MANUAL FOR BIOLOGISTS

ABOARD DOMESTIC GROUNDFISH VESSELS

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PREFACE

This manual has been prepared to assist you in your duties as an observer aboard domestic groundfish vessels operating in the eastern Bering Sea and Northeast Pacific. This manual along with training sessions and your review of reports filed by previous observers, should adequately prepare you for your observer experience. It must be kept in mind, however, that conditions can and do change and that no set of instructions covering as broad an area as we have attempted to cover here can ever be complete. It is therefore the responsibility of the observer to objectively evaluate each unfamiliar situation on the vessel before deciding on a course of action. Study the manual carefully, refer to it often, and consider ways in which it may be improved as a guide for future observers.

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GROUNDFISH FISHERIES AND THE OBSERVER PROGRAM

The Magnuson Fishery Conservation and Management Act, implemented in 1977, established an Exclusive Economic Zone (EEZ) from 3 to 200 nautical miles offshore around the coast of the United States. The boundaries are measured from the same nautical baseline from which the territorial sea is measured. The Act gave the United States management authority over all the living resources within the zone and those anadromous species (originating within the U.S.) and creatures of the continental shelf which may occur outside 200 miles.

The Council System: The Act created eight regional Fishery Management Councils. Off the West Coast and Alaska is the jurisdiction of two of these councils. The North Pacific Fishery Management Council (NPFMC) has representatives from the states of Alaska, Washington, and Oregon to address Alaskan fisheries issues, and the Pacific Fisheries Management Council (PFMC) has representatives from the states of Washington, Oregon, Idaho and California for the fisheries off the West Coast of the United States.

The eight regional Fishery Management Councils are designed to provide local and regional input into fisheries management. Each council and its advisory groups are composed of people from the managed region who are experienced and knowledgeable in the fisheries and in the economics of the fishing industry. The council functions are to (1) Prepare and submit to the Secretary of Commerce fishery management plans for each fishery requiring conservation and management. In an ongoing process, these plans are reviewed and plan amendments are developed as necessary. (2) Review permit applications from foreign nations to fish within the U.S. EEZ. This function is less important now because the fisheries are fully Americanized. (3) Conduct public hearings to maximize public participation in the council process. The NPFMC meets about five times per year: once in Washington or Oregon and the rest in Anchorage. The PFMC meets in Portland, Oregon.

One of the goals of the Magnuson Act was to "Americanize" the fisheries of the United States. This has been largely successful in both the Alaska and Pacific coast regions. Following the implementation of the Magnuson Act, the groundfish fishery changed from a foreign fishery in which virtually all groundfish were both caught and processed by foreign vessels, through an intermediate joint-venture phase in which U.S. vessels caught the fish and foreign vessels processed it, to the present status in which all the fish are both caught and processed by U.S. vessels and plants. Since 1991, the only foreign fishing in the U.S. EEZ of the N.E. Pacific and Bering Sea has been under research permits. Substantial foreign investment has been made in U.S. groundfish vessels and plants, however, especially by Japanese and Norwegians.

The Fisheries: The NPFMC (or, "the Council") has developed fishery management plans for the following fisheries off Alaska:

Southeast Alaska Troll Salmon
Bering Sea/Aleutian Islands King and Tanner Crab
Gulf of Alaska Groundfish
Bering Sea/Aleutian Islands Groundfish

The groundfish resource of the Bering Sea, Aleutians, and the Gulf of Alaska is a vast complex of various commercially valuable species, including pollock, cod, Atka mackerel, soles and flounders, sablefish, and rockfish. This complex can sustain an annual yield of between 2 and 3 million metric tons (mt). Annual catches have been around 2 million tons, making the resource a top producer in the world. The catches of only seven countries--Norway, Russia, Japan, Korea, Chile, Peru, and India--surpass 2 million metric tons.

Observer Programs: In 1989, the Council passed and the Secretary of Commerce approved a comprehensive data-gathering program for the Alaskan groundfish fishery. In addition to vessel permitting and reporting requirements, it included a mandatory domestic observer program. The Council and the National Marine Fisheries Service (NMFS) prepared an Observer Plan to implement the program in 1990. The Observer Plan has subsequently been incorporated in regulations at 50 CFR §679.50. Under these regulations, the NMFS Observer Program at the Alaska Fisheries Science Center provides the operational oversight, certification training, definition of observer sampling duties and methods, debriefing of observers, and management of the data. Although the vessel and plant owners pay for the cost of the observers, the costs associated with managing the program are borne by the Federal government.

Regulations require that groundfish trawlers and longline vessels 125 feet or longer always carry a NMFS-certified observer while fishing. Groundfish vessels 60 to 124 feet in length and pot fishing vessels 60 feet and longer must carry a NMFS-certified observer during 30% of the fishing days in each calendar quarter in which they fish for more than three days. Processing plants, both shoreside and floating, are also required to have observers. Plants processing 1,000 or more metric tons in a month have an observer in the plant each day they process groundfish. Those processing 500 - 1,000 mt in a month must arrange for observer coverage for 30% of those days.

