilization of the pollock and increased product recovery rates. The AFA fishery is considered to be a successful example of limiting access to meet the goals of fishery management.

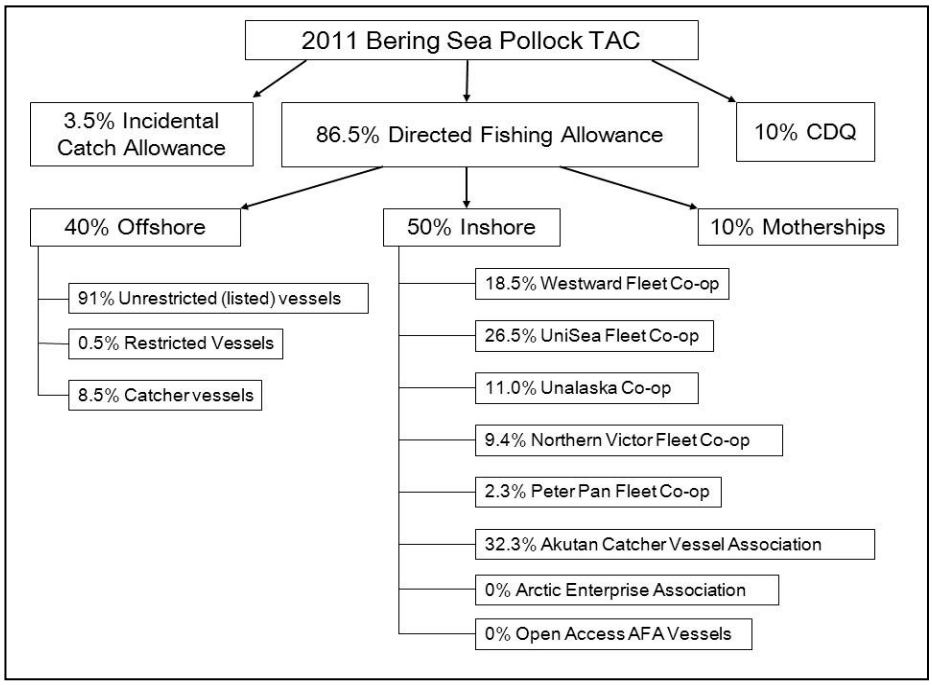


Figure 5. 2011 Bering Sea pollock allocations.

Amendment 80

Amendment 80 to the BSAI FMP was implemented in 2008. The program allocates several Bering Sea and Aleutian Islands (BSAI) non-pollock 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 was 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.

Amendment 80 establishes two sectors of BSAI trawl fishery participants:

- The Amendment 80 sector is comprised of non-AFA trawl catcher/processors.
- 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. Later in the year, if fish are projected to be unharvested by the BSAI trawl limited access sector, a provision that allows reallocation to Amendment 80 cooperatives

Amendment 80 assigns quota share (QS) for to the owners of vessels based on historic participation from 1998 through 2004. Allocations are based on the relative proportion of an Amendment 80 species harvested by a 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. The members can consolidate their harvest rights to fewer vessels and reduce costs. The cooperatives can trade harvest privileges with other Amendment 80 cooperatives.

Each cooperative receives a limit of crab and halibut PSC. It is proportional to the amount of Amendment 80 QS held by its members, not on the amount of crab or halibut PSC historically used by the members. A cooperative structure may allow vessels 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 must 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.

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 TAC 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.

Central Gulf of Alaska Rockfish Program

The North Pacific Fishery management 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.

Although a comprehensive Gulf of Alaska rationalization program has not yet been developed, 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.

The Gulf of Alaska Rockfish Pilot Program began in 2007 as a five year program. Harvesters 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, shortraker 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 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. Sideboards also apply in State waters.

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THE OBSERVER PROGRAM

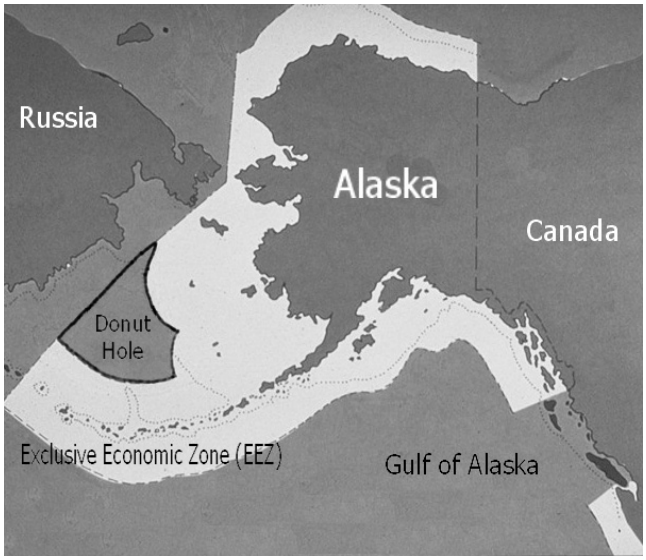
The Fisheries Monitoring and Analysis Division's (FMA) Observer Program collects, maintains, and distributes data for scientific, management, and regulation compliance purposes in the Gulf of Alaska (GOA) and the Bering Sea/Aleutian Islands (BSAI). The FMA division is a component of the Alaska Fisheries 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 deploys over 400 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-five years of the Groundfish Observer Program and will continue to be refined with observer feedback and suggestions.

THE MAGNUSON-STEVENS ACT

With the passage of the Magnuson Fishery Conservation and Management Act in 1976, 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. This act was re-authorized in 1996 as the Magnuson-Stevens Fishery Conservation and Management Act; the Act was re-authorized again in 2006 and 2013.



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

Figure 1-1: Commonly Used Abbreviations and Acronyms

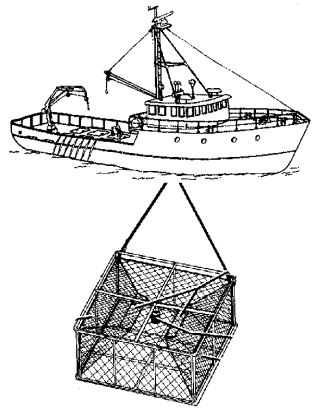
Additionally, the Magnuson Act established eight regional councils to manage the nation's fisheries. The North Pacific Fishery Management Council (the Council) has jurisdiction over the 900,000 square mile EEZ off the coast of Alaska.

By 1991 all foreign commercial fishing within the 200 mile EEZ was terminated, leaving an entirely domestic fishery. As the fisheries changed, so did the Observer Program. The Council implemented the domestic North Pacific Observer Program to gather data needed to manage the wide variety of fisheries off the coast of Alaska.

VESSEL AND PLANT DESCRIPTIONS

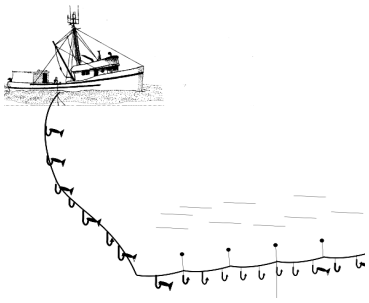
The North Pacific groundfish fishery today is harvested by a variety of gear types, but most observer trips occur on one of three types: pot, longline or trawl. Within these three gear types, there are two vessel types: catcher vessels (CVs) and catcher processors (CPs). Catcher vessels are boats that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

Pot Vessels



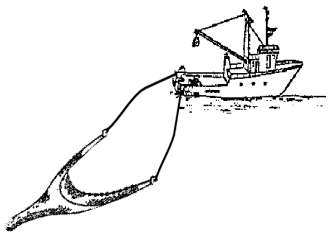
Pot vessels fish with fixed steel traps, or “pots.” The pots work much the same way as a lobster pot. The fish enter the pot in search of bait, and become trapped inside. Most pot vessels are catcher boats, but there are a few CPs, producing mainly headed-and-gutted product. Pot boats are used to harvest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

Longline Vessels



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

Trawl Vessels



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

Processing Plants

Processing plants accept fish from CVs, and make preliminary or final products. Catch is transferred from boats to the plant using a large pump. 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 from CVs.

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-Stevens 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,
- be fair to all fishers,
- minimize bycatch and bycatch mortality, and
- promote safety of human life at sea.

Time-Area Closures

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

The data you send to NMFS inseason are immediately used by theAlaska Regional Office in Juneau 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 are used to determine the catch rates for each vessel. Each vessel's bycatch effects the fishery, so those with bycatch rates beyond established limits risk prosecution for exceeding them.

Limited Access Privilege Programs

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

OTHER MANAGEMENT AGENCIES

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

CERTIFICATION AND ENDORSEMENTS

The Observer Program places all covered vessels and processors in the groundfish and halibut fisheries off Alaska into one of two observer coverage categories: (1) a full coverage category, and (2) a partial coverage category. 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.

Initial Training

A three-week training is required of all new observers, and for prior observers who have not been to sea in more than 18 months. The three week training qualifies observers to work in the full coverage category. Additional training may be required for new observers to work in certain deployment areas, fisheries and gear types. Training takes place at the Alaska Fisheries Science Center in Seattle.

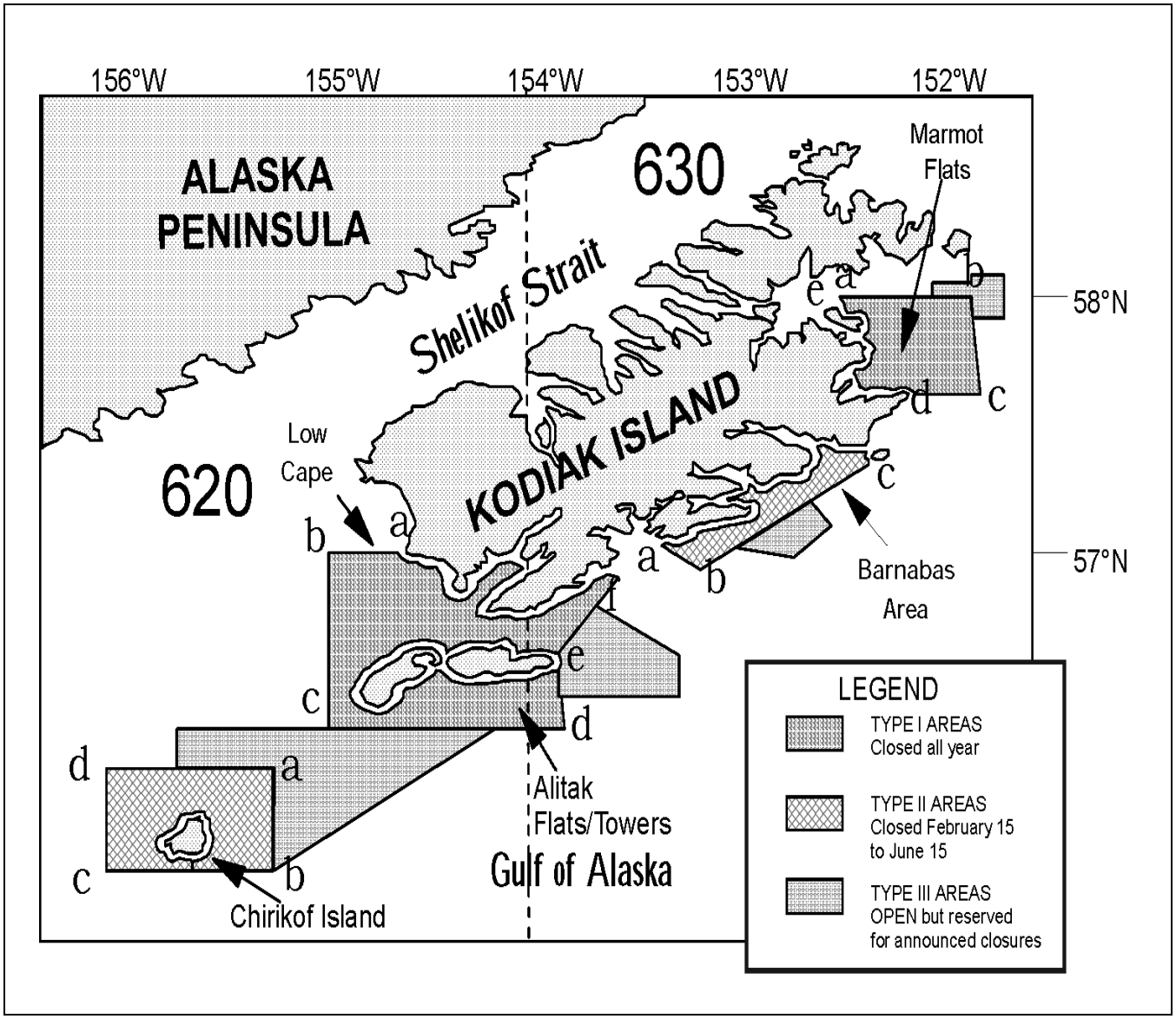


Figure 1-2: Example of Kodiak Island Time-Area Closures for Non-pelagic Gear

Trainees must be sponsored by an observer provider. A list of these companies can be found on page A-87.

The purpose of the three week observer 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 exercises. 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, but not limited to, an on-land and in-water test of immersion suit and life raft use. Additionally, trainees must be able to demonstrate to the instructor that they have the attitude and ability required to perform a difficult job independently, and to act professionally in stressful situations.

DEPLOYMENT

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

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

Personal Equipment

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

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

Sampling Equipment

All required 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 held responsible for misuse or neglect of sampling equipment. It is best to make cleaning and maintaining

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

Work Clothes

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

Other Items

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

Figure 1-3: List of Personal Equipment

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 other secure area. Leave only what you regularly use in the factory, and never leave unsecured equipment on an open deck.

3. Keep all equipment as clean as possible. This will make it much easier for you to clean your equipment when returning it. Use deck hoses to rinse slime, scales, and blood off your baskets, Deck Forms, length boards, clipboards, 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 and your employer. Obtain replacement equipment as soon as possible.

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 Personal Locator Beacon, a life vest with strobe light and whistle, a hard hat, ear plugs, and eye protection. These are provided in order to reduce your reliance on vessel equipment. Keep your immersion suit in a safe, readily accessible location. 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, Kodiak, and Anchorage. 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 the NMFS office where you train or brief. If your vessel assignment changes at the last minute, you may need to pick up additional thumb counters, baskets, a Mustang suit or a flatbed scale from the field offices. Let your employer know your needs so they can arrange the logistics with the vessel.

Assignments

Your employer is responsible for arranging your assignments. If you have questions about your assignment direct them to your employer. NMFS has a 90-day limit for each observer cruise. Additionally, full coverage observers may not be assigned to more than four vessels and/or plants during one cruise. Finally, observers may not be deployed to the same vessel for more than 90 days in any 365-day period. These limitations were created in order to protect observers from “burn-out,” and to allow NMFS to finalize your data in a timely manner. Observers may work less than 90 contiguous days because of fishery closures, weather, and erratic vessel schedules.

Observers working in either the full coverage or the partial coverage categories should have a written understanding of payment and reimbursement agreements prior to leaving, since traveling in Alaska can be unpredictable and expensive. If you need to complete a deployment by a specific date tell your employer’s logistics coordinator and get this date written into your contract.

Beginning a New Assignment

When you begin a new assignment, take time to adjust to your surroundings before the vessel leaves the dock. Present the “Letter of Introduction” to the vessel operator (see page 2-3). Make yourself available to answer any questions the vessel may have. Familiarize yourself with the safety equipment using the check list on on page 19-3. Do not board the vessel if you circled

"N" for any of the blue "no go" items. Read "Sample Station Requirements" on page 2-32 for information regarding what to look for in a basic sample station. Ask the captain how many hauls are expected each day to determine your sampling schedule.