The fisheries management plan for king and Tanner crab fisheries of the Bering Sea and Aleutian Islands area delegates management of the crab resources to the State of Alaska with Federal oversight. The Alaska Department of Fish and Game (ADF&G) under the Alaska Board of Fisheries manages the commercial crab fisheries and the crab observer program. The Alaska Board of Fisheries started a Shellfish Onboard Observer Program for the king and Tanner Crab fisheries off Alaska in April 1988.

The fishery for Pacific halibut off Alaska is managed by the International Pacific Halibut Commission (IPHC). The NPFMC also has authority to develop regulations, including limiting access, for participants in the halibut fishery. In contrast to the traditional open access groundfish fisheries, an Individual Fishing Quota (IFQ) management system was put into effect in 1995 for the halibut and black cod fisheries. Longline vessel operators with quota shares for these fish are also required to retain their Pacific cod and rockfish catch and thereby also come under groundfish fishery observer requirements.

Uses of Observer Data: Observers collect a wide variety of data used for an equally wide variety of management and research purposes. While aboard the vessels or in plants, observers are responsible for the collection of total catch and effort data, catch composition data, prohibited species bycatch data (including marine mammal takes and interactions), and other biological information and

samples. Observers are also responsible for sending daily and weekly catch reports and documenting and reporting possible violations of fishing regulations.

The data are used by NMFS scientists and managers, the NPFMC, state agencies, academic institutions, and the fishing industry. Uses of the data include: bycatch and quota management, estimation of bycatch rates of prohibited species, monitoring of individual vessel performance and compliance with bycatch rate standards, assessment of groundfish stocks, investigation of predator-prey relationships, determination of incidental takes of marine mammals and analyzing fishery-marine mammal interactions, appraisals of impacts on fisheries and stocks of proposed fishery management actions, assessment of impacts on fisheries and stocks of proposed actions by other federal or state agencies, and assisting fishery development activities.

Data obtained by the observers on catch size and species composition give fishery biologists some idea of the catch per unit effort of each species in a fishery, an important factor in determining the status of the stocks. Length frequencies and age structure collections of the target species obtained from the commercial catch are also vital in determining the condition of a fishery resource, and hence, of determining how much is available to be caught without causing fishery deterioration. Mathematical models used to assess certain fish populations (such as Shelikof Strait pollock, Bering Sea pollock, yellowfin sole, Greenland turbot, and others) are dependent upon a measure of the current age composition of the commercial catch. Without current data, decisions on allowable catches would be based on a higher degree of uncertainty and therefore would potentially be more conservative.

Because the management councils are dependent upon the data obtained by observers for a variety of important programs, the necessity for accuracy in data collections, determinations of species, and complete fulfillment of the sampling plan cannot be over stressed. Data forms must be carefully completed and checked. Sample forms in this manual serve as guidelines. (All observer data and reports are subject to certain restrictions of the Privacy Act and Trade Secrets Act. Any private use of them must be cleared by your contracting agency, who must receive permission from the National Marine Fisheries Service--please refer to the "Confidentiality" section that follows.)

This manual, along with the training sessions, should adequately prepare you for an observer trip. Because of the variations in fish handling by different ships, observers may be confronted with sampling problems not fully covered in the training sessions. We ask that you use your judgment to apply appropriate, specified sampling procedures and guidelines to your situation to ensure unbiased samples. Most important, keep an organized, detailed record of all the necessary variables that make up the data we ask you to obtain.

OBSERVER DUTIES AND PRIORITIES

Primarily, the observer's duties and priorities consist of collecting catch information, determining catch weight estimates, sampling for species composition and the incidence of king crab, herring, Tanner crab, halibut and salmon in the catch, collecting biological data on various species, and watching for incidental take of marine mammals. Priorities may change slightly according to cruise, so observers will be briefed on specific duties and priorities prior to deployment.

A list of the observer's main data collection responsibilities is given below in order of priority. Whereas the routine monitoring for marine mammal interactions is not as high a priority as sampling for catch composition, taking information on a marine mammal *caught* takes precedence when this rare event occurs.

1. Record daily fishing effort and catch rate information. These data form the base to which all other data are linked. Make an independent estimate of catch weight for as many hauls as possible.

2. Record species, numbers, condition, and circumstances of any incidental mammal catch. Collect specimens (canine teeth) when appropriate.

3. Determine the species composition of the catch according to instructions. Estimate percent retained per species for each haul or set sampled. Record incidental take of seabirds. Monitor for marine mammal interactions or incidental catch. (Usually this monitoring can be accomplished while composition sampling. If not, sampling for catch composition and subsequent biological sampling takes precedence.)

4. Send a summary of fishing effort, catch composition information, and halibut viability sampling (items 1, 3, and 6) to Seattle weekly.

5. Observe the compliance or lack of compliance to specified U.S. fishing regulations and document suspected violations to those regulations when observed.

6. Gather and record additional biological data on certain "prohibited species" in the catch according to instructions. These species include, but may not be limited to: king crab, Tanner crab, halibut and salmon.

7. Take samples of the target species for sex and length frequency data.

8. Special study projects may be assigned. Examples of some projects are: collecting otoliths or scales for ageing, stomach content samples, catch density sampling, maturity sampling of a species, or studies on sample methods and variance. Some projects may be placed at a higher priority in the observer's duties.