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

Communications

You will be communicating with the Observer Program daily, weekly, or on a trip by trip basis depending on your vessel. Some vessels have the ATLAS communications system. This computer software was designed to allow you to enter your data on the vessel's computer and transmit it to NMFS. If your vessel has at-sea transmission capabilities, you may be able to send email messages to observer program staff. The email you send is read and responded to by a member of the FMA's debriefing staff who is knowledgeable about the boat. They will also be able to look at your data and troubleshoot problems while you are still at sea. If you are on a vessel that does not have ATLAS, you will fax in your data periodically. For more details refer to "Sending Data" on page 2-37.

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

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

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

Mid-cruise and Field Support

The FMA has field stations in Anchorage, Dutch Harbor, and Kodiak to provide staff support for observers. When you are in these ports, you should meet with a staff member for a "mid-cruise" debriefing. The mid-cruise allows NMFS staff to review your sampling procedures, calculations and paperwork, and ensure that all is going well. It is an opportunity for you to ask questions and receive suggestions on how to solve any problems you may have encountered.

All observers must complete a mid-cruise during each deployment, until they receive an exemption. Although it is termed a mid-cruise, this debriefing 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 any reason, calling ahead will help ensure that a staff member will be available to work with you at a specific time. More information on mid-cruises can be found on page 21-5.

In-person mid-cruises can be done in any FMA office.

Observer Provider Responsibility

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

Debriefing

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

- complete a survey for each assignment

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

Debriefing is generally done in Seattle or Anchorage.

Your debriefing is a vital part of your observer responsibilities because it allows the NMFS to get feedback from you. It is an opportunity for you to discuss your methods and ask for suggestions if you encountered problems in the field. The debriefing process is your chance to demonstrate your understanding of the methods you learned in training and your proficiency at applying them in the field. At the end of your debriefing you will be given 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 to assure you are able to collect high quality data. The recommendation could be for either a 1-day, 2-day, 4-day or 3-week training.

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

Briefing

Prior to each subsequent cruise, you will attend a briefing to inform you of any policy changes and to review the priorities and duties on different vessel types. All observers are required to complete a 4-day annual 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 1-day, 2-day tutorial, or 4-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

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

RESPONSIBILITIES AND PRIORITIES

Deployment Responsibilities

As an observer, you have specific responsibilities that must be met throughout your deployment. These responsibilities are 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 19-7.
- 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 2-28 for specific information regarding scales.
- Complete species identification forms.
- Complete your mid-cruise and final debriefing requirements; see "INSEASON ADVISING, MID-CRUISE AND FINAL DEBRIEFING" on page 21-1.

Data Collection Priorities

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

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

2. Record incidental takes of short-tailed albatross and other seabird species of interest. Collect seabird species of interest specimens. Rehabilitate injured short-tailed albatross and other species of interest if possible.

3. Record fishing effort and catch information. Make an independent estimate for as many hauls as possible. Record all calculations for your independent catch estimates in your logbook.

4. Collect and report salmon data in the pollock fishery

- Offload Salmon Retention Count
- Salmon Genetics

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 species composition, collect otoliths from the appropriate species.

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

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

11. Stomach Collection

12. Record sightings of marine mammals.

13. Record sightings of seabird "species of interest."

14. Complete research projects as assigned.

15. Record sightings of interactions with other seabird species.

Managing Your Time

Your time and effort given to each task should be proportional to its priority. For example, if your vessel catches a killer whale, you should spend as much time as required to gather all the pertinent information and collect a tissue sample, as that is your highest priority. A few suggestions on how to reduce the time and effort you spend on lower priority tasks are:

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

BOARDING YOUR VESSEL

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.

Safety Checklist and 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 and then complete the Safety Checklist. ***You may not board a vessel that does not have a current decal or has any "no-go" item not in compliance***. If the vessel does not have a current decal or if any "no-go" items are out of compliance, inform the captain that you are not able to board the vessel and immediately inform your employer and NMFS. Document the decal and "no-go" information in your logbook daily notes and the Vessel Safety Checklist. ***(Please note that the mothership Ocean Phoenix is not required to have this safety decal.)***

Before leaving the dock you must be given a safety orientation by a qualified crew member. Once the safety orientation is complete, talk to the Captain if you have questions or concerns that have not been addressed. Notify your employer, NMFS and document in your logbook any unresolved safety problems.

Vessel Introduction and Operations

Upon boarding the vessel, introducing yourself to the captain should be a priority. Provide the captain with the "Letter of Introduction" and use it as a tool to answer any questions they may have. It's important at this meeting to set the tone for a friendly but professional working relationship. 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.

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 catch, 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. See "Prior Notification" on page 20-12 of the Regulations section for additional information.

If assigned to a catcher vessel, discuss with the captain that you may need notification before the offload begins in order to complete offload duties. (Observers are to be notified at least 15 minutes prior to fish and fish products being transferred from the vessel, e.g. pollock catcher vessel offloads, unless the observer specifically requests not to be notified.)

Vessel Accommodations

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

Becoming Familiar with Your Vessel

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

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

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

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

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

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

Catcher Processor Trawler

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

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

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

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

Catcher-Only Trawler

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

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

- If you are required to monitor your offload and there is not a plant observer, have your sample gear ready upon arrival for offload. Find out where you'll be observing and sorting salmon before your offload begins.

Longline Vessel

The fishing operations on longline vessels are different from trawl vessels. There are other considerations that should be addressed in the first day(s) of your assignment.

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

Pot Vessel

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

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

The First Haul

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

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

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

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

STANDARDS OF OBSERVER BEHAVIOR

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

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

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

3. You must not disclose collected data and observations made on board the vessel or in the processing facility to any person except the owner or operator of the observed vessel or processing facility, an authorized officer, or NMFS. See "Observer Information" on page 20-6.

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

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

Working in a Processing Facility

During many of your assignments you will be delivering to and working at shoreside plants, or will be aboard at-sea processors. These are food processing facilities that have strict standards for safety, dress and hygiene within the factory. Inquire about these rules during your orientation. The vessel or plant will inform you of their specific rules for working in their factory. These rules may include but are not limited to: removal of jewelry, wearing a hair/beard net, wearing a hard hat, prohibiting the use of head phones or not allowing food (gum, beverages, chewing tobacco, etc.) while working in the factory. Observers are expected to adhere to vessel and processor policies for working in the factory.

Limitations on Conflict of Interest

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

Observers:

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

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

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

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

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

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

Confidentiality

Only the vessel/plant owner or operator, NMFS staff, and you are allowed to see the data you collect. ***Never allow crew from one vessel/plant to see any data from another vessel/plant. Sharing another vessel/plant's data, even inadvertently, can be grounds for decertification.*** Be particularly discreet when discussing problems, "fishing stories," or assignments in public places, on other vessels, or through email. You may inadvertently give more information than you mean to. Keep all of your data, including "goldenrod" copies from a vessel logbook, paper forms, deck forms, specimens, fish tickets, and thumb drives, in a safe and secure place for every boat and plant at all times. See page 20-6 for more information regarding observer information.

Providing Data to the Vessel/Plant

You may share your species composition, haul, and biological data with the vessel/plant owner or operator ***when it is convenient for you and only at their request.*** All the information in your logbook must be kept confidential with the exception of the Vessel Safety Checklist which you may provide the vessel owner or operator with one of the logbook's black and white copies or make a copy yourself.

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 them completed data on a regular schedule. You are not expected to provide data to the vessel more frequently than your daily data transmission requirements. If the vessel has other expectations regarding the availability of your data, you should inform your inseason adviser and direct the vessel to contact the Observer Program. Providing data to the vessel/plant owner should not interfere with your regular duties.

ADF&G Fish Ticket and Landing Report Information

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

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

Photos and Videos

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

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

All observer information must be kept confidential. Observers must not post observer information on the internet including, but not limited to, social networking sites and other file sharing sites. See page 20-6.

Use of Vessel/Plant Equipment

The vessel/plant is required to allow their assigned observer access to equipment (*e*.g., computer, phone, radio, fax machine) for official work purposes only

(see page 20-12). If you wish access to this equipment for personal use you must seek permission from the vessel/plant operator.

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

Personal Gain

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

Signing Statements

The Vessel Safety Checklist in the observer logbook is the only form that observers are expected to sign. Vessel or processing personnel will occasionally request that observers make written statements, or sign prepared documents or forms regarding observer duties which may include safety issues, validity of their data and compliance issues. It is critical that you ***do not sign any document related to your data collection or duties.*** You may also be asked to sign documents or forms not related to your data collection or duties which may include safety or compliance issues, housing agreements, or video release forms. Contact your employer and NMFS for advice on how to proceed if this happens. Additionally, written statements should be prepared only for NMFS staff. If vessel personnel want more information, please have them contact the Observer Program Office (see "Contact Addresses and Numbers" on page A-53).

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 21-3 on page 21-3. The following is a list of data form types available with a synopsis of each form's use:

- **Trip Form:** All vessel observers fill out this form. It captures additional information not provided by the vessel and observer haul forms. The paper version of this form must be completed by all observers, even if they are using ATLAS.
- **Plant/Vessel Offload Form:** All plant observers and all observers on catcher vessels delivering to a shoreside processor or floating processor must fill out an Offload Form. The paper version of this form must be completed by these observers, even if they are using ATLAS. The Offload Form captures delivery weight information in addition to other data useful to management.
- **Vessel Haul Form:** All vessel observers, whether entering data into ATLAS or faxing it, must complete this paper form. It captures position data at the haul level.
- **Observer Haul Form:** All vessel observers, whether entering data into ATLAS or faxing it, must complete this paper form. It captures haul specific weight data and other haul specific data critical to management.
- **Deck Form:** ***The Deck Form is used to capture all raw data.*** All observers, whether entering data into ATLAS or faxing it, use this form. It is used to capture species composition data, specimen collection data, and all other sample specific information.
- **Hook Count and Spacing Form:** All observers on longline vessels, whether entering data into ATLAS or faxing it, must complete the paper Hook Count and Spacing Form. It captures hook count information that is critical to longline fisheries management.
- Snap Gear Hook Count Form: All observers on snap gear vessels must complete the paper Snap Gear Hook Count Form.
- **Salmon Retention Data:** Observers on CP trawlers, motherships, and at processing plants targeting or receiving pollock enter Salmon Retention Data into ATLAS. There is not a paper version of this form.

- **Species Composition Form:** Only vessel observers faxing their data must complete the paper Species Composition Form. It contains the same information as the Deck Form, but must be completed for vessels without ATLAS because the Deck Forms do not fax well.
- **Length and Specimen Form:** Only vessel observers faxing their data must complete the paper Length and Specimen Form. It contains the same information as the Deck Form, but must be completed for vessels without ATLAS because the Deck Forms do not fax well.
- **Marine Mammal Interaction and Specimen Form:** Only vessel observers faxing their data must complete the Marine Mammal Interaction and Specimen Form. This form captures single event information for marine mammal interactions and specimens. Observers on ATLAS vessels enter mammal interaction and specimen data and send it electronically.
- **Bird Interaction, Activity, And Species Form**: Only vessel observers faxing their data must complete the Bird Interaction, Activity, and Species Form. Observers on ATLAS equipped vessels enter bird data into ATLAS; however interactions with short-tailed albatross must be entered to ATLAS and recorded on the paper forms (both the Bird Interaction and Specimen Form and the Bird Specimen and Tag Information Form).
- **Bird Specimen and Tag Information Form**. Only vessel observers faxing their data must complete the Bird Specimen and Tag Information Form. Observers on ATLAS equipped vessels enter bird data into ATLAS; however interactions with short-tailed albatross must be entered to ATLAS and recorded on the paper forms (both the Bird Interaction and Specimen Form and the Bird Specimen and Tag Information Form).
- **Marine Mammal Sighting Form**: All observers complete Marine Mammal Sighting Forms. These forms capture information regarding the species seen (if known), behavior of the mammal, and location sighted. The form is turned in at debriefing. These data are not entered to ATLAS and the form is not faxed.
- **Species Identification Form:** All observers must fill out Species Identification Forms for each new species they see. The form captures in-hand characters of described species and is used to verify observers' species identifications.

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

Legibility

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

To ensure that your data are legible:

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

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

Cruise Numbers

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

Organization of Data

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

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

Page Numbering

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

Vessel Haul Forms and Observer Haul Forms

Vessel Haul Forms and Observer Haul Forms are two different form types, so they must be numbered separately. To keep these forms orderly, you must have one Vessel Haul Form for each Observer Haul Form and you must be consistent with haul documentation between forms. For example, if you record hauls 1-9 on page number 1 of your Vessel Haul Form, record only these haul numbers on page number 1 of your Observer Haul Form even if more space is available.

Deck Forms

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

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

Following these tips will help you organize your data.

- All data entered into ATLAS or transcribed onto paper forms must be entered line by line to match the raw data recorded on the Deck Form. There is one exception to this rule. When you enter salmon and crab species that have an associated sex, sum the lines of data on your Deck Form to enter these as a single line of data by sex into Atlas or the paper form (see Figure 18-31 on page 18-13).
- 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. When entering composition data into ATLAS, enter the cruise number of the observer who collected the sample in the "sampled by" field.***

Recording Time

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

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

SPECIES IDENTIFICATION

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

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

Species Identification Forms

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

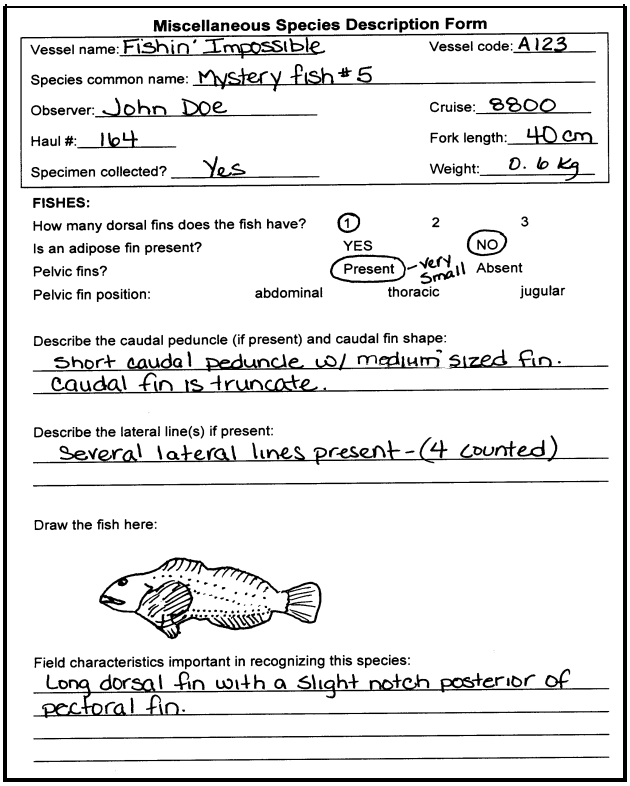
- Species ID Forms ***must be filled out with the fish in hand!***
- Species ID Forms must be complete and detailed. Incomplete ID Forms (*e.g.,* length or weight missing or lack of defining characteristics mentioned) will not be accepted and will have to be redone.
- Gill raker counts can differ from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

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

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

Unidentified Fish

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.*** Please refer to the WANTED! poster included in your Species ID Guide for the list of species that when encountered, a whole specimen is required for confirmation. You must include the "Bag and Tag Specimen Collection Label" on page 2-13. If you are unable to bring the fish back, please take photographs of the specimen for ID purposes.