9. Fill out an observer logbook with requested information such as calculations, seabird sighting data, sampling and communications records, and daily notes.

10. Record occurrences of marine mammals sighted in the fishing areas.

Prior to contract completion the observer must: complete an electronic report for the work on each vessel, turn in data and logbook during an interview with a staff member, make corrections as directed, and turn in cleaned gear and any specimens.

CONFIDENTIALITY OF OBSERVER DATA

Sometimes fishermen are concerned that the information observers collect might be obtained by anyone interested in finding out where a particular boat caught fish. If this is brought up, reassure them that the information collected is handled under federal rules governing the confidentiality of fisheries statistics. Also, observers are bound by standards of behavior indicated in the Code of Federal Regulations at 50 CFR §679.50(h) not to disclose collected data and observations made on board the vessel (see "Conduct" below, item 3). Certain data collected by observers are allowed to be released by NMFS to the public. Refer to 50 CFR §679.50(k). If asked by vessel personnel about another vessel you were on, explain that just as you can't talk about this vessel after you get off it, so you can't tell them about a previously observed vessel.

Observers must know that all data collected are the property of the U.S. government. No observer can retain or copy any data or reports following their return unless granted express permission by the National Marine Fisheries Service. This includes information used as part of a school project, thesis paper, articles for publication, or interview with news media. The main reason for this restriction is due to federal rules governing the confidentiality of fisheries statistics. NMFS also reserves the right to review for accuracy the draft for any article or publication concerning your observer experiences. Any questions concerning this or requests for permission should be directed to the Program Task Leader, Bill Karp.

VESSEL PERSONNEL'S ACCESS TO OBSERVER DATA

The skipper may ask to have access to your effort data (1US & 2US), composition data, length frequency data, and/or catch messages. It is Observer Program policy that upon request the skippers are given access to these data. Providing access to data maintained on other forms is not necessary. Due to the nature of the materials maintained in an observer logbook, we ask that you keep the contents confidential. Among the reasons for keeping the logbook confidential are:

- it may contain confidential information that pertains to other vessels.
- it may contain information that would place you in an uncomfortable position.
- if access is provided, you may find it difficult to later deny access if you record something that is confidential
- it may cause difficulties for future observers who choose not to provide access.

Providing access to data can mean several things:

- allowing the skipper to view upon request.
- allow the skipper to photocopy
- allow the skipper to fax to company office.

The particular data forms which an individual skipper wants to see will vary from vessel to vessel. This will require working with the skipper to find a method for providing access to your data. The means chosen should be convenient for both you and the skipper. If your vessel is using observer sampling data to calculate vessel logbook entries, you may be asked to provide daily access to your data. You may find that you are being unreasonably pressured to complete your data for the vessel. If he wants the data *now* but you were just about to sample the next haul, tell him that you

will get to it as soon as possible (but your first obligation is to your work). Try to work out a compromise and propose a different time schedule. If you find the situation is impossible, notify the Observer Program. Your message should ask for the program staff to help you in establishing a schedule for the skipper to use your data forms.

Note: Using your sampling data or an extrapolation of it to fill out the vessel logs is permissible for the captain but the observer must not assume additional responsibility by doing any extrapolations for, or making any entries in, the vessel log.

STANDARDS OF OBSERVER CONDUCT

[Note: This text is from 50 CFR §679.50. This section implements the observer program. Further instruction regarding conduct follows in the "Special Cautions ..." section.]

Observers must avoid any behavior that could adversely affect the confidence of the public in the integrity of the Observer Program or of the government, including but not limited to the following:

1. Observers must diligently perform their assigned duties.

2. Observers must accurately record their sampling data, write complete reports, and report honestly any suspected violations of regulations relevant to conservation of marine resources or their environment that are observed.

3. Observers 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.

4. Observers must refrain from engaging in any illegal actions or any other activities that would reflect negatively on their image as professional scientists, on other observers, or on the Observer Program as a whole. This includes, but is not limited to:

   a) Engaging in excessive drinking of alcoholic beverages (however, if the vessel or shoreside facility maintains a stricter alcoholic beverage policy for its employees, then the observers must comply with said policy);

   b) Engaging in the use or distribution of illegal drugs; or

   c) Becoming physically or emotionally involved with vessel or processing facility personnel.

Behaviors contrary to these standards or the intent of these standards are grounds for the decertification of the offending observer. Falsifications of observer data will be grounds for decertification and may be a basis for prosecution.

CONFLICT OF INTEREST STANDARDS, 50 CFR §679.50(h)(2)

A NMFS observer:

1. must be employed by an independent contracting agent certified by NMFS to provide observer services to the industry;

2. May not have a direct financial interest, other than the provision of observer services, in a North Pacific fishery, including but not limited to, vessels or shoreside facilities involved in the catching or processing of the products of the fishery, concerns selling supplies or services to these vessels or shoreside facilities, or concerns purchasing raw or processed products from these vessels or shoreside facilities.

3. 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 nonperformance of the observers' official duties.

4. May not serve as observers on any vessel or at any shoreside facility owned or operated by a person who previously employed the observers.

5. May not serve as observers during the 12 consecutive months immediately following the last day of the observers' employment in a North Pacific fishery.

6. May not solicit or accept employment as a crew member or an employee of a vessel or shoreside processor in a North Pacific fishery while under contract with an observer contractor.

(Provisions for remuneration of observers under this section do not constitute a conflict of interest under this paragraph.)

SPECIAL CAUTION ON DEPORTMENT

As a fishery observer:

1. You must abide by the standards of conduct developed by your hiring contractor.

2. When conflicts or sampling problems occur that affect your ability to get unbiased samples of the catch (presorting of fish for example), you can usually work it out by talking with the crewmen, factory foreman or deck boss. If this doesn't help, talk to the captain and ask him to help you but don't be demanding in your attitude. Present a case that shows you have thought about both sides. Listen and consider their objections. Negotiate compromises as long as they don't interfere with your ability to get good data. If talking fails, contact your contractor or the Observer Program office for arbitration.

3. Maintain a friendly but professional demeanor to vessel personnel. Your behavior should be governed by remembering that, politically, you are highly visible. Before acting in any given situation, be mindful of the diplomatic nature and sensitivity of your position. Tactful, mature handling of problems is expected. Remember, you are on the job 24 hours a day.

4. Do not offer, even if asked, any authoritative advice on what a vessel can and cannot do under terms of the permit under which they are operating. If you know the answer to a question about fishing regulations, answer the question with a qualifying statement such as, "I think...". If you are not sure, admit it and refer the captain to the Code of Federal Regulations (CFR) book or to the NMFS Regional Office in Juneau.

5. Consumption of alcoholic beverages by observers at sea is prohibited. Remember that your conduct must be above reproach at all times. While in port, drinking a glass of wine or beer with a meal or having one or two drinks while relaxing during off hours is permissible. When in port, your alcohol consumption should be kept at a very low level. Observers are not allowed to be intoxicated, much less drunk, while deployed. Anything that damages your character in the eyes of the people you are working with -- now or later -- is detrimental to your effectiveness on the job.

6. Observers should never accept gifts, (even of fish to take home), as this may appear to compromise your impartiality. You may not accept payment for any work you do for the vessel (or plant, company, owner, or operator) during your employment as an observer. Any act that could be construed as acceptance of a bribe, such as responding favorably to an offer of future employment, must be avoided. Work on developing a larger perspective of the arena you're in. What you say or do in the context of a private conversation may seem perfectly reasonable at the time, but how would it appear when written in a formal report?

7. An obvious point (but one of extreme importance) is the prohibition of any sexual activity with vessel or plant personnel while deployed as an observer. Besides the personal danger of sexually transmitted diseases, involvement with industry personnel detracts from your involvement with your work. Also, understand that an intimate relationship will be general knowledge in a short period. Vessels and fishing ports are very close-knit communities; secrets are stock-in-trade. If NMFS-certified observers develop relationships with members of the industry they are there to observe, it erodes the respect and professional credibility of the individual involved and that of all observers. No one operates in a vacuum; no one is exempt from community opinions. **Observers after you will be subject to the precedents you set.** This program's credibility rides with each observer. If a person you meet is special enough to warrant paying this terrible price, consider then, that the whole situation should be handled with respect and developed at an appropriate time. To act unprofessionally is purely self-indulgent and grounds for decertification.

8. As an observer you will abide by all rules and regulations relating to the conduct of the host vessel. You will not use, for any purpose other than obtaining required data, any species that the governing federal or state permit prohibits the vessel from fishing for or retaining, including especially salmon, halibut, crab, and marine mammals. (This includes eating them in the ship's mess, if served.) Do not accept or transport any item violating laws relating to

endangered or protected species. A copy of a permit that does allow you to bring back sea lion or fur seal canine teeth for age analysis by the National Marine Mammal Laboratory is in the appendix of this manual. However, **no specimen materials may be taken from walrus.**

9. If your host vessel is boarded by the Coast Guard, do not attempt to interfere with their activities, or those of NMFS enforcement agents, in any way. You may let them know that you are aboard, then stand by. Do not allow boarding officers to draw you into a discussion of your observations in front of vessel personnel. Tactfully suggest that if they wish to ask you any questions you will be in your cabin (or go to another place that is private).

10. Once you are aboard your sampling ship, avoid making visits to other vessels. Sometimes other ships, tenders, or catcher boats may tie up to your vessel. Consider going aboard in these circumstances only if your transfer there and back can be made under extremely safe conditions and if your work performance is not affected. Do not make social visits to other vessels if they are not tied up to your vessel. Do not stay away from your vessel overnight. This is necessary to ensure that planned levels of observer coverage are met.

11. Consider safety first in everything you do.

RESPONSIBILITIES OF VESSEL AND PLANT OPERATORS

Adapted from 50 CFR §679.50(f). An operator of a vessel required to carry one or more observers must:

1. Provide, at no cost to observers or the United States, accommodations and food on the vessel for the observer or observers that are equivalent to those provided for officers, engineers, foreman, deck bosses or other management level personnel of the vessel.