Miscellaneous Species Description Form

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

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

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

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

Draw the fish here:

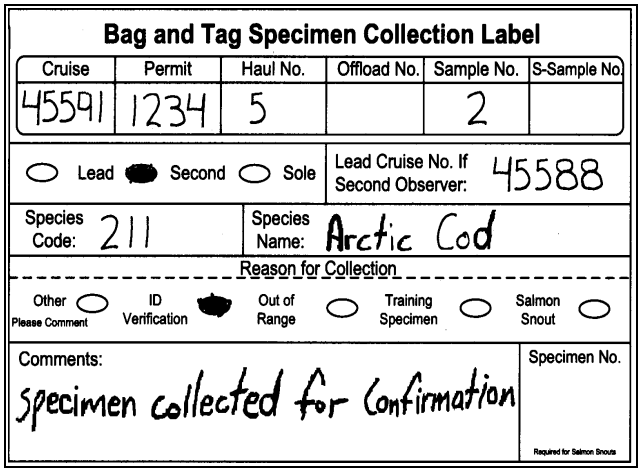
Field characteristics important in recognizing this species:
Long dorsal fin with a slight notch posterior of pectoral fin.

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

Green Sturgeon

Green sturgeon data are collected and recorded on the Length and Specimen Form; see "Green Sturgeon" on page 13-14 for more information.

Bag and Tag Specimen Collection Label



Bag and Tag Specimen Collection Label

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

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

Species Code: 211 Species Name: Arctic Cod

Reason for Collection

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

Comments: Specimen collected for Confirmation

Specimen No. (Required for Salmon Snouts)

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

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

- Rinse the specimen to remove any extra scales, blood, and slime.
- Place and seal the specimen in a plastic bag, making sure it lays flat. Specimens should be stored one per bag to prevent the specimens from freezing together and harming the specimens.
- Place a completed Bag and Tag Specimen Label in the bag so the information can be viewed through the bag.

- Always check with the captain/plant manager for the best place to store your specimens. If additional wrapping is needed to avoid contamination with food products be as accommodating as possible.
- Bring specimens to a NMFS office as soon as possible.

Dropping Off Specimens

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

- Keep specimens frozen or salted (salmon snouts and skate vertebrae)!
- Utilize your inseason advisor and/or observer provider to notify the field office of your pending arrival to drop off specimens.
- Record all specimens dropped off at a field office in the "Specimen Drop Off Record" in your logbook.
- See "Specimen Drop Off and Initial Data Check Procedure" on page 12-24 for specific instructions for salmon genetics specimens.

Frequently Asked Questions

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

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

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

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

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

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

Transfers of Gear in the Field

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

Observer Logbook Entries

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

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

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

Your logbook is your field biology notebook and must be treated as such. ***Do not use it as a personal journal.*** Although you must document any interference or inappropriate behavior toward you, avoid venting

frustrations or making slanderous, derogatory or discriminatory remarks in your logbook. Your logbook must be kept private while you are on the vessel, but it is a public document and part of the data turned over to NMFS during debriefing. After this, the contents of the logbook and your name may be released.

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

Daily Notes Section

Use the Daily Notes section to document on problems that occurred while you were aboard the vessel, any illnesses or injuries you suffered, your methods for catch estimates, the reasons you chose all sampling methods, and any circumstances that affected your sampling duties or caused you to change your sampling design. The complete details of your sampling methods should also be recorded in the "Sample Design Detail" section of your logbook. Record the circumstances surrounding any violation you witness, including harassment, mishandling of prohibited species, interference with your duties, harassing or harming marine mammals, and MARPOL (marine pollution) violations.

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

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

The Logbook as Evidence

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

DAILY NOTES - INCLUDE DATES

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

02/24 continued

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

Figure 2-2: Properly Corrected Logbook Entries

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!*** Calculations that require you to follow these rounding rules include but are not limited to codend estimates, densities, vessel estimate conversions, and decimal minute conversions. For example, values used for height and width in volumetric equations are typically the average of three or more separate values. It is a common mistake to use rounded average height and width measurements in volumetric equations. Rounding within a calculation will cost you time in debriefing!

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

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

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

SELECTING HAULS TO SAMPLE

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

When All Hauls Should be Sampled

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

When All Hauls Cannot Be Sampled

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

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

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

If your sampling effort is low and/or you are having difficulty deciding how to randomly select hauls to sample, contact NMFS staff for assistance (see "Contact Addresses and Numbers" on page A-53) and document the problems in your observer logbook.

There could be many reasons that preclude you from sampling a haul as required such as severe weather conditions that could impact the crew or your safety. Keep in mind that, although you may not be able to

collect composition data, it may be possible for you to verify haul data on hauls not being sampled. This may be of particular importance on vessels that are not required to maintain a logbook.

When to Use the Random Sample Table

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

Versions of the Random Sample Table (RST)

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

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

1. The RST usually used on catcher vessels.

2. The RST used on CPs landing 6 or fewer hauls each day.

3. The RST used on CPs landing more than 6 hauls per day.

The catcher vessel table has one "off" haul in each sample sequence, while CP tables can have between one and three off hauls in each sequence. ***Choose an RST which is appropriate and will best fit your needs.*** You may choose to use a more rigorous schedule, but you may not use a less stringent schedule than your vessel type and fishing activity requires.

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

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

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

Figure 2-3: Random Sample Table (example)

How to Use the RST

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

Vessel Responsibility and the RST

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

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

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

How to Use the RBT

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

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

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

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

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

Break Table Use Summary

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

Documenting RST and RBT Use

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

If Your Sampling Schedule is Too Rigorous

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

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

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-53). Do not use a solution that has not been approved by NMFS!

Frequently Asked Questions About the RST and RBT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

INTRODUCTION TO SAMPLING THEORY

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

Target vs. Sampled Populations

Fisheries observers report on catch from commercial fisheries. You provide answers to the questions of what, where, when, and how much was caught. In a perfect world, observers would take a census of the catch: every fact about everything that was hooked, trawled, or trapped would be accounted for. In most situations at sea a census for every species will be impractical. Sampling the population is the next best option to a population census. Through sampling you will provide information necessary for fisheries management.

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

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

Sample Design

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

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

Sample Frames

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

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

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

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

Example 3: Jasper is sampling on board a catcher processor that uses a flow scale 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 flow scale, 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.

<u>The Benefits of Multiple Large Samples</u>

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!***

Sampling decisions must be made on a haul by haul basis as each haul's population is unique and may present different challenges that alter how each data point can be collected. You are expected to apply the lessons learned from one sample to improve the samples of subsequent hauls and work to overcome any sampling challenges. With practice and increased familiarity with vessel operations data collection methods will improve. Your overall success and the quality of your data are dependent on your ability to remain flexible and continue to improve your methods throughout your deployment.

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.

If you miss the intended start point for your sample, maintain the size of the designated sample unit so that you have equal sized sample units throughout the haul. Collect any subsequent samples at their originally designed start point. Mark the sample as unable to follow design (see page 2-23 for unable to follow design details).

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 flow scale is an option, observers generally use units of weight. On a longliner or pot boat, your sampling frame can be composed of units of gear (skates or pots, either individual or grouped). Gear based frames are considered spatial frames.

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

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

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

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

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

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

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

7. **Sample the randomly chosen units.** If your sampling units are deck sections, collect **all** of the animals from each randomly selected deck section. If your units are sections of longline gear or pot gear, account for **all** animals from the randomly selected segments or pots. If your units are time increments,

collect **all** of the fish during the time increment. ***Sample unit size must be manageable, because every fish in the unit must be accounted for.***

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

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

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

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

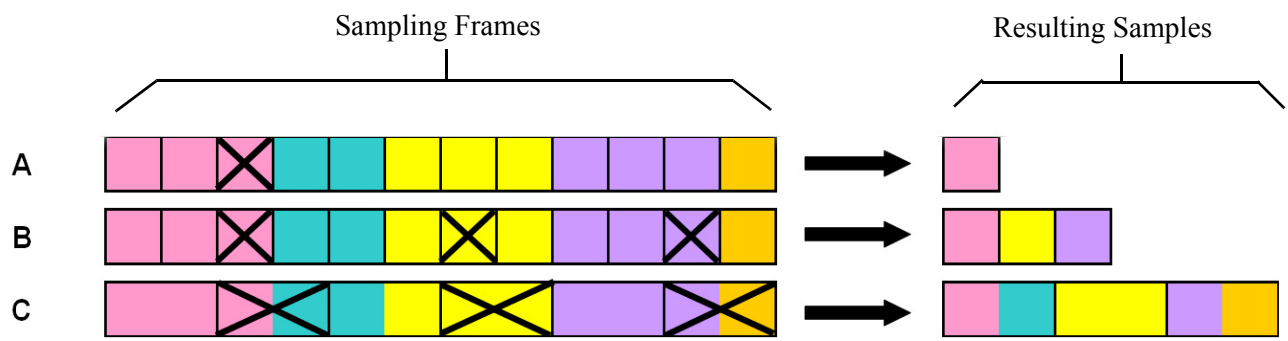


Figure 2-5: Sample frame examples showing benefits of multiple large samples over fewer small samples.

Documenting Design Constraints or Problems (Unable to Follow Design)

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 Design (UTFD)" 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 Catcher Processors" on page 5-14, "Addressing Challenging Sampling Situations on Catcher Vessels" on page 5-17, longline vessels on page 8-10, and pot vessels on page 10-8).*** Below are some common scenarios of when to use, and

when not to use "unable to follow design:" If you have any questions or are unsure about when to use UTFD, contact your inseason advisor or FMA staff.

1. On a CP trawler, you plan to collect 3 samples systematically based on the flow scale weight. Each sample will be 8 mt. Sample 1 was collected according to design. For sample 2, the species composition became unexpectedly diverse so you had to stop your sample after 5 tons. During the third sample, the catch was clean again so you were able to collect an 8 mt sample. Sample 2 must be coded as UTFD because you were unable to maintain your sampling design due to the diversity of the catch.

2. On a CP trawler you are collecting 150 kg samples based on weight intervals from the flow scale. When the bleeder lets out fish for your sample you end up with 300 kg of fish (twice the amount you intended to take). Because of the large size discrepancy, you must mark the sample as UTFD.

3. On a CP trawler, you have an open ended systematic sample design based on the haul estimate. During your last sample you intended to take a 10 mt sample but the fish ran out at 7 mt. This ***is not*** recorded as UTFD because you sampled when you were supposed to, but the fish ran out due to the haul estimate being overestimated.

4. On a CV trawler you plan to collect 3 samples using a temporal design. You collect sample 1 as planned, but fail to collect sample 2 because you were busy working up the first sample. You collect your third sampled as planned. Samples 1 and 3 were collected according to your design so they ***are not*** marked as UTFD even though sample 2 was not collected.

5. On a CV longliner you implemented a spatial systematic design. Each tally period consists of 2 skates. For your first sample you intended to tally skates 3 and 4. You missed the start of skate 3, so you tally skates 4 and 5 instead. Because you missed skate 3, you must mark the sample as UTFD.

6. On a CP longliner you set up a temporal spatial design. You use time to determine when you go up to start tallying. Each tally period consists of 2 skates. You collect your first sample as planned but were 30 minutes late for the second tally period. Because your tally time interval was altered you must record the second sample as UTFD.

7. On a CV pot vessel you implemented a spatial systematic design. Each sample period consists of 6 pots. For your second sample period you planned to sample pots 18 to 24. You lost count of the pots and realized they were retrieving pot 20 so you sampled pots 20 to 26 to maintain your 6 pot sample unit size. Because your sample design was altered (pots 18 and 19 were missed) the sample must be coded as UTFD.

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) The following sample design codes relate to species composition data. (2) For sample design codes related to length and specimen data, see "Sample Design" on page 13-16.

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 5-10, "Random Sampling on Longliners" on page 8-5, or "Sampling Designs on Pot Vessels" on page 10-4. Example: You were only able to take a single random sample from four segments of gear because the haul was very small (*i.e.*, longliners with short sets).

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

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

Code 10 - Census: Use this code when no sample frame is required because you census the entire population. For more details on using this code during the salmon retention count on trawlers, see "GOA Vessel Observer Offload Salmon Retention Count" on page 5-32. Use this code on catcher vessels for observing the pollock offload for salmon bycatch or for any haul when the entire catch is sampled for species composition.

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

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

SAMPLE UNIT TYPE FOR SPECIES COMPOSITION

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

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

Code 2 - Time: The sample unit is a predetermined time interval. Use this code when you collect or tally all the fish encountered during the unit of time defined

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

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

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

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

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

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

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

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

How to Use the Random Number Table

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

position in a random number table. You should decide on a direction and enter the table at a different random starting point every time you use it.

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

SUBSET SAMPLING

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

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

Subset Sample for Number and Weight

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

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

Subset Sampling for Species Identification

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

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

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

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

For example, you have too many fish from the rock sole group in your sample. You cannot identify each of them, so you choose two random baskets of mixed fish and remove and identify all the rock sole. Upon completion, you find that of the 29 total rock sole in the

two baskets, 26 are northern rock sole and 3 are southern rock sole. For the species composition of that sample you would list 26 northern rock sole, 3 southern rock sole, and all the rock sole from your remaining sample as "rock sole unidentified." If rock sole is the predominant species that you will be measuring, you should also use the rock soles that were identified to species for your length sample and record them on the Length and Specimen Form. An example of recording a subset sample of rock soles can be found on the Species Composition Form example in Figure 5-15 on page 5-54.

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 tenth 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-57.

Hanging Your Scales

Locating a place to hang your scales is expected to be a challenge on some vessels. In the absence of a place to hang the scale, you may be required to take sample weights using the 2, 12, or 50 kg scales by holding the scale in your hand.

You should work closely with the captain of your vessel to identify a safe and adequate area to set up your scale and sample station. Ingenuity and creativity will be required to adapt to these situations. Document any issues that you encounter in your Daily Notes.

Taring Your Scales

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

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

Testing Your Scales

Bring your scales into a field station at a mid point of your cruise to retest them and ensure they are still accurate. ***You must test your scales prior to use if during your most recent assignment you used an electronic or motion compensated platform scale.***

Your data cannot be used if your scales are not working correctly. Document these test results in the "**Observer Scale Test Log**" section of your logbook. If your scales do not pass testing obtain replacement scales as soon as possible and document this in your logbook.

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

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

Motion Compensated Electronic Scales

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

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

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

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

Platform Scale Testing

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

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

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

To test an MCP scale:

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

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.

Skanvaegt Platform Scales.

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

What To Do When the Platform Scale Fails

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

Document the serial number for any faulty platform scale(s) on your Deck Forms, Daily MCP Scale Test Log section in your logbook, and in your Daily Notes. The serial number is found on the digital faceplate.

Flow Scale Testing

On vessels where flow scales are required by regulation, the daily flow scale test must be conducted at least one time during each calendar day when use of the scale is required, with testing intervals not to exceed 24 hours. 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.

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

In order to do a flow scale test, the vessel must use sandbags supplied by the scale manufacturer. Other items such as fish, bags of flour or rice and steel test weights are ***not*** approved for testing flow scales. The crew must run these sandbags over the flow scale for a total test weight of at least 400 kgs. After the sandbags are weighed on the flow scale they should be weighed on the platform scale. The maximum permissible error for flow scales is ±3.0%. Some vessels will be using a Daily Flow Scale Test Form to document the weights and perform the calculations. This information will then be entered into the ELB. ***Do not sign this form.*** Your job is to simply be present and witness that the test was done correctly. 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 sandbags supplied by the scale manufacturer. If your vessel is testing the flow scale with anything other than sandbags, contact your inseason advisor.
- Conducting the flow scale test in the presence of an observer, to verify that the test was conducted in accordance with regulations.
- Accurately entering all flow scale tests (pass or fail) into the electronic logbook and make this data available to the observer(s).
- 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.

Do not record numbers on the form, perform any calculations, assist vessel personnel with weights or weighing items during the flow scale test and do not sign the Daily Flow Scale Test Form. Again, your job is to simply be present for the test to verify it was done accurately. If you have any questions or notice inaccurate documentation of the test results in the ELB, contact your inseason advisor immediately.

If the vessel has trouble with their flow scale, have them contact Jennifer Watson, NMFS Scale Program Coordinator. Phone (907) 586-7537, fax (907) 586-7465.

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

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

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

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

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

Figure 2-6: Flow Scale on a CP Trawler

What To Do When the Flow Scale Fails

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

For Trawlers and Longliners

1. If the flow scale fails the daily test, it may be re-tested as many times as the crew wishes. All test results (pass or fail) must be documented in the ELB. Contact you inseason advisor if you notice otherwise.

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

3. Notify NMFS, via your inseason advisor, and document the incident in your logbook. ***Do not refuse***

to sample or tell the vessel they can't fish if the flow scale isn't functioning.

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

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

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

Flow Scale Test Form and Flow Scale - MCP Scale Weight Comparison Form
Observers on CP trawlers and motherships with a flow scale must fill out these forms. See "Flow Scale Test Form" on page 4-6 and "Flow Scale - MCP Scale Weight Comparison Form" on page 5-20 for more information.

SAMPLE STATION REQUIREMENTS

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

Observer Sampling Station Inspection Reports
Read the Observer Sampling Station Inspection Report when you board a LAPP vessel. Note the date the Inspection Report was issued (certification is good for one year) and ensure that it has not expired. If it has, inform the master of the vessel immediately so that they can arrange for a new inspection in a timely manner.Examine the sample station diagram, and compare the setup of your station against the diagram.An example of the Sample Station Certification Letter is shown in Figure 2-7 on page 2-33. Before you complete your inspection of the sampling station, make sure the station is completely setup. If possible, test the platform scale before your vessel departs to make sure it passes the daily test. The scale should be turned on at least ½ hour prior to testing so that it can warm up.

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

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

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

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

EXAMPLE

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

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

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

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

Sincerely,

John D. Staffer

John Doe Staffer
Inspection Coordinator
North Pacific Groundfish
Observer Program

Enclosures: sample station diagram
vessel inspection checklist

cc: NMFS Alaska Regional Office

Figure 2-7: Sample Station Certification Letter

Sample Station:

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

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

Minimum Work Space:

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

Table:

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

Observer Sampling Scale Location and Height:

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

Flow Scale Display Visibility (Trawlers Only):

Note if the flow scale display is readable from where you collect unsorted catch and the area where sampling takes place. Note the brand and model number of the flow scale.

Floor Grating:

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

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

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

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

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

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

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

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

Sample Area When No Station Is Required
On vessels not required to maintain a certified sample station, your work space may be limited. It is critical that you work closely with the crew to establish a safe and workable area where you can sample with little interference from the crew. It is possible that your sample area will change from haul to haul or from sample to sample (though this is not usually the case).

It is essential that any gear stored on deck is stored safely and in a secured manner (usually in secured observer baskets). When securing your gear on deck, be aware that changing deck conditions may result when the vessel travels. Should the deck be the only area available to store your sample gear, be sure to secure gear so that your baskets can not flip or turn over, and spill the contents. You are responsible for your gear.

WORKING WITH TWO OBSERVERS

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

Lead Observer's Role

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.

The lead's cruise number should be entered in all header information in paper forms and in ATLAS. The second's cruise number should be recorded in the

"Haul sampled by" field on the OHF and the species composition "Sampled by" field in ATLAS. As a lead observer, you are responsible for ensuring that your data are sent to NMFS on time. You and the second observer should maintain separate Daily Notes in your own logbooks, but all calculations must be recorded in your logbook.

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 provided in the Mid-Cruise and Debriefing chapter on page 21-7. 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 and the species composition "Sampled By" field completed in ATLAS. Record all calculations (although rare) in the lead observer's logbook. The only data that you will collect under your own cruise number are your Species ID Forms and Marine Mammal Sighting Forms (11US). You are expected to complete all required sections of your logbook which include but are not limited to: Observer Deployment Information, Observer Scale Test Log, Vessel Safety Checklist, Diagrams of Sampling Area, Sample Station Verification Checklist, Daily Observer MCP Scale Test Log, Sampling Design Details, MARPOL Reporting, Marine Casualty, etc. You must maintain separate Daily Notes in your own logbook. 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 during a shift change. Recurring problems should be discussed with the lead observer.

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 bring copies of deck sheets and other data forms to your mid-cruise or final debriefing to help you remember details of your deployment.

Shared Duties

As a part of the observer team you are expected to maintain effective communication with your fellow observer and with vessel personnel. You should agree on a specified time between shifts to discuss pertinent fishing and sampling activities that occurred during the previous shift. Discuss any issues that come up during your shifts and work together on resolutions so that you both can provide vessel personnel with consistent and timely feedback. Both observers should document these issues in detail and notify your inseason advisor via ATLAS. ***During a 12 hour shift each observer is responsible for completing all data collection duties, completing required paper forms and entering these data into ATLAS.*** Decide on a ***secure*** common area to leave recent data that needs to be entered or checked by your colleague. Each observer should be on duty for no more than 12 hours in a 24 hour period. 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 should work together to discuss and identify potential sample biases or challenges and 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 from haul to haul. 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 must follow that design. To aid in data correction and verification, each observer ***must*** initial the Deck Form for every sample collected. If the sample is collected by both observers, the Deck Form should be initialed by the observer that collected the majority of the data for that sample. The cruise number entered in the species composition "Sampled By" field in ATLAS should be that of the observer who collected the sample and should correspond with the initials. If more than one observer samples a haul record the cruise number of the observer who sampled the majority of the haul in the "Haul Sampled By" column on the OHF.

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

PRE-OFFLOAD MEETINGS WITH INDUSTRY FOR BERING SEA POLLOCK DELIVERIES

Pre-offload meetings are essential to ensure all ***Bering Sea pollock deliveries*** are monitored in their entirety

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

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

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

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

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

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

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

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

INSEASON ADVISORS AND TEXT MESSAGES

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

First Message to Inseason Advisor

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

Illness or Injury

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

Marine Casualties

Notify your inseason advisor promptly regarding marine casualties even those that are not immediately threatening. See "Marine Casualties" on page 19-12 for descriptions of marine casualties.

SENDING DATA

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

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

Non-Fishing Days

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

Sending Data via ATLAS

The table in Figure 2-8 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 18-27.

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

Figure 2-8: 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" on page 18-1for specific instructions. Any data that you edit in Atlas will automatically be sent to Seattle the next time you prepare and transmit data. If you are asked to resend ATLAS data, select a haul or date range before you prepare your data to be transmitted.

Faxing Data

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

Fax your data to the Groundfish Observer Program in Seattle at 206-526-4066 or 206-526-4207. If you have trouble sending your data don't give up! Call the Observer Program collect at 206-526-4240 if you continue to have problems. If no one answers, leave a voice mail message. Include your name, cruise number, vessel name, and the reason why you can't send your data.

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

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

Correcting and Resubmitting Faxed Data

If you have a correction to data that you have previously faxed to the Observer Program, simply correct the information on your paper form(s) and ***circle all the changes!*** At the top of the form, ***circle "resubmission"*** so we know you are sending corrections to previously faxed data (Figure 2-9).

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
20778	1239	2014

Observer Haul Form

Observer Name Juan DeFuca Vessel Name Astoria Queen

Resubmission (Circle All Changes)

Haul No.	Haul Sampled By (Cruise No.)	RST On Haul? (y= On, n= Off, x= N/A)	RBT On Break? (y= On Break, n= No Break)	Sample Design	Sample Unit Type	% Monitored for Marine Mammals	Vessels Total Catch Estimate (mt)	Estimated Discard Weight (kg)	Trawl Vessels: Observers Catch Estimate (kg)	B, C, or W	Density (kg/m³)	Volumetric Estimate (m³)	Haulback Barcode Code	Short Wired? (Y/N)	Catcherboat's ADF&G # (Motherships Only)
0							.				.	.			
							.				.	.			
200	20778	X	N	7	3	100	4 .25	250	4250	W	.	.	2	N	
201	20752	X	N	7	3	100	19 .12	0	19123	W	.	.	2	N	
202	20778	X	N	7	3	100	23 .15	0	23151	W	.	.	2	N	
203	20752	X	N	7	3	100	16 .56	0	16564	W	.	.	2	N	
							.				.	.			
204	20778	X	N	7	3	0	17 .12	0	17120	W	.	.	0	N	
205	20778	X	N	7	3	100	30.45	0	30452	W	.	.	2	N	
206	20752	X	N	7	3	100	24.19	190	24193	W	.	.	2	N	
207	20752	X	N	7	3	100	16 .57	0	16572	W	.	.	2	N	
208	20752	X	N	7	3	100	18 .41	0	18410	W	.	.	2	N	
209	20778	X	N	7	3	100	21.92	0	21922	W	.	.	2	N	
210	20778	X	N	7	3	100	25.49	0	25491	W	.	.	2	N	
							.				.	.			
0							.				.	.			

Comments:

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Figure 2-9: Resubmitted Fax Data (example)

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TRIP INFORMATION

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INTRODUCTION

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

THE TRIP DATA FORM

What Is A Trip?

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

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

Trip Data Form Instructions

Cruise, Permit, Year: Enter the cruise number supplied in your training or briefing. Vessel permits can be found on page A-26. For "Year" you can enter the full year or just the last two digits (*e.g.*, "13"). ***If data on the Trip Form straddles the end of one year and beginning of the next, a new form should be used to capture the trip end information).***

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

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

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

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

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

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

Port Codes: Use the table "Port Codes and Non-Fishing Day Positions" on page A-25 to determine the port code of the port the vessel is leaving from or returning to. Enter the port code in the "Port of Trip Start" or "Port of Trip End" column and leave the latitude and longitude columns for trip position data blank. For example, if your boat ties up to a tramper in Dutch Harbor, the port code would be 3. If the vessel is docked at a port, catcher processor, tramper or tender that is not listed in the table, use the "Other" code. If

you use the "Other" code, you must enter position data in the trip start and/or trip end position columns. For at-sea transfers, use code 18 and enter position data.

Trip Start Position: If you leave from a port, floating processor, tender or tramper that is not listed in the table, use the "Other" code and list the latitude and longitude of the port in the trip start position. If you transfer at sea, use code 18 and enter position data. Read the position directly from the ships GPS or ask the captain for the positions. One hundred plus degrees of longitude are assumed so do not enter the "1." Record the position to the level of accuracy available and to the nearest second. Vessels may record positions to the nearest minute, seconds, or hundredths of a minute; in this case you must convert this value to seconds. Use the conversion chart on page A-38 to convert from hundredths of a minute to seconds. Do not enter degree marks. Degree, minute and second entries must be two digits. Complete the "E or W" column to indicate if the longitude is east or west of the 180 degree line.

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

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

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

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

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

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

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

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

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

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

Cruise	Permit	Year
19999	5676	2014

Trip Data Form

Observer name PAULA POLLOCK

Vessel name BLUE HORIZONS

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

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

Comments: Trip 1, partial offload. Trip 2. Lost engine power twice, took 2 hours to fix, then headed to port
Trip 3. Hid behind island during storm. Trip 5. Offloaded to tramper in Makushin Bay then ran to D.H.

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Figure 3-1: Trip Form Examples

Cruise	Permit	Year
20670	2345	2014

Trip Data Form

Observer name Halie Herring

Vessel name Irish Lord

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date Month	Day	Time of trip start	Port of Trip End	Trip End Position Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours) Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	5	N	3								07	12	0600	3								07	12	0630	N	9						
2	5	N	3								07	12	0800	14								07	15	1230	Y	9						
3	5	N	14								07	16	0417	14								07	19	1026	Y	9						
4	5	N	14								07	20	0120	14								07	20	0135	N	9						
5	5	N	14								07	20	0346	14								07	22	1410	Y	9						

Comments: Trip 1: To the fuel dock
Trip 4: Done offloading & tied up to another boat

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Cruise	Permit	Year
19982	7891	2014

Trip Data Form

Observer name Rex Soul

Vessel name Rock n' Rolling

Page 2 of 2 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date Month	Day	Time of trip start	Port of Trip End	Trip End Position Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours) Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
11	8	N	10								04	04	2330	3								04	05	1830	Y	9				1		
12	9	N	3								04	06	2100	5								04	07	1200	Y	9						
13	9	N	5								04	08	0000	5								04	08	1130	Y	9						

Comments: Trip 11. Coast Guard boarded.

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Figure 3-1: Trip Form Examples

Trip Data Form

Cruise	Permit	Year
14821	4540	2014

Observer name: Bo Shelikof

Vessel name: Kamchatka Klipper

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

Trip No.	Crew Size	Fish in hold at start?	Port of Trip Start	Trip Start Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	Start Date: Month	Day	Time of trip start	Port of Trip End	Trip End Position: Latitude (N) Deg.	Min.	Sec.	E or W	Longitude (100) Deg.	Min.	Sec.	End Date: Month	Day	Time of Trip End	Did fishing occur?	Bait Used? (fixed gear only)	Time Lost at Sea (Hours): Mechanical problems	Weather related problems	Crew related issues	USCG / Enforcement related stoppage	Marine Mammal interaction/predation	Other (include notes)
1	17	N	10								08	12	2130	10								08	17	1930	Y	2						

Comments:

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Trip Data Form

Cruise	Permit	Year
22200	5137	2014

Observer name: Pete Potter

Vessel name: Dungeness Dreams

Page 1 of 1 for vessel

Resubmission (Circle All Changes)

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

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

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Figure 3-1: Trip Form Examples

INSEASON ADVISING, MID-CRUISE AND FINAL DEBRIEFING

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PRIORITIES

- Maintain communication with your inseason advisor. Respond to inseason questions and error reports within 1 or 2 days of receiving the message.
- Schedule and attend, with all your data, a mid-cruise debriefing with FMA staff.
- Complete, organize and prepare all your data and specimens for final debriefing.
- Schedule a final debriefing through your employer.
- Complete a vessel survey for each vessel of your deployment.
- Participate in a final debriefing interview with FMA staff.
- Complete any needed corrections and resubmit your data.
- Turn-in your PLB.
- Clean and turn-in your sampling gear.

INTRODUCTION

The success of the Groundfish Observer Program depends on the quality of data collected by observers. The data submitted both in electronic and paper format serves as the backbone of fisheries management in the North Pacific as well as provides insight into the entire ecosystem. The importance of these data requires that observers consistently follow program guidelines and employ scientifically valid methods to collect the data. In order to ensure these methods are consistent with our training, and the data collected are sound, FMA requires that observers communicate with an inseason advisor if your vessel is equipped with ATLAS, and participate in both a mid-cruise and final debriefing.

The mid-cruise debriefing will assess your work while in the field. Following your cruise, you will participate in a "final debriefing" with an FMA staff member and prepare a final report for each vessel assignment. A conscientious attitude in collecting the data as well as at-sea completion and checking of the data and good inseason communication will improve the quality of the data and expedite this process.

At Sea Preparation

The final debriefing does not take place until the end of your last assignment, but there are many things you can do to prepare for this process. This section provides many suggestions on how to check and organize your data. ***Reading and following this section while at sea will simplify and expedite your debriefing.***

Inseason communication: Work with your inseason advisor (if you are on a vessel with ATLAS) to improve and assure data quality.

Mid-cruise: Schedule and attend a mid-cruise debriefing with FMA staff.

Data check: While you are at sea, check your data on a regular basis. Your debriefing will be finished faster if your data set is complete and accurate. Consult your manual continuously while doing paperwork and be sure the forms are filled in properly. The examples in the manual represent a complete "set" of data and show how forms are interlinked as well as the correct format for each. Please see Figure 21-3 for forms required by assignment.

Logbook: Maintaining entries in your logbook while deployed is a requirement. See "Observer Logbook Entries" on page 2-14 for specific information on logbook entries.