2. Maintain safe conditions on the vessel for the protection of observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

3. Facilitate transmission of observer data by allowing observers to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observers or the United States. (Communications equipment requirements are specified, see "Groundfish Observer Program" part of Regulations, manual section 9.)

4. Allow observers access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

5. Allow observers free and unobstructed access to the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

6. Notify observers at least 15 minutes before fish are brought on board, or fish and fish products are transferred from the vessel, to allow sampling the catch or observing the transfer, unless the observers specifically request not to be notified.

7. Allow observers to inspect and copy the vessel's daily fishing logbook, daily cumulative production logbook, product transfer forms, any other logbook or document required by regulations, printouts or tallies of scale weights, scale calibration records, bin sensor readouts, and production records.

8. Provide all other reasonable assistance to enable observers to carry out their duties, including, *but not limited to: measuring decks, codends, and holding bins; providing the observers with* a safe work area adjacent to the sample collection site; collecting bycatch when requested by the observers; collecting and carrying baskets of fish when requested by observers; and allowing observers to determine the sex of fish when this procedure will not decrease the value of a significant portion of the catch.

9. Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.

10. Notify observers at least three hours before observers are transferred, such that the observers can collect personal belongings, equipment, and scientific samples.

11. Provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.

12. Provide an experienced crew member to assist observers in the small boat or raft in which any transfer is made.

A manager of a shoreside processor must do the following:

1. Maintain safe conditions at the shoreside processing facility for the protection of observers by adhering to all applicable rules, regulations, or statutes pertaining to safe operation and maintenance of the processing facility.

2. *Notify the observers as requested, of the planned facility operations and expected receipt of* groundfish prior to the receipt of those fish.

3. Facilitate transmission of observer data by allowing observers to use the shoreside processor's communication equipment and personnel, on request, for the entry, transmission and receipt of work-related messages at no cost to the observers or the United States. (Communications equipment requirements are specified, see "Groundfish Observer Program" part of Regulations, manual section 9.) Ensure that the communication equipment that is used by observers to transmit data is fully functional and operational.

4. Allow observers free and unobstructed access to the shoreside processor's holding bins, processing areas, freezer spaces, weight scales, warehouses and any other space that may be used to hold, process, weigh or store fish or fish products at any time.

5. Allow observers to inspect and copy the shoreside processor's daily cumulative production logbook, product transfer forms, and any other logbook or document required by regulations; printouts or tallies of scale weights; scale calibration records; bin sensor readouts; and production records.

6. Provide all other reasonable assistance to enable the observer to carry out his or her duties, including, but not limited to, assisting the observer in moving and weighing totes of fish, cooperating with product recovery tests, and providing a secure place to store baskets of sampling gear.

PROHIBITED ACTIONS, 50 CFR §679.7

It is unlawful for any person to:

1. Forcibly assault, resist, oppose, impede, intimidate, or interfere with an observer.

2. Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical or the sorting or discarding of catch before sampling.

3. Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.

3. Prohibit or bar by command, impediment, threat, coercion, or by refusal of reasonable assistance, an observer from collecting samples, conducting product recovery rate determinations, making observations or otherwise performing the observer's duties.

4. Harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile, or offensive environment. In determining whether conduct constitutes harassment, the totality of the circumstances, including the nature of the conduct and the context in which it occurred, will be considered. The determination of the legality of a particular action will be made from the facts on a case-by-case basis.

5. Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including, but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

PREPARATION AND DEPARTURE

COMMUNICATIONS

While deployed as an observer, it is common to feel as if you are "way out on a limb." Trying to communicate with your contractor and/or NMFS can be frustrating at times. Patience, perspective and maturity will be needed. Please remember that you are employed as a professional and all your communications should reflect this. Know that all voice radio communications at sea are **public**, not private. Transmitted messages are often passed through company offices as well as to your contractor and to NMFS so **no idle comments, offhand remarks, or unauthorized personal business please**. Make all messages complete, but concise and to the point. Observers at sea with questions regarding work should contact the Seattle, Dutch or Kodiak offices for information, not the Anchorage center. Remember though, that no one will be in the NMFS Seattle office on Saturdays, Sundays or Federal holidays.

Observers will not receive mail through NMFS or their contractor while at sea. To receive mail while in training or ashore, you must make arrangements with your contractor, the place where you are staying, or use general delivery. Observers have had personal mail forwarded to and from the vessel through the fishing company, but keep in mind that this is done only as a favor to the observer. **No demands** can be made by an observer for this service. Any mail you wish to send out through the company must be stamped and ready for mailing. Do not send or expect to receive any personal messages while at sea except in case of emergencies. Before you depart, give the contractor phone numbers and addresses of whom to contact in case of emergencies or drastic changes in your scheduled return. Any person listed should be notified to contact anyone else who should know of the change in plans or emergency. If a family emergency should arise at home, relatives should contact your hiring contractor. Program contacts for your reference:

Bill Karp (Program Supervisor) (206) 526-4194
Martin Loefflad (Supervisory Assistant) (206) 526-4195
Heather Weikart (Contact for questions from sea)
Training & Debriefing Office (206) 526-4192
Gear Office (206) 526-6827