Observers who have witnessed potential fisheries violations may be instructed during debriefing to complete a written statement describing the event. Refer to "Steps to Take if You Suspect a Violation" on page 20-2 for more information.

INSEASON ADVISORS

Most vessels and plants equipped with ATLAS have assigned FMA staff acting as inseason advisors. ***However, if you are on a vessel where you have to transmit your ATLAS data from a shoreside processing plant you do not have an inseason advisor.*** Inseason advisors are available to answer sampling and data recording questions. They will review your data submitted via ATLAS and request corrections. If you are uncertain about something send a message to your inseason advisor. Remember that your inseason advisor is not a substitute for the manual. Always refer to your manual before asking questions.

Remember that the tone of text messages can often be misinterpreted. Error reports and questions should not be viewed as negative as they are sent to help you collect the best possible data.

Inseason Messages

Observers Responsibilities:

- Send a message to your inseason advisor as soon as you board the vessel.
- Both the lead and the second observer must communicate with the inseason advisor. Questions from the inseason advisor must be answered within 1 or 2 days of receiving the message.
- Once you have developed a sample design, a complete description of it needs to be sent to your inseason advisor for review.
- Contact your advisor immediately if you have an injury or illness; see "Illnesses and Accidents" on page 19-11 and explain how it is impacting your sampling efforts.
- Inform NMFS and your employer if an ongoing illness and/or injury consistently impacts your sampling.
- Contact your advisor immediately if there is a marine casualty; see "Marine Casualties" on page 19-12.
- Read all manual pages your inseason advisor requests and respond with any remaining questions.
- Address error reports immediately and re-send data once corrections have been made.
- Proofread your messages before sending them.
- Be precise and detailed when asking a question or describing your methods.
- Notify your advisor when your partner or the target species changes.

Your inseason messages are part of the data and a permanent record for your cruise and constitutes a legal document. Do not use inappropriate language or discuss vessel personnel in a derogatory manner.

Inseason Advisor Responsibilities:

- Responds to any safety concerns immediately.
- Ensures the sample design(s) you have described are valid according to program protocols.

Paper Forms	Non-ATLAS Vessels	ATLAS	
		Vessels	Plant
Trip Data Form	YES	YES	Not completed at plants
Plant/Vessel Offload Form	CVs only	CVs only	YES
Vessel Haul Form	YES	YES	Not completed at plants
Observer Haul Form	YES	YES	Not completed at plants
Hook Count and Spacing Form	Longline only	Longline only	Not completed at plants
Raw Data Deck Forms	Yes	Yes	Yes
Species Composition Paper Form	Yes	Entered in ATLAS only	Not completed at plants
Length and Specimen Form	Yes	Entered in ATLAS only	Entered in ATLAS only
Species ID Form	Yes	Yes	Yes
Research Project Forms, Tagged Fish Forms	Yes	Yes	Yes
Marine Mammal Interaction and Specimen Form	Yes	Entered in ATLAS only	Entered in ATLAS only
Marine Mammal Sighting Form	Yes	Paper form only	Paper form only
Bird Interaction, Activity and Species Form	Yes	Entered in ATLAS and recorded on paper forms for short-tailed albatross	Entered in ATLAS and recorded on paper forms for short-tailed albatross
Bird Specimen and Tag Information Form	Yes	Entered in ATLAS and recorded on paper forms for short-tailed albatross.	Entered in ATLAS and recorded on paper forms for short-tailed albatross.

Figure 21-3: Forms Required by Assignment

- Send error reports at least once a week.
- Respond to any questions within one work day.

Inseason Questions and Messages

When you ask a question:

- Please first refer to your manual for the answer to your question. If you still cannot find the answer or the answer is not clear, send the question to your inseason advisor and include where you have looked for the information.

- If you do not hear from your inseason advisor within two business days of sending your initial message, contact the FMA ("Contact Addresses and Numbers" on page A-53). This allows for confirmation that ATLAS messaging is working.
- If you have not received an answer to a question you sent or received an incomplete answer, please ask your advisor again to ensure the question is received or understood by your advisor. If you do not receive the information you need to perform your duties, contact the observer program ("Contact Addresses and Numbers" on page A-53).

Keep in mind that FMA staff may not have time to answer non work related questions.

Responding to Questions From Your Advisor
It is important to respond promptly to all directions or questions given to you by your inseason advisor or other FMA staff. When you receive a message from your inseason advisor you should:

- Immediately send a message asking for clarification if you do not understand any part of the message. Be specific regarding the parts of the message that are unclear to you.
- Address questions or corrections as soon as possible. A response is expected within 1 or 2 days of receiving the message.
- Make corrections in a timely manner while keeping in mind your sampling workload. Some data corrections must be done immediately. If the change needs to be done immediately you will be told so in the message.
- Not following directions or answering questions in a timely manner can negatively impact data quality. Failure to respond promptly to directions may be considered "not meeting expectations" and will be reflected in your final evaluation.
- Poor communication with inseason advisors may result in poor inseason management of the fishery, a long debriefing, and loss of data.

First Days Messages
Be sure to alert your inseason advisor when you first board the boat. The first message should be sent prior to sampling.

Examples of First Messages to Inseason Advisor
"Just boarded. Testing ATLAS. I will send everything else later."

"Hello! We are settling in pretty well here. We completed the Safety Checklist and the captain ran a hands-on man-overboard drill. We store our survival suits and PLBs in our stateroom. We have arranged that whoever is off duty will grab the suits and PLBs if the alarm goes off and meet the observer on duty in the wheelhouse. I'll send you a sample design as soon as we get settled, though it looks like we'll be doing systematic spatial."

Once you have been on the vessel for a few days please send a complete description of your sample design:

"We are using a systematic spatial design. The haul is divided into 9-12 equal units based on the vessel estimate. Our population is everything in the codend. The RNT is used to select the first sample within the first 3 units. From here every 3rd unit is sampled (ex: the vessel estimate is 45 mt, gives us 9 units of 5 mt each, RNT=1, we sample 0-5 mt, 15-20 mt, 30-35 mt, and so on). Since we sample 5 mt and we divide the population into 5 mt units, our sample unit is weight. We may need to modify this for small hauls, but we haven't had any yet. To get our pollock subset from within our sample we divide the sample size into 1mt units and use the RNT to select one. We then divide the selected ton into twenty 50 kg units and select one with the RNT and collect a basket of fish from the selected unit. We use the pollock subset to collect sex length fish (if there are too many fish in the basket, we basket dump the entire basket into 2 baskets side by side and use the RNT to select one of those 2 baskets to get approximately 20 fish). We clear the sorting belt, have fish run onto it and collect all bycatch. We check to see the belt is clear before letting fish flow for the factory again. We used the RNT to select a haul for otoliths (haul 3). The RNT will be used to select fish for S/L/W and otoliths (lining up the fish on the observer table and assigning them numbers) from the sex length fish. If we have hauls with 2 predominant species subsamples will be collected in a manner similar to our subset collection. Thanks! Wally and Polly."

Describing your sample design in a text message can be tricky, as is understanding it. Take your time and be thorough! There will be less confusion and questions and improper methods can be addressed immediately.

Inseason Error Report Messages
Your inseason advisor will routinely review your data to get a feel for how things are going for you. They will look at sample designs, sample sizes, and composition data and make suggestions or ask questions as needed. Many times you will receive a message that simply says:

"How are things going out there? Looked at your data and everything looks pretty good. Let me know if you need anything. Keep up the good work. Thanks, Ed"

Inseason advisors will usually run an error report at least once per week. The following is an example of a typical error report message:

"Hi Polly and Wally, H 836-s3 (haul 836 sample 3) and H838-s4 have brittle starfish without a weight. Remember everything must be weighed on trawlers. If these were too small to register a weight on the MCP, enter 0.01 kg. H822 is coded as random systematic, but only one sample was taken. This may be fine, but just checking. Missing lengths for H831 and 834. H838-s301 has a starfish in the subsample, but none in the parent sample. Are you sure you were able to collect all the starfish from your sample? It is not likely and if you cannot be positive you've collected all the bycatch from a sample, you need to be taking samples where everything is weighed on the MCP. It's the same situation for H838-s301 and 401 eelpout, H838-s501 pollock, H838-s501 g.sculpin. H835-s1 northern rocksole lengths should likely be a census. Thanks, Joe"

MID-CRUISE

This preliminary debriefing, occurring early on in your deployment, provides the opportunity for both the observer and FMA staff to assess the data collected up to that time, the methods employed, and any difficulties that you have encountered in your assignments. This is also an opportunity to discuss future vessel assignments and discuss any questions that have come up since your last training or briefing. A mid-cruise is helpful for all observers and a short time spent in the field office could save you invaluable amounts of time at your final debriefing. Be sure to pick up a copy of a salmon genetics salmon query if you have collected genetics specimens.

Where Do I Go for my Mid-Cruise Debriefing?
If you are in Kodiak, Dutch Harbor or Anchorage during working hours it is preferred, but not necessary, to call in advance to schedule an appointment. You may stop by the field office and let a staff member know that you are there for a mid-cruise debriefing, but making an appointment is best to ensure a staff member is available to meet with you. ***If you are unable to perform an in-person mid-cruise, refer to "What Do I Do If I Can't Get To an FMA Field Office?" on page 21-6.*** The field offices are staffed Monday through Friday from at least 9:00 a.m. to 5:00 p.m. The Kodiak and Dutch Harbor offices are staffed with variable hours on Saturday and Sunday. In order to successfully complete the mid-cruise, you must bring:

- Your logbook.
- All data collected to date. If you are the second observer bring several Deck Forms you completed (you may bring copies if needed).
- Your completed species ID forms.
- Your weighing scales for a mid-point check, ***even if you have not used them yet.***
- A list of questions that have come up during any of your assignments. This is the greatest opportunity during the season for you to discuss these issues and obtain answers!

FMA staff are occasionally available in other ports (*e.g.*, Akutan, Sand Point, King Cove) for mid-cruise debriefings. Your employer will have contact information for these FMA staff if they are available at these ports.

FMA offices are often staffed outside of regular business hours. If you can't make it in during the times listed, call ahead. Staff will usually be able to accommodate your schedule. See "Contact Addresses and Numbers" on page A-53.

What Do I Do if the Office Is Closed?
If your vessel is in town during off hours or on weekends, or you are passing through Anchorage, you should contact the office for a mid-cruise. Leave a message stating your name, vessel, estimated duration in town, how you can be contacted and the estimated time and date that you will be available for a mid-cruise.

Am I Required To Have a Mid-cruise Debriefing?
All observers on their first and second contract are required to have a mid-cruise debriefing. All other observers, ***unless specifically exempted from a mid-cruise during their previous evaluation***, must complete an in-person, mid-deployment data review if they travel through a location where FMA staff are available. This debriefing is not an option and must be completed in order to fulfill your responsibilities as an observer. If you are unsure if a mid-cruise debriefing is necessary, ask your employer or stop in to the field station.

When Do I Have a Mid-cruise Debriefing?
Observers need to report for their mid-cruise debriefing early on in their assignment. Observers on catcher only vessels (trawl, longline and pot) should schedule this debriefing after the first couple of deliveries while those on catcher processors should report during their first offload.

What Do I Do If I Can't Get To an FMA Field Office?
On rare occasions, observers are unable to arrange a meeting time. In this case, and only as a last resort, answer the following questions and fax them to one of the field offices or the main office in Seattle or send via ATLAS text to your advisor and send the required forms once you have access to e-mail or a fax machine (see "Contact Addresses and Numbers" on page A-53). ***You must go to a field office for a follow-up mid-cruise if possible.***

1. Describe in detail how the observer estimate was made and how often you are making observer estimates. Describe the collection technique you used to get fish for density. What was the average density value and predominant species in the catch? Were there any problems with the certified flow scale? If no observer estimates were made, explain why.

2. Give a detailed description of your sampling design. Describe your sampling area, how you collected samples, and if there were any difficulties. What methods did you employ to ensure the least amount of sample bias using random sampling techniques?

3. Did you obtain sexed length frequencies? Please describe methods used and any difficulties you encountered sexing fish. Also describe how halibut viabilities/injury assessments and lengths were collected. If none were collected, please explain why.

4. If on a longliner or pot boat describe your method for verifying the amount of gear the vessel reported setting. This is your method for ***independently*** verifying the vessel reported segments in a haul (e.g., counting gear). Reference the longline and pot sections for some examples of gear verification. Also describe where you document this information and if any calculations are done.

5. If on a longliner describe your methods for hook counts. Include how often and the percent of a typical size haul you are counting. Where are you documenting your hook counts?

6. Describe anything that has affected your ability to effectively conduct your work. Have you been able to complete any research projects or other assignments?

In addition to answering the questions, you must also fax in the items listed below. Failure to include these items will be grounds for an incomplete faxed mid-cruise.

1. A total of 3 to 4 Species ID Forms.
2. A total of 2 to 3 Deck Forms.
3. A total of 1 to 2 VHF and OHF Paper Forms.
4. 1 Plant/Vessel Offload Form (plant and catcher vessel observers).
5. 2 to 3 pages of daily notes.
6. A total of 3 to 4 hook counts (if assigned to a longline vessel).
7. Sample station diagrams from your observer logbook.
8. Both sides of the safety checklist.
9. Scale tests.
10. Any questions or safety concerns.

FINAL DEBRIEFING

The final debriefing occurs after the completion of your last vessel assignment. Most likely, this will take place in the Seattle or Anchorage FMA office, though field debriefings are sometimes possible. The debriefing process consists of the following parts: completion of electronic vessel report for each vessel, a debriefing interview, gear check-in, a data check, correction of errors, submission of corrected data, filling out the post-debriefing questionnaire, and a final check-out. The time to complete this process is variable. Beginning with the debriefing interview, observers should expect to spend approximately two to five days to complete the debriefing process.

Completing the debriefing process is a critical part of your duties as an observer!

- ***Do NOT make plane reservations or other commitments until you are sure that your data have been finalized.***
- ***You are not done with the process until your debriefer releases you from debriefing.***
- ***Failure to complete the debriefing process as scheduled is grounds for decertification.***

At the end of the debriefing, you will receive an evaluation of your work and performance. This evaluation will include a list of specific points covering a variety of aspects pertinent to your overall deployment, as well as comments addressing overall effort in completing duties, level of documentation of activities, and any issues of note encountered during your debriefing. The evaluation will also include a recommendation (see "Briefings" on page 21-12) for your next briefing requirement.

Scheduling

Once you have disembarked from your last vessel, your employer will contact the FMA Office and schedule an appointment for the electronic survey. After you have completed a survey for each vessel and/or plant to which you were assigned, you will be scheduled for a debriefing interview. FMA staff will do its part to make sure your debriefing is as thorough as necessary and completed in a reasonable amount of time. Each observer can help expedite this process by being prepared for debriefing and keeping their employer and FMA informed of any difficulties in attending and completing the debriefing process. Remember, ensuring the data are of high quality is the main purpose of the debriefing process.

Submitting Data

Be sure that all your data submissions are complete and have been transmitted. Failure to do this could delay your debriefing.

All of your data forms should be filled out at sea and completed prior to your debriefing interview. Keeping up with your work becomes especially important if you are deployed on more than one vessel or plant. Keep in mind that some corrections will affect data on other forms and those must be corrected as well. Cross reference the data on all forms to be sure that the correct data is recorded on each form type. ***Also, if you were on more than one ship and/or plant, the data from each need to be kept separate.*** Do not mix the data forms together; number the pages separately for each vessel/plant and form type.

Reviewing Forms for Errors

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

Double checking your work on a regular basis (while deployed) will improve data quality, demonstrate professionalism, and expedite the debriefing process. If you make it to a field office, you can request assistance with your data checking responsibilities and duties from field staff personnel. Keep in mind the field offices are busy so FMA staff will assist you depending on time available. Follow the guidelines below when reviewing your data for errors. These lists are not all inclusive!

Check All Forms For:

- Your name and vessel name on all pages of each form type.

- Pages numbered properly, no skipped or duplicate numbers.
- Every page has your cruise number and vessel code.
- Leading zeros are present only for dates, times, and position minutes and seconds.
- All fields with pre-printed decimals have numbers listed to two decimal places.
- Your handwriting is clear and legible.

Trawlers

Check Vessel and Observer Haul Forms For:

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

Check Vessel Haul Form For:

- The Purpose Code is completed correctly. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP).
- Deployment and retrieval positions are recorded for all hauls. Degree, minute and second entries must be two digits.
- Positions have no minutes or seconds greater than 59. Gear deployment and gear retrieval times between hauls do not overlap (except on motherships).
- Retrieval times of 0000 are attributed to the next day.
- Depths are rounded to whole numbers and fishing depths are never deeper than bottom depths.
- "F" or "M" is recorded for every depth recorded.
- An entry is recorded in the IFQ column.
- CDQ numbers are recorded with the letter "C" followed by the two digits of the CDQ group number (found in the vessel logbook and on page page 4-16).
- No time recorded for non-fishing days.

Check Observer Haul Form For:

- For catcher boats, plant/processor name, location, and processor permit numbers are completed.
- If discards are unknown, the field is left blank; if discards are zero, a value of zero is entered. All CV pollock hauls must have an estimate of discard whether sampled or not.
- Sample Design and Sample Unit Type are complete and accurate for each sampled haul.
- A vessel estimate entry exists for every haul.
- Entry of 0 is recorded under "haul number" for non-fishing days.

Check Species Composition Form For:

- Pages numbered properly, no skipped or duplicate numbers.
- Every page has your cruise number and vessel permit.
- All fields with pre-printed decimals have numbers recorded to two decimal places and all written decimals are distinct with data recorded to no more than two decimal places.
- No transcription errors between the raw data Deck Form and Paper Form.

- All repeated fields are filled in; you cannot use arrows!
- Your handwriting is clear and legible.
- Haul numbers correspond with dates and hauls listed on the VHF.
- Species names match species codes.
- All species codes are listed with corresponding necessary data.
- Sex codes are included only for salmon, Tanner and king crab species. Record all prohibs of the same sex/species as a single entry on Paper Forms.
- If sex is unknown, the sex field is left blank.
- Species weights are recorded for each line of entry.
- All weights are in kilograms.
- Accurate keypunches of numbers, weights, species codes (paper forms), and percent retained (paper forms) are on the top line.
- Percent retained values are entered for all species and are in whole numbers.

Length and Specimen Form (Trawl CV vessels without ATLAS).

Check Length and Specimen Form For:

- All header information is completed.
- Species codes match species names.
- Length information are grouped by sample, haul or offload number in ascending order.
- Length information are grouped by species and sex.
- No decimal places or units exist for lengths or frequencies.
- No size groups have been transposed with the frequency.
- Lengths are recorded in ascending order.
- Skip lines between different species, sex, different viabilities/injury assessment, hauls and samples.
- There are no lengths with a frequency of zero.
- All crab unit measurements are in millimeters and must end in “3” or an “8.”
- All female prohib crab have an entry of “Y,” “N,” or “U.” for presence of eggs.
- Sex codes are recorded for each species on every line.
- Halibut have condition codes of “E,” “P,” “D,” or “U” for trawl vessels.
- Halibut have sex codes of “U.”
- For lengths with associated specimen data, specimen type is entered and these lengths are circled on the Deck Form.
- There are no duplicate specimen numbers regardless of species and specimen type.
- All specimens taken from the same fish have the same specimen number.
- All specimens should have an associated sex/length/weight specimen.
- All repeated fields are filled in; you cannot use arrows except for “species name.”

Longliner and Pot Vessels

Check Observer and Vessel Haul Forms For:

- Set data are recorded in order of retrieval date.
- Each day on the vessel has an entry including the day you boarded, disembarked and all days in between (including non-fishing days).
- Non-fishing days have a non-fishing position with a set number of zero.
- No duplicate set numbers.
- No decimals other than those pre-printed on the page.

Check Vessel Haul Form For:

- The Purpose Code is completed correctly. Catch Accounting (CA) is the default unless your vessel has an Experimental Fishing Permit (EFP).
- Set and retrieval positions are recorded for all sets. Degree, minute and second entries must be two digits.

- Positions have no minutes or seconds greater than 59.
- Positions recorded to seconds are properly converted.
- Retrieval times of 0000 are attributed to the next day.
- Depths are rounded to whole numbers and only "average bottom depth" column has entries.
- "F" or "M" is recorded for every depth recorded.
- "Y" or "N" is recorded in the IFQ column.
- CDQ numbers are recorded with the letter "C" followed by the two digits of the CDQ group number (found in the vessel logbook).
- Gear type is 6 for pot vessels and 8 for longline vessels.

Check Observer Haul Form For:

- Sample Design and Sample Unit Type are complete and accurate for each sampled haul.
- Sampled hauls discard weight is entered.
- All hauls, vessel estimate is entered.
- Number of segments and Hook Collection # entered for every haul (longline only).
- Total number of hooks in a set entries are rounded to 2 decimal places (longline only).
- For all hauls, the total pots or # of segments in a set is entered. Lost gear should not be included.
- Flow scale weight is recorded for all Longline CPs.

Hook Count and Spacing Form (Longline Vessels):

- No duplicate Collection Numbers.
- Segment numbers within each collection do not repeat.
- The date the count was completed is recorded for each collection.
- If on an IFQ/CDQ sablefish vessel, the hook spacing information is complete.

Vessel Offload Form

- Plant/processor name, and processor permit #'s are completed in the box at the top left hand side of the page.
- Landing Report ID # recorded exactly as shown on the fish ticket.
- Entries for plant observers are left blank.
- Entries for Total Delivered are entered to the whole kilogram or pound.

Check Marine Mammal Sighting Form For:

- Make sure all the non-shaded boxes are complete, including cruise # and vessel permit.
- Identifying characteristics are described in detail.
- For repeated sightings on the same day, you have at least one sighting form per day.

Plants

Check Plant/Vessel Offload Form For:

- All mandatory information is on the forms. If information is missing, explain the circumstances on the form.
- ADF&G numbers are listed for each of the delivering catcher vessels.
- Every day at the plant is recorded with the date and any delivery information or lack thereof.
- The entire Landing Report ID Number is listed for each delivery.
- Elanding Management Program number is recorded correctly for each offload.

Survey

The survey is completed before the scheduled interview. This survey is done for each vessel and/or plant of your deployment and serves as the most detailed and accurate description of your cruise. The survey is in multiple choice format with some of the questions requesting further comment. ***Detailed answers to these questions are important.*** These data are used by many different groups including future observers, fishery managers, your debriefer and other NMFS staff. Any comments that are unclear or

incomplete will be reviewed and corrected during the interview. Responses in the survey will explain and support the respective data collected as well as provide a detailed and accurate description of each assignment. Once again, thoroughness in this step will expedite debriefing! If debriefing in an FMA office, after completion of the survey(s) and data checks, you check in with FMA staff and leave all your data, your printed survey(s), and logbook at the debriefing office.

Interview

The interview will be scheduled after you complete the vessel survey and submit your data, or soon thereafter, as debriefing staff become available. During the interview, your debriefer (who has already reviewed your survey) will ask you to clarify or elaborate on any issues not fully addressed in the vessel survey. In addition, each set of data forms will be checked for completeness, accuracy, and format.

At this time, both you and the debriefer discuss your time at sea, your sampling methods, and the resulting data. The most important aspects of the interview are honesty and willingness to discuss problems and difficulties. Tell your debriefer if you feel you could not sample adequately. This facilitates discussion of sampling methodology and ways data collections might be improved. Your feedback makes staff aware of vessel specific sampling difficulties and can help the next observer deployed on that vessel. The interview is designed to be a productive process beneficial for both the observer and the debriefer. Professional conduct through cooperation, candor, and effort is expected of all observers.

The data you transmitted to Seattle from the field will also be available to your debriefer. An error report of the data is produced and checks of the data are performed by the debriefer. The main purpose of the computer error check is to compare data between form types, search for missing data, and flag questionable entries. This report will be reviewed during the interview and all corrections will be made at that time. In addition, all forms will be checked and compared with the electronic data.

Any specimens collected during the cruise must also be prepared and submitted during the debriefing process. Salmon scales need to be mounted for confirmation of species. Otolith vials must be scanned into the database. All tagged salmon snouts need to be salted (if not already). Any tagged fish are submitted with the corresponding tagged fish form. Specific instructions for these tasks will be given to you at the FMA office.

Research project data are also submitted at this time. Observers who completed stomach projects or research projects may be asked to meet briefly with the data user.

Evaluations

An observer's work and performance are evaluated after each cruise. This evaluation serves two purposes. First, it provides a summary of the work performed, your effort, and the quality of the data. Second, it serves as a training tool for future deployments by identifying areas of needed improvement and giving recommendations and suggestions. ***The areas of greatest importance are compliance throughout the deployment with established protocols and an understanding of sampling concepts.***

The evaluation is based on many factors:

- sampling methods employed.
- documentation and communication.
- preparedness for debriefing.
- problem solving skills.
- overall effort.

Based on this evaluation, you are given a score for each of your assignments. Observers who receive a score of 1 have met the expectations of the FMA. This means that proper sampling methods were applied and protocols for data collection were followed. Observers who receive a score of 1 will receive a written evaluation which describes the work that was done and may include some suggestions to apply during a subsequent cruise.

A score of 0 on any vessel/plant signifies the expectations of the FMA have not been met. Based on the severity of the problems, there are several different courses of action. You will receive a written evaluation detailing the area(s) of your work or performance that were unacceptable. The purpose of this evaluation is to provide you with a tool to improve performance on future cruises.

Observers who are unable to meet our sampling and data recording requirements may be recommended for decertification. The decision to recommend decertification is made by debriefers and other program staff. Most cases of decertification involve conduct and behavior that affects performance or safety, falsification of data, or errors resulting in significant amount of unreliable data, or a significant loss of data.

If you are recommended for decertification, we will follow NMFS' regulations governing the decertification process. The decertification process provides you the opportunity to present your arguments and perspective on any action we propose to take, and to appeal decisions. It is designed to provide you a fair hearing on any issues that could result in your certification being revoked. A copy of the CFR which includes all Observer Program regulations and procedures can be obtained from any FMA staff member.

BRIEFINGS

Observers must attend a briefing before each subsequent deployment. Briefings assigned are either 1, 2 or 4 days in length, depending on previous work and performance:

- **4-Day:** Each observer must attend one annual 4-day briefing prior to the first contract in each calendar year. In addition, observers who have difficulty in fish identification must attend a four day briefing. This briefing covers changes in sampling protocol, regulations, data forms, etc. Time is allocated for reviewing fish and bird identification and observers must successfully pass a species identification test in order to be recertified. Other topics include enforcement and random sampling techniques. This briefing is an opportunity to ask questions, familiarize yourself once again with the manual, and review recommendations from your last evaluation.
- **2-day:** This briefing is for observers who would benefit from one on one tutoring addressing conceptual errors that were identified during their last debriefing.
- **1-Day:** One day briefings are designed for observers in good standing who have shown no conceptual errors or difficulties in species identification. This briefing covers recent changes in sampling protocol and regulations, reviews sampling priorities and provides the opportunity for observers to ask vessel and/or fishery specific questions.

Glossary

A

ABC - "Acceptable Biological Catch" - The annual harvest level that a stock can sustain to maintain the maximum sustainable yield (MSY).

AFA – "American Fisheries Act" – This Act established a new allocation scheme for Bering Sea pollock. This Limited Access Privilege Program allowed the formation of fishing cooperatives in which participants of the Bering Sea pollock fishery divide the quota among its members. This Act also requires vessels fishing in the U.S. to be at least 75% owned by U.S. interests.

Aft - Towards the stern or back end of a vessel.

After-scale – Fish that made it past the sorters and into the factory. This bycatch may have been originally weighed as the target species and is deducted from the target species weight.

AIP- "Aleutian Islands Pollock"- The AI pollock TAC in the Aleutian Islands is fully allocated to the Aleut Corporation for the purpose of economic development in Adak, Alaska, and is managed separately. Vessels must designate AIP in their logbooks when fishing this allocation.

Allocation - Distribution of the opportunity to fish among user groups or individuals; sometimes based on historical harvest amounts.

Amendment 80 (A-80) – Non-AFA Catcher Processors in the Bering Sea. This amendment to the FMP of the BSAI establishes a Limited Access Privilege Program for non-pollock catcher processors in the BSAI to form cooperatives that are awarded exclusive rights to the quota of Pacific cod, yellowfin sole, rock sole, flathead sole, Atka mackerel and Pacific Ocean perch, and the associated prohibited species catch.

Amendment 91 (A-91) - Established a cap of the number of Chinook salmon that can be taken as bycatch in the Bering Sea pollock fishery. A-91 affects observer coverage on pollock CVs and observer duties at shoreside plants, pollock CVs, and pollock CPs.

Amidships - Midway between the bow and stern of a ship, or on the centerline.

Anchor/Buoy lines - Sections of line that join the groundline and anchors on the bottom of the ocean to the buoys or "bags" on the surface.

ATLAS – Software that is an electronic data entry program allowing groundfish observers to enter and send data direct from a vessel or plant to NMFS at the Alaska Fisheries Science Center in Seattle.

Autobaiters - A piece of machinery that automatically cuts bait into strips and places the strips on the hooks as the groundline is being set.

B

Bag - The codend or a buoy.

Bait bags/Jars - Containers filled with ground bait that are hung inside pots to attract fish.

Beam - Width of a ship.

Benthic - Living in direct relation with the bottom of the sea.

Bias- Tending to yield one outcome more frequently than others. Factors affecting the randomness of a sample, including possible mechanical sorting of catch by an incline belt or purposeful presorting by a crew member, will introduce bias.

Bight - A loop or turn in a line.

Bin - A large compartment built into a ship for holding fish. Also called live tank, refrigerated seawater tank (RSW tank), or lobby.

Bleeder/Sorter - Crewman assigned to sort bycatch out of the catch, and to cut the "throat" of the cod.

Block/Hydro/Hauler - Hydraulically driven wheel into which the groundline is placed during gear retrieval. As the wheel spins the groundline is drawn on board.

Boat Share - The percentage of the gross TAC which goes to the vessel owner.

Bobbin - A round, rubber or steel roller used in the footrope of a bottom net to protect the net from damage.

Bosun - Person in charge of a ship's rigging, anchors, cables, and deck crew, also known as Deck Boss.

Bottom - May refer to (1) ocean floor, (2) fishing depth, or (3) a ship hull depending on the context.

Bow - The front section of a boat or ship.

Bowline - A type of knot used to form an eye in the end of a rope.

Brailer - A type of netting that is attached to a crane and used to transport fish and other materials from one vessel to the dock or to another vessel.

Breach - A behavioral characteristic of some marine mammals such as humpback whales, where they rise vertically out of the water, and then with most of their body above the surface, they fall to their back or side.

Bridge - The control center of a ship, wheel house.

Bridle - On a trawler; a cable attached to the head rope, footrope or side panel of a net, by which the net is towed. On a pot vessel; a length of line attaching two sides of a pot to the buoy line.

Briefing - Training for observers to inform them of any policy changes and to review the priorities and duties on different vessel types. There are four-day briefings prior to observing in each new calendar year. An additional one-day, two-day tutorial or four-day briefing must be completed prior to each additional cruise within the year.

BSAI- "Bering Sea and Aleutian Islands"- Management Area.

Bulkhead - A wall separating compartments of a ship.