Observer Program, F/AKC2
Alaska Fisheries Science Center
7600 Sand Point Way NE, Bldg. 4
Bin C15700
Seattle, WA 98115-0070

Kodiak Office, Allison Barns
Phone: (907) 486-6920, fax: (907) 486-6028

1211 Gibson Cove Road, Suite B
Kodiak, AK 99615

Dutch Harbor Office
Phone: (907) 581-2060
fax: (907) 581-2066

P.O. Box 920225
Dutch Harbor, AK 99692

North Pacific Fisheries Observer Training Center
University of Alaska Anchorage
707 A Street, Suite 205
Anchorage, AK 99501

Paula Cullenberg, Director
Instructors: Greg Morgan
and Luke Jadamec
Phone (907) 257 - 2770
fax (907) 257 - 2774

THE TRAINING PERIOD

The observer who requires certification training will spend three weeks in Seattle or Anchorage for orientation and training. Training will consist of familiarization with the groundfish fishery and its management and explanations of the sampling duties and procedures. Instruction in given on how to identify the families and species of fish, crabs, and marine mammals of the Bering Sea and Northeast Pacific, and on familiarization with groundfish fishing regulations. The following outline lists some activities covered during the training period. The outline is not necessarily complete and the items are not necessarily given in the order that they will be presented.

Domestic Observer Training Syllabus

Day 1 (Monday)

Orientation: Administrative information:
course description, typical employment schedule, contractor guidelines, facilities information (grounds description, cafeteria, nurse, parking, storage of personal gear, facility access and hours, coffee/tea service, mail, telephones).

Introductions all around.

NMFS organizational structure

MFCMA and fisheries management - brief overview

Requirements for observer coverage.

Categories of vessels and gear types. Trawl, longline and pot gear terminology and definitions illustrated with models, diagrams and videos.

Slides and lecture on the history of N.E. Pacific groundfish fishing, commercially important fish (terms: target, bycatch, allocations and quotas), prohibited species, vessel types and their operations.

Slides illustrating observer sampling duties - emphasis on terminology, visual orientation and safety on board.

Fisheries regulations and the role of the observer.

Math test (in class).

Homework on fish identification terminology.

Day 2 (Tuesday)

Slide show on Alaskan ports, safety in boarding and disembarking vessels, life at sea, conduct and deportment, vessel disasters and hazards, and observer work.

Seasickness, medical advice, living accommodations, clothing and other items to bring.

Hardships and dangers lecture.

Groundfish Management:
Management Councils structure and function, council advisory panel, science and statistical committees, NMFS statistical areas, ADF&G areas, and species report groups, ABCs, TACs, allocation schemes, the relationship of the council with the NMFS regional office. The NMFS regional office's management and enforcement divisions.

Use of observer data for in-season quota management and for long-term catch statistics and biological study.

Vessel location systems and plotting vessel positions

Species Identification: a brief review of fish anatomy for use in identification. Introduction and identification of N.E. Pacific fish families: slides, lecture, and laboratory sessions

Day 3 (Wednesday)

Obtaining haul information - explanation of the Domestic Vessel Logbook system:
Format review by vessel/processor type; effort, discard, and production sections; details of effort section.

General instructions on data forms, data entries, calculation rounding, volumetric formulas, and the metric system.

Format explanation of Form 2US, Haul Summary Form for U.S. Trawlers.

Observer estimates of catch weight - definition, necessity, codend measurements, bin volume measurements, density sampling.

Estimation of Official Total Catch weights on catcher-only trawlers:
Definition, use of observer's and vessel's deck estimates, obtaining delivery weight, uses of fish ticket data, importance of observer verification of scale weights, weighing systems at sea and ashore, proportioning delivery weights to weight per haul.

Practical exercise in class on measurements of bin volume and codend volume

Trawl Deck Safety video

Overnight, Form 2US homework assignment.

Day 4 (Thursday)

Collect homework.

Review of Duties: objectives and priorities, workload. Example: sampling day scenario.

Catch Composition Sampling:
Definitions of sampling terms. Environment - vessel slides of catcher-only ships and catcher/processors. The three types of sampling - whole haul, partial haul and weighed or basket sampling. Trawler sampling slides - methods and bias. Review/summary of sample collection bias. Recording data on plastic deck forms.

Brief overview of Species Composition Form 3US.

"Starry Flounder" homework exercise assignment for Friday and the weekend.

Species Identification of N.E. Pacific flatfish - lecture, slides and laboratory session.

Day 5 (Friday)

Review manual section on Objectives and Rules for Species Composition Sampling.

Data entry on Form 3US:
Show how entries correlate with Form 2US. Using manual examples of 3US to illustrate, review the three sample types and the sampling rules. Formatting rules.

Criteria for choosing a sampling method - review.

Classroom practice of sampling methods, terminology, calculations, and data entry.

Classroom practice on navigational charts and region familiarity.

Day 6 (Monday)

Correction of weekend homework.

Proportioning delivery weights and samples - exercise in class

Observer logbook record keeping.

Collecting biological information from Tanner crab, king crab, halibut and salmon in samples: weights and lengths, viability, sex, and salmon scale sampling.
Form 7US introduction.
Collecting data on tagged fish and crab, collection of salmon snouts.

Identification of Rockfish: lecture, slides and laboratory session.

Day 7 (Tuesday)
Weekly catch messages - Inseason quota management and time-critical nature of data, report week definition and how to assign data to a report week, grouping data into sets for catch message forms, page numbering, transcription and grouping of 3US data, calculation of percent retained by species group, prohibited species and marine mammal entries.
Extrapolating data on unknown species based on subsample data.
In-class work on catch message section of "Starry Flounder" exercise.

Length Frequency Sampling:
Workload, use of the data, slides of sampling method, data recording and entry on Form 7US.
Otolith and scale sampling:
Description of duties, use of the data and the stratified random sampling scheme, demonstration of sampling method, data entry on Form 9US.
Assignment of 7US and 9US homework on "Starry Flounder" exercise.
Slides of fish dissection and crab identification.
Laboratory session on measuring and dissection of round and flatfish. Viscera are examined to identify: gonads to sex, stomach, liver, intestine, heart, kidney, gall bladder.
Laboratory session on crab identification and measurement.

Day 8 (Wednesday)
Collect 7US and 9US homework.
Checking weekly catch messages - Handout
Catch Message Exercise "Stormy Seas" due Thursday.
Daily catch messages: why and when to do them, in-class practice, transmission of.
Explanation of observer routing code
Transmission of catch messages - Std. A COMS, fax, Standard C, telex, voice/private line, voice/radiotelephone, coding for voice transmissions, CMV form.
Sending catch message corrections.

Species Identification lecture, slides and laboratory session on cods and salmonids. Pre-test on identification.

Day 9 (Thursday)
Collection of Catch Message homework.
Final Data exercise, "Fish Killer" given out, due on Monday.
Random Sampling Table for observers on trawlers
Estimation of Official Total Catch on catcher/processor trawlers:
Use of deck estimates made by observers and by ship personnel, vessel logbook production section, weekly processor reports, product recovery ratios and calculation of round weights

from production data, product recovery ratios and report group codes, NMFS tables of product types. Example calculation. Methods of estimating discard estimates, .

Total catch estimation from c/p vessel production log, OTC exercise - in class.

Salmon Retention program and requirements

Computerized Observer Message System: practice of catch message data entry at sea

Day 10 (Friday)

Sampling and reporting Community Development Quota catches

Longline and pot fishing vessels: Terminology and gear review, videos of longline setting and retrieval, description of longline and pot sampling method, slides of longline and pot fishing, computation of total catch, Catch Summary Form 1US, sampling schemes, recording data, halibut viability sampling and monitoring for careful release, length frequency and marine mammal observations.

Longline data tally exercise - in class

Day 11 (Monday)

Collection of final exercise homework.

Checking vessel production information, in-class exercise - "Where Did the Fish Go?" Product recovery sampling, obtaining information on ship's product recovery rates, Form 8US. Using product recovery ratios and the NMFS tabled values.

Marine Mammal regulations and the observer's role

Recording information on marine mammals: incidental take, (Form 10US); sightings, (Form 11US).

Guest Lecture: discussion and slides on identification of marine mammals at sea.

Day 12 (Tuesday)

Species identification exam.

Vessel Incentive Program: its history, present form, observer's duties.

Compliance Monitoring review of material to date; that is, retention of prohibited species, interfering with an observer, unauthorized "take" of marine mammals, refusal to participate in NMFS vessel logbook system, trawl and pot fishing gear descriptions.

Review: Observer procedures during a Coast Guard boarding.

Review: How to handle questions about gear restrictions, fishery openings and closures, etc.. Explain the NMFS electronic Fishery Bulletin Board Service.

Marpol V dumping restrictions, "Trashing the Oceans" video, Marine Debris Project.

Documentation of Suspected Violations - review text guidelines, lecture, role-play scenarios and documentation practice.

Day 13 (Wednesday)

Safety videos and discussion on hypothermia, cold water near-drowning, medical emergencies at sea, preparation of a medical diagnostic chart, and emergency radio procedures.

In the afternoon: fire control, scenario of a vessel emergency, review of safety regulations, introduction to EPIRBs, sea survival video.

Check-out of survival suits.

Survival suit and life-raft water practice.

Day 14 (Thursday)
Review of Final Exercise ("Fish Killer").
Plant sampling, on-shore and aboard floating processors.
Gear issue: lecture on familiarization, responsibility for and care of equipment, then gear check-out and calibration of scales.
Receive special project instruction.
Last chance re-test on species identification.

Day 15 (Friday)
Bird identification and observer duties in regards to birds - guest lecture.
The Debriefing Process: information on return procedures, the data review process and final reports.
Final Exam.
Preparation for first day aboard.
Travel rules and parting information from contractors.
Review of previous cruise reports and reading files.

If a complete grasp of the duties is not demonstrated, the observer will not be certified. An observer may be decertified or dismissed by their contractor if they violate rules of conduct, rules of data confidentiality, or lack the appropriate human relations skills necessary for the job.