Bulwarks - The upper section of the side plating of a ship, which extends above and around the upper deck.

Buoy - A float used as a marker or warning.

Buoy line - The length of line connecting the buoy assemblage to the anchor.

Bycatch- Anything caught in fishing operations that is not the target species, such as other fish species, prohibited species, marine mammals, seabirds, invertebrates, and inert objects.

C

Calibrate - To check, adjust, or standardize a measuring instrument, usually by comparing it with an accepted model or certified weights.

Cannnonball - Lead weighs attached to the groundline between gear segments helping to sink the gear and keep it on the sea floor.

Carrying capacity - The number of organisms the resources of an area can support.

Catch - The amount of fish caught (retained or not).

Catch Per Unit Effort (CPUE) - The number of fish caught per amount of effort (generally, effort is a combination of gear type, gear size, and length of time the gear is used). CPUE can be used as a measurement of relative abundance of a caught species.

Catcher boat - Vessel that is used for catching fish and that does not process (freeze) fish on board.

Catcher/Processor - Vessel that is used for, or equipped to be used for, catching fish and processing (freezing) fish products.

CDQ – "Community Development Quota"– A portion of the TAC of the groundfish, halibut, and crab fisheries of the BSAI is allocated to residents of coastal Western Alaska, providing them with the opportunity to participate in the groundfish and crab fisheries of the BSAI. There are increased equipment and observer coverage requirements in CDQ fisheries.

Central Gulf of Alaska Rockfish Program - The Central GOA Rockfish Program (Rockfish Program) permits harvesters to form voluntary cooperatives and receive exclusive harvesting and processing privileges to selected groundfish species in the Central GOA. There are increased equipment and observer coverage requirements in Rockfish Program fisheries.

CFR – "Code of Federal Regulations" – Administrative rules and regulations by the executive departments and agencies of the Federal government. 50 CFR 600 and 679 implement the Magnuson-Stevens Act and Fisheries Management Plans for the GOA and the BSAI areas.

Chafing gear - Protective carpeting (or strands of nylon forming a carpet pile) on the outer, underside of the trawl net to keep it from catching and ripping on obstacles on the seafloor.

Checker bin - Compartments on either side of the trawl alley separated by removable boards (bin boards) for storage of gear and catch. The observer uses these bins for sampling purposes as well.

Chief - The engineer; responsible for care of engines and deck machinery.

Choker, choke strap - A loop of wire or rope used to cinch off the net or codend.

Chopper - Machine used to grind frozen herring or squid for bait or the person assigned this duty.

Cleat - A heavy piece of wood or metal having two horns around which ropes may be made fast or belayed, usually secured to a fixed object such as the dock or deck.

CMCP – "Catch Monitoring Control Plan" - This plan defines the method in which each individual plant will sort and weigh all species during any AFA or Central GOA Rockfish Program deliveries.

COBLZ – "*Chionoecetes opilio* Bycatch Limitation Zone" - Bycatch Limitation Area in the Northern Bering Sea for trawl fisheries. Upon attainment of the allowance of C. opilio crab specified for a particular fishery category, the COBLZ will be closed to directed fishing for each category for the remainder of the year or for the remainder of the season.

Coded wire tag - Small tag (3mm) etched with binary code that are inserted into the snout of fishes for later identification.

Codend - The end "bag" of a trawl net where the majority of the fish are collected and held.

Coiler - Person or machine that is designated to coil line as it is retrieved by the block.

Combi - A piece of machinery through which the groundline, gangions, and hooks move during gear retrieval. The combi mechanically places hooks into the magazine racks allowing the gangions and groundline to be hung in an orderly fashion. This term may also refer to a crew member that works both in the factory and on the deck of a factory vessel.

Combined sample – When two samples from the same haul cannot be separated and both are reported as one sample.

Combing - A low partition rising from the bottom of doors and passageways on a vessel.

Companionway - Entrance/stairway from deck to fo'c'sle and engine room.

Compliance - Being in accordance with the fishing regulations.

Composition - In the groundfish Observer Program, this refers to the makeup of harvested species in a catch, and the sample you collect.

Cookie (disc) - A flat, round piece of rubber with a hole in the center strung on a wire rope or chain to protect it from abrasion and to stir up a mud cloud. Used on non-pelagic trawl gear.

Crucifier - A pair of rollers or steel pegs which stand vertically with only enough room for the groundline to pass between. During gear retrieval the groundline passes between the rollers and the hooks are pulled out of the fish.

D

DCPL - "Daily Cumulative Production Log" – Vessel logbook kept by catcher processors to record daily fishing and processing activity.

Debriefing – Meeting with FMA Division staff at the end of an observer's deployment to review the observer's sampling procedures, calculations, and collected data. The observer will make corrections to the data, complete a computerized survey for each assignment, get recommendations for future cruises, and receive a written performance evaluation.

Delivery weight – The total weight of catch that is delivered from a catcher vessel to a shoreside plant or floating processor.

Demersal - Dwelling at or near the bottom of the sea.

DFL – "Daily Fishing Log" – Vessel logbook used by catcher vessels to record daily fishing activity.

Directed fishing - Targeting or fishing for a species quota.

Discard estimate – An independent estimate made by the observer of the weight of the vessel discards by haul. This estimate requires no calculations and should only take a few moments to obtain.

Discards – Catch that is not retained and is returned to the sea.

Disembark - To get off a vessel and go ashore.

Diver/Trailer buoys - A small buoy attached to the main buoy with a length of line. The diver buoy "trails" behind the main buoy and allows a larger target for grappling.

DMSO – Dimethyl Sulfoxide – A chemical preservative used in the Observer Program to preserve Cetacean skin samples.

Dogs - Metal hooks that are hydraulically controlled to secure a pot to a launcher.

Donut Hole - The isolated area in the Bering Sea surrounded by waters under the jurisdiction of Alaska and Russia. This area is considered international waters and is generally closed to commercial fishing.

Door - On a trawler; a large steel or alloy structure attached in front of the net to each main wire to spread the net horizontally by means of hydrodynamic and friction forces. On a pot vessel; a panel that can be unhooked and opened to remove catch.

Draft - Vertical distance from keel to waterline of a ship.

Drop-off – On a longliner; those organisms that fall or are knocked off of a hook prior to their being landed.

Drum - A metal spool or cylinder around which cable, etc. is wound.

E

Ebb tide - Outgoing tide.

EEZ - "Exclusive Economic Zone" - The term for the 200 mile jurisdiction zone, in which a nation has exclusive fishing rights.

EM - "Electronic Monitoring" - Also known as video monitoring system. On A-91 Bering Sea pollock catcher processors and motherships EM is used to track the sorting of salmon. Also used to monitor live tanks on A-80 vessels.

Embark/Embarkation - To board a vessel.

EPIRB - "Emergency Position Indicator Radio Beacon"- Emergency device that sends an identifiable signal by satellite to a USCG Rescue Coordination Center.

Expansion straps (container lines) - A series of lines running around the circumference of a codend to provide strength and help maintain the shape of the bag.

F

Fathom - A measure of length or depth equal to six feet.

Fingers/Triggers - Small plastic strips located in the tunnel of a pot which allow fish to enter a pot but not exit.

Fish ticket - A record of purchase and documentation of commercial fisheries harvest from Alaska. As a general rule, fish tickets must completed and submitted to the local office of the ADF&G for all initial sales and/or processing of fish within the state of Alaska. Observers can use fish tickets to calculate and/or document the delivery weight from a vessel.

Fishfinder - An electronic device for locating schools of fish under a vessel.

Fishing day - A 24-hour period, from 1201 hours A.l.t. through 1200 hours A.l.t., in which fishing gear is retrieved and groundfish are retained. An observer must be on board for all gear retrievals during the 24-hour period in order to count as a day of observer coverage. Days during which a vessel only delivers unsorted codends to a processor are not fishing days.

Fishing mortality - Removal (deaths) of fish from a population due to fishing activity.

Fixed gear – Non-mobile gear types. In the groundfish fishery, this includes longline, pot, and jig gear.

Flag pole - Pole with a float; often topped with a flag, radar reflector, or strobe light.

Flatfish - Fish which are laterally compressed and orient themselves in the water with their lateral surfaces or sides towards the surface and bottom and both eyes on the upper side.

Flatlink - A piece of cut or cast hardware, generally oblong in shape, with leg diameter smaller in certain areas to allow attachment of a G-hook. Used where wires must be connected and disconnected frequently.

Flood tide - Incoming tide.

Flow Scale - A scale built into a conveyor belt; the scale maintains a running tally of weight moving across the belt, in addition to comparing it to a constant weight in order to compensate for vessel movement.

Fo'c'sle (from: forecastle) - The forward part of a ship where sailor's quarters are located.

Footrope - On a non-pelagic net; a series of bobbins, tires, or discs strung on chain or wire rope attached to the bottom front of a bottom net to protect the net from damage. On a midwater net; the rope or wire running along the front, bottom edge of the net.

Fork length - The length from the tip of the snout or jaw (whichever is most anterior) to the end of the middle rays of the caudal fin. It is the most common measurement used by the Observer Program and by NMFS researchers.

Formalin – A chemical preservative used to preserve stomach and other samples collected by the Observer program. Formalin is 37% Formaldehyde in aqueous solution.

Forward - Towards the bow of a vessel.

G

Galley - Ship's kitchen and/or mess hall.

Gallows - Structure from which trawl blocks (pulleys) are hung; separate units port and starboard.

Gangion - The length of line that connects the hook to the groundline on longline gear. It is often only two to three feet long.

Gantry - A frame structure, usually at the aft of a vessel, which supports pulleys (blocks) used in setting and retrieving trawl nets.

G-hook - A piece of cut or cast iron hardware in the shape of a “G”, used with a flatlink where wires must be connected and disconnected frequently.

Gilson – On a trawler; a single hookline (as distinguished from a multiple block) and winch used to assist in setting, hauling, and moving gear on deck.

GOA- Gulf of Alaska Management Area.

GPS – Global Positioning System - A system of satellites, computers, and receivers that is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver.

Groundline/Mainline - The length of line to which all of the hooks are attached on longline gear. This line is the “backbone” of the gear.

GRS - “Groundfish Retention Standard”- Regulation requiring 80% in aggregate of all groundfish with a directed fishery to be retained when caught by non-AFA catcher/processor vessels. The retention requirement increases to 85% in 2011 and thereafter.

Gunnel/Gunwale - The upper edge of the side of a boat.

Gurdy - Special winch for hauling of longlines or trolling lines.

H

Halibut injury assessment - Assessment of injuries to halibut caught by longliners in the groundfish fisheries. These data are analyzed by the IPHC staff and used to estimate future mortality rates.

Halibut excluder - A divider located in the tunnel of a pot that restricts the size of the opening. Also, a device placed in the intermediate portion of a trawl net to exclude larger halibut.

Halibut viability - Assessment of the condition of incidentally caught halibut as they are released on a trawler or pot vessel in the groundfish fisheries. These data are analyzed by the IPHC staff and used to estimate future mortality rates.

Hanging unit – On a longliner; the unit at the end of your sampling frame that is smaller than all other units because the total number of gear segments is not evenly divisible by the number of segments comprising a sample unit.

Harvest - The total amount of fish caught and retained from an area over a period of time.

Hatch - An opening in a deck or bulkhead of a ship.

Haul - A catch of fish from one tow of a net or longline.

Haulback - The start of retrieval to the codend being brought fully onboard the vessel.

High grading - When a vessel puts up product but later discards it overboard in favor of a more valuable product.

Hook - Usually a three pronged grappling hook used to snag the trailer buoy line.

Hook counts - The average number of hooks per segment of gear.

Horn off - To knock organisms off of a hook using the horn on the roller or the butt of a gaff.

Hydrostatic release – Mechanism designed to automatically release emergency survival equipment upon the sinking of a vessel. Hydrostatic releases are installed on life rafts and EPIRBs.

I

IFQ – "Individual Fishing Quota" -A percentage share of the TAC is assigned to vessels or persons, usually based on historical fishing effort. These shares can be sold or leased. In the fisheries off Alaska; sablefish, halibut, and Bering Sea king and Tanner crab fisheries are managed with IFQs.

Immersion Suit - A special type of waterproof suit that provides flotation and thermal insulation required for cold water emergencies such as a sinking vessel. They have built-on feet (boots), and a hood, and either built-on gloves or watertight wrist seals. An immersion suit is issued to each NMFS observer upon deployment (survival suit).

Incidental catch or species - Catch taken while fishing for the primary purpose of catching a different species.

Intermediate - A gradually tapered section, generally of small mesh, between the back body of a trawl and the codend.

IR/IU Species – "Improved Retention/Improved Utilization Species" - Pollock, Pacific Cod and GOA shallow-water flatfish for which there are specific retention regulations.

J

Jig boat – Small vessels using up to 5 jig machines that dangle a maximum of 15 hooks per line at a constant depth. Target species include Pacific cod and Atka mackerel.

Joint Venture - A cooperative fishing/processing effort between vessels of different nationalities.

K

Knot - A measure of time multiplied by distance, equaling speed. One knot equals one nautical mile (6,080 feet) in one hour.

L

Landings - The total amount of fish unloaded at a buying station by commercial fishermen or brought to shore by recreational fishermen. Landings are reported at the points at which fish are brought to shore or delivered to an at-sea processing facility.

LAPP – "Limited Access Privilege Program" - A group of harvesters with exclusive harvest privileges to a fisheries resource (share-based or rationalized fisheries).

Launcher - Hydraulic lift, usually located on the port side of a vessel. Used to "launch" pots over the side of the vessel and to adjust the angle of the pot when it is being emptied.

Lay - The direction in which the strands of a rope are twisted (right or left) or the degree of tightness with which they are twisted (soft, medium, hard, etc.).

Lazaret - A storage place between the decks of a ship.

Lead level 2 observer - An observer that has met the requirements to become level 2 certified, and has met additional experience requirements on specific vessels and gear types.

Lee/Leeward - The side protected from the wind, opposite the "windward" side.

Length frequency data - Also referred to as sex/length data, length-frequency and/or length sample data.

Level 2 observer – An observer who has successfully completed a cruise, at least 60 days of data collection and received a "met expectations" score for their most recent cruise.

Live tanks - Tanks or bins on factory trawler vessels where the catch is dumped prior to sorting or processing. Some catcher vessels also have live tanks where the catch is dumped first, then fish are run over a conveyor belt into RSW (Refrigerated Sea Water) tanks before delivery to a processor.

Lobby - Another name for a fish bin on a catcher/processor.

Longline pots - Pots connected with line.

M

Magazine - (Mag) - On a longliner; a term used to describe a segment of gear within a set containing approximately one hundred to as many as a thousand hooks. The length of this segment of gear is dictated by the length of the magazine rack on which the hooks and groundline are hung.

Magazine rack - (Mag rack or rails) - A piece of equipment for automatically feeding hooks through an autobaiter. The hooks are hung on a bar and the gangions and the groundline then hang from the hooks.

Main Wires - The two large cables used to connect the trawl net to the vessel while fishing.

MARPOL- "International Convention for the Prevention of Pollution from Ships"- International agreements designed to control at-sea disposal of wastes.

Master - The captain of a vessel or one in charge of the fishing activity.

Material Safety Data Sheet (MSDS) - Forms containing data regarding the properties of a particular substance intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data, toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill handling procedures.

Maturity stage - Period in the reproductive life cycle, often determined by visual examination of the gonads.

Mid-cruise – Meeting with Observer Program staff to review the observer's sampling procedures, calculations, and collected data to ensure that all is going well during his/her deployment. This interview usually takes place early in the observer's cruise to allow the observer opportunity to incorporate suggestions and make improvements on his/her data collection efforts.

Mothership - At sea processing vessel (under way) whose fish come from catcher boat's deliveries.