Vessel and observer schedule arrangements are a difficult task. Though you may express a preference for a vessel type, an observer must be willing and able to accept any assignment. The observer-in-training should be prepared for changes in ship assignments and departure times. Some observers wait for their first vessel assignment longer than was originally planned, so be prepared for this eventuality, and be patient. Similarly, dates of return may also be affected by vessel schedules, so notify your contractor before leaving if you have any pressing dates soon after your expected return (such as the beginning of a school quarter).

After completing their trip at sea, observers report to their contractor to make an appointment for debriefing. Observers must then work with their contractor and the Program staff until their data forms and trip reports have been properly completed and have been accepted by NMFS. The debriefing process normally takes one or two weeks.

OBSERVER CLOTHING AND EQUIPMENT

NMFS will provide observers with safety apparel and sampling equipment. The observer is responsible for the transport and return of the sampling gear issued. If the observer needs different equipment or forms or replacements for equipment during their deployment, the field offices in Dutch Harbor or Kodiak can usually re-supply them. The observer must make an effort not to lose and to prevent theft of the gear issued to them. If durable equipment issued (see asterisks on gear list below), is not returned (regardless of condition) when the gear is checked back in, the observer's contractor must replace it. Contractors may make the observer pay the replacement cost.

Observers will provide their own clothing and rain gear (including boots and gloves), sleeping bag, toiletry articles including a towel, and other items of a personal nature. Unless otherwise informed, the vessel upon which the observer is to be stationed will be expected to provide adequate quarters and meals. It is expected that the vessel captain will allow the observer an adequate and safe space in which to carry out the sampling duties.

On the following pages are lists covering the clothing and equipment necessary to work 60 - 90 days sampling aboard a U.S. vessel.

Personal Items Supplied by Observer

The following is a recommended list of personal items. The amount and type of heavy clothing is dependent on personal preference, fishing area, and time of year.

Work clothes--recommended minimum number and type

- Rain gear - bib overall pants with suspenders and jacket with hood, medium to heavy weight material- 1 set
- Boots - knee high, not the lace up type, flat chevron sole, "Extra Tuffs" strongly recommended
- Gloves - rubber or facsimile with gauntlet. Heavy enough to withstand abrasive work but flexible enough to pick up a pencil and write. - 3 pair
- Glove liners - light polypropylene, wool or poly/cotton - 2 pair
- Shirts, polypropylene or wool - 2 (1 light, 1 heavy)
- Shirts, cotton - 2, sweatshirt - 1
- T-shirts - 3
- Pants, sweatpants - 1, denim - 1, wool (optional) - 1
- Wool or polypropylene knit cap
- Thongs (flip-flops), for shower use
- Underwear, long-thermal - 2 pairs
- Underwear - 5 pairs
- Socks, wool or polypropylene - 2 pairs, cotton - 3 pairs
- Jacket, polypropylene fleece or pile, wool or synthetic - 1

Other items or articles

- Sleeping bag and pillowcase - 1
- Towel, medium cotton - 2
- Toiletry articles
- Duffel bag - sturdy, medium size, old or inexpensive - 1
- Small day pack or knapsack - 1
- Traveler's checks purchased with the cash advanced
- If corrective lenses are used for eyesight - a spare pair

Recommended and Required Items

- Felt/wool boot insoles for boots (not felt liners) - 2 pair
- Needle and thread, safety pins, and duct tape for repairs

Camera and film
Watch and travel alarm
Medication for seasickness - required
Athlete's foot cream
Vitamins
Hand cream
Paperback books
Small cassette player and tapes
Water bottle (1 qt.) - to keep drinking water in your cabin

NMFS SAMPLING GEAR

I understand that as an agent of my contractor, _____ (abbreviate contractor name), I am assuming responsibility for the satisfactory return of equipment issued to me by the NMFS Observer Program. I understand that the items I have been issued as shown below will be returned, (even if damaged) and/or designated items will be replaced regardless of reason for loss.

Date Out _____ Signature _____

Date In _____ Name, please print legibly _____

	No. of Items	Circle New or Used	Item Description
*	___	N/U	baskets, 2 - 4
	___		basket lid
	___		rope, 20 ft.
	___		lubricant oil
	___		scouring powder
	___		sponge, 2
	___		length measuring board
	___		plastic length-freq strip, 2
	___		plastic data sheets, 3
	___		dividers, crab meas.
	___		plastic crab meas. form
*	___	N/U	measuring tape reel, 15m or 30m
*	___	N/U	fish gaff
	___		plastic bags, 10
	___		zip-top salmon snout bags, 5
	___		scale envelopes, 30

	No. of Items	Circle New or Used	Item Description
*	___	N/U	calculator
	___		clipboards, 2
	___		shipping label
*	___	N/U	50 or 100 kg scale, serial no. _____
*	___	N/U	12 kg scale, serial no. _____
*	___	N/U	2 kg scale, serial no. _____
	___		scale hooks, 3
*	___	N/U	survival suit, serial no._____
*	___	N/U	strobe light
*	___	N/U	life vest & whistle
*	___	N/U	hardhat and chinstrap

Please ensure all gear is marked "NMFS"
Asterisks (*) indicate items which must be replaced