Motion Compensated Platform Scale (MCP) - An electronic flatbed scale with a constant weight load cell which allows for compensation of the vessel's movement.

MSY - "Maximum Sustainable Yield" - An estimate of the largest average annual catch or yield that can be taken over a significant period of time from each stock under prevailing ecological and environmental conditions. Since MSY is a long term average, it need not be specified annually.

Mustang suit - Insulated, water resistant coveralls worn in the cold months while sampling on deck.

N

Net reel - A hydraulic drum on the deck on which the net and most of the rigging are wound.

Non-fishing day - A day that had no hauls or sets retrieved. These days are documented on the Vessel Haul Form with the location of the vessel at or around noon that day.

O

Observer estimate - Unbiased, independent estimate of total catch weight made by the observer.

Observer Provider - (also known as contractor) - Any person or commercial enterprise that is granted a permit by NMFS to provide observer services to vessels, shoreside processors, or stationary floating processors for observer coverage.

Offload - (delivery) - When a catcher vessel transfers their catch to a shoreside plant or floating processor.

Offload salmon retention count - A count of all salmon in a pollock delivery completed at the plant by the vessel observer or plant observer, including any salmon at-sea discards, and reported on the Salmon Retention Form.

Otolith – In fish; calcium carbonate structures located ventrally, and to either side, of the brain tissue, just above the pre-operculum. These structures can be removed and used to determine the age of the fish.

Otter trawl - The type of net gear used on stern trawlers

Otterboard - Another name for a trawl door.

OY - "Optimum Yield" - The harvest level for a species that achieves overall benefits including economic, social, and ecological considerations.

Overcapitalization - A level of investment resulting in a non-economically productive fishing effort level (too much effort may drive down economic profits).

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

P

Panel - Mesh netting attached to a square metal frame. Two large panels and four smaller panels are attached to a heavy steel frame box to form the six sides of a pot

Paravane - An alternative to the third-wire net monitoring equipment that requires a cable to be deployed between the ship and the net monitoring equipment on the headrope. A paravane is a hydrophone receiver and boomed out alongside the vessel, set to fly from 5-15 fathoms deep. Also known as a "water kite."

Parent sample - The sample from which the subsample was taken. A subsample is taken from within or near the parent sample and a specific numbering convention is used to associate a subsample to the parent sample.

Pelagic – Midwater.

Pelvic Axillary Process (PAP) - Fleshy appendages at the base of the pelvic fin of a salmon.

Peritoneum - The lining of the gut cavity.

Pew, Pew stick - A sharp-ended pole which is used to skewer fish and toss them to another location.

PFD – Personal Flotation Device – A buoyant or inflatable garment for supporting the wearer in deep water and thus serving to prevent drowning.

Pick/"Running the hook" - Hook connected to the end of the boom which is attached to the bridle and is used to lift a pot onto the launcher as the pot is being retrieved.

PLB – "Personal Locator Beacon" – Issued by the Observer Program to every observer, PLBs are GPS equipped units, that when activated, send GPS coordinates along with an identifiable 406 MHz alphanumeric signal to the SARSAT/COSPAS system.

Plotter - Electronic mapping device that displays the local area and the vessel's position on it. The plotter allows captains to record the area of a string and also the number of pots in a string on a digital map display.

Pod - A school of marine mammals such as seals, whales or dolphins.

Point of Collection – Area on a groundfish vessel where the observer collects unsorted catch.

Population - The total of individuals occupying an area or making up a whole. When sampling aboard a trawler, a population is defined as the catch from a single haul.

Port - A town or city having a harbor for ships taking on or discharging cargo.

Porthole - A window in the hull or the outside bulkhead of a ship.

Pot tie - A short piece of line used to tie pots together when they are stacked on deck.

Pre-anal fin length - The measurement from the tip of the snout to the insertion of the first anal fin ray, immediately posterior to the anus. This is the length measurement used by the Observer Program for grenadier.

Predominant species - Species which are the most abundant in the catch; not necessarily the target species.

Presorting - The segregation and/or removal of any item(s) or organism(s) from the catch prior to the point where an observer is collecting a sample.

Prohibited species or prohibited species groups - Species whose allowable retention is zero. Salmon, herring, halibut, king crab, and Tanner crab are always prohibited in North Pacific open access groundfish fisheries. For vessel operators; prohibited species include the above and any other species declared prohibited by a notice of closure.

PRR – "Product Recovery Rate" - Represents that proportion of an organism that is used for product. PRRs can be used for estimating the round weight of a catch from the tonnage of product produced.

PSC - "Prohibited Species Catch" - A harvest limit usually placed on halibut, salmon, crabs or other species which must be discarded in the groundfish fisheries.

Q

No entries.

R

Radio Call Sign - Alpha numeric code used as an international identifier of a vessel when using the ship's radios.

Rail - On a longliner; a term used to describe a segment of gear within a set containing approximately 300 hundred to as many as 1,100 hooks. The length of this segment of gear is dictated by the length of the magazine rack on which the hooks and groundline are hung.

Random - Relating to a set, each of whose elements have an equal probability of occurring in a sample. These elements are chosen as sample units in a manner which eliminates subjectivity.

Random sample design – The method of sampling a population where all of the elements have an equal probability of occurring in the sample.

Raw data – The original data collected by the observer while sampling. This data is documented on the Deck Form.

Regenerated scale - A fish scale which has grown in to replace one that was lost. Regenerated scales are useless for aging a salmon, but can be used to identify it to species.

Research project data - Short term data collection projects that are submitted annually to the Observer Program. These projects meet our program mission goals and the data collected contributes to the understanding and managing of the marine resources.

Reserve - A portion of quota set aside at the beginning of the fishing year to allow for uncertainties in preseason estimates of Acceptable Biological Catch (ABC).

Retained species – Organisms that are retained in whole or part by the vessel for any reason, including consumption on the vessel, processing, delivery, bait, or personal use.

Riblines - Heavy lines or chains that run down the length of the trawl net to strengthen it.

RKCSA – "Red King Crab Savings Area" – An area restriction in the Bering Sea closed to non-pelagic trawling year round, except for a subarea that may be opened at the discretion of the Council and NMFS when a guideline harvest level for Bristol Bay red king crab has been established.

Rockfish Program- See "Central Gulf Of Alaska Rockfish Program".

Roller - A device made up of one or more metal pins that spin allowing the groundline to be pulled up and over the rail of a vessel during retrieval such that tension and friction on the line is reduced.

Roller station/pit - Term used to describe the area where fishermen stand while retrieving the line and gaffing fish coming in over the roller.

Rollerman - A crewman who stands in the roller station and monitors the retrieval of the gear. The rollerman lands any commercially valuable fish and excludes any non-commercially valuable fish from being landed.

Rostrum - A pointed, calcareous, median extension on the anterior end of crab carapaces.

Round weight - The weight of the whole fish (or animal) as it was when alive, synonymous with fresh weight and whole weight.

Roundfish - Fish that orient themselves in the water with the dorsal side towards the surface and ventral side towards the bottom and eyes on each side of the head.

RSW - Refrigerated sea water, usually referring to a tank for holding fish.

RSW Tanks - Holding tanks or bins that use refrigerated sea water to keep fish fresh until delivery.

Running line - The length of line connecting the anchor to the baited gear.

“Run pots” - A phrase used interchangeably with “retrieve pots.” It is the phrase used in the vessel logbook to indicate the number of pots that have been retrieved from a string.

S

Safety orientation – instructions given by a qualified crew member to all new vessel personnel (observers included) concerning the safety equipment and procedures aboard the vessel. This is required under 46 CFR Part 28.270 and 50 CFR Part 28.265.Sample size - The portion of the population that is sampled (measured in weight or amount of gear).

Salmon retention - BSAI vessels and processing plants are required to save all salmon from Bering Sea directed pollock fishing on a haul by haul or delivery basis until these salmon are counted by a NMFS-certified observer. The observer reports the data on the Salmon Retention Form.

Sample station – Area on a vessel where the observer processes (counts, weighs, measures, etc.) samples. On trawl catcher processors and motherships, the sample station is required to be inspected and approved by the Observer Program. In the longline CDQ fisheries, the sample station on catcher processors is required to be inspected and approved by the Observer Program.

Sample weight - The actual weight in kilograms of a composition sample.

Sampling - The process of selecting part of a population for the purpose of determining the parameters, or characteristics, of the whole population and recording data regarding all individuals in the population. Composition sampling refers to taking samples of a haul in order to determine the fishing mortality of species occurring in the sample.

Scupper - A hole in the bulwarks which allows water to drain from the deck.

Seabird deterrence (seabird avoidance) – Measures to avoid seabird bycatch by groundfish fishing vessels. These are required by regulation for longline vessels and include offal discharge restrictions and the use of streamer lines.

Segment of gear - In this manual a segment of gear refers to the standard unit a longline vessel uses for measuring gear. This could refer to a mag, skate, tub, or coil of gear.

Set - The entire length of groundline from the first hook to the last hook, also referred to as a “string” of gear.

Setting chute - A metal trough that guides baited longline gear out of a hatch or off the stern of the vessel.

Sex/length data – Sample collected by observers in which the sex and fork length are documented and entered into the database.

Sheave - A wheel with a grooved rim and mounted in a pulley block to guide the rope or cable.

Short-wiring - Occurs when a codend is brought from fishing depth to near the surface, the trawl doors are held at or above the surface, and the net is towed behind the vessel until it is brought on board.

Shot - A pre-measured length of buoy line, usually 10 to 20 fathoms long. Normally there are two set lengths, a “Long” shot and a “Short” shot. When setting a string, the captain will tell the crew how many shots to tie to a pot for various bottom depths.

Skate - A segment of longline gear containing approximately 100 to as many as 300 hooks.

Skate bottom - A fabric square with lines on the corners to tie it into a bundle once a longline “skate” has been coiled onto it.

Skate/Mag markers - Markers in the groundline that separate the sections of gear. These may be fluorescent tape woven onto the line, knots, line splices, carabineers, or magazine (mag) clips.

Skates/Tubs/Coils - Terms used to describe the smaller segments of gear within a set or a magazine.

Spatial - Referring to a unit of space used in random sampling. For example: a third of a bin, or a section of trawl alley are spatial units.

Species composition sample - To sort a defined weight of catch such that each organism sampled for is grouped by family or by species and to determine the number and weight of the organisms in each group.

Spring line - A mooring line attached amidships.

SRS – "Simple Random Sample" - A basic type of sampling design where random numbers are selected from the population and each member of the population is equally likely to be chosen at any stage in the sampling process.

SSB - "Single Side Band" radio used for long distance contact.

Stack - This term is used on pot vessels to refer to pots stacked on the back deck.

Starboard - The right side of a ship (when one is looking forward).

Stern - The aft or back end of a vessel.

Stern ramp (slip) - A sloping ramp in the stern of a trawler between the deck and the water line, through which the net is set and hauled.

Stern trawler - Any of various sized fishing vessels which trawl a conical shaped mesh net through the water, haul it up a ramp through the stern of the ship, empty, and process the catch to make a wholesale fish product. These vessels may fish for a month or more at sea without support.

Stock - A grouping of fish usually based on genetic relationship, geographic distribution and movement patterns; managed as a unit of fish.

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

String - Pots deployed individually and are not attached to one another in any way. This term refers to pots set at a similar time in a similar area and depth. What a captain calls a string varies considerably between vessels. Strings are analogous to sets.

Subsample – A sample with that provides specific information about a species composition sample (parent sample). On a trawler; a subsample must be random. It is used when there are two predominant species not weighed or counted in the parent sample. On a longliner; a subsample is used to provide weight and other biological information for the target species, and weight information for other species when the observer was not able to collect enough in the parent sample.

Subset sample - A random sample taken within a species composition sample that provides a weight and/ or number of a species when they are too numerous to count or weigh, or for the identification of individuals of a species group which are difficult to distinguish from one another. Specific rules apply according to the vessel type and the species.

Surimi - Minced fish meat paste usually produced from pollock.

Systematic - Refers to methodical sampling throughout an entire population.

T

Table - Some vessels have a sorting table on the back deck that pivots on one axis. The contents of a pot are dumped onto the table, and the table is swung out of the way to re-launch the pot.

TAC - "Total Allowable Catch" - Annual recommended harvest levels based on biological, economic, and social factors that is still within the range of the ABC.

Take (MM) – The incidental catch or harassment of a marine mammal by a vessel. A take may or may not lead to a fatality.

Tally data - Species identifications and counts gathered during the tally period on a longliner.

Tally period – Segments of time on a longliner when the observer counts and identifies organisms as they come up on the hooks.

Tally station – Area on a longliner where the observer counts and identifies organisms as they come up on the line. In the CDQ fisheries, the tally station on catcher processors is required to be inspected and approved by the Observer Program.

Taper - To cut webbing according to a given formula for fitting into a trawl.

Tare - A deduction from gross weight to obtain net weight. Usually made to allow for the weight of a container.

Target species - For Observer Program purposes, the target species is what the vessel claims as their target. The Sustainable Fisheries Division of the NMFS Alaska Region uses delivery and production data to determine target fishery, which may differ from what the vessel claims as their target. Vessel personnel will generally call target species the species they wish to catch.

Temporal - Referring to a unit of time used in random sampling. For example: one hour of processing time, or systematic intervals of ten minutes are examples of temporal units.

Temporal/spatial sampling – A spatial sampling frame and sample unit type using a temporal means to select units.

Tender vessel - Vessels that receive catch from catcher boats and deliver it to a processing plant

Third wire – Cable extending from the vessel to the trawl sonar system attached to the head rope of the trawl net.

Tote – Large PVC containers used to separate and store catch on fishing vessels and at processing plants.

Trawl - A cone shaped net, towed through the water to catch fish.

Trawl Alley - The central passage on a trawl vessel where the codend is placed after haulback.

Trawl Doors - Often referred to as "doors," these are two metal plates, each attached to a main wire, designed to keep the mouth of the net open while fishing.

Trip –Any time a vessel unties from the dock at a port, floating processor, or tramper, and upon completion of that trip the vessel returns and ties up to a dock in a port, at a processor or a tramper.

Tunnel - Short mesh-lined openings on two or three sides of a pot. These are the entrances to the trap.

Turning/Overhauling gear - Term used on longliners to describe the work to straighten hooks, replace gangions, or repair damaged groundlines.

U

Under way - Vessel in forward motion, running. According to Coast Guard regulation, a vessel is under way if it is not at anchor or at dock, so a vessel adrift is technically under way.

V

Vessel permit - A code used by the National Marine Fisheries Service to identify a vessel.

Verify - To determine or test the truth or accuracy of, as by independent comparison, investigation, or reference.

Vessel Strike (seabirds) - Incidental seabird mortality due to a bird or flock of birds colliding with a vessel. It appears that birds may become confused, primarily at night during inclement weather, and when bright lights are being used.

W

Warp (main wire) - The cables on a trawler which run from the main winches to the trawl doors on the net.

Watertight door – a door or hatch on a ship that, when closed, blocks the passage of water and withstands its pressure. These doors are vital to control and prevent flooding.

Weighed sample - The catch sampled by the Observer and weighed on a scale.

Weight data (longliner) – Species identifications, counts, and weights of organisms that were collected during the tally period or collected as a subsample. This task is accomplished during the non-tally period after completion of the tally.

Wheelhouse – The control center of the ship (bridge).

Winch - A hydraulic machine with one or more drums on which to coil rope, chain, or cable for hauling or hoisting.

Wing - The sides off a trawl net near the opening, usually with larger mesh than the rest of the net.

Wrister - A coated vinyl sleeve worn on the arm, extending from the elbow and covering the wrists. Keeps arms warm and dry. Fish blood and slime are more easily washed out from these than from shirt sleeves.

X,Y,Z

No entries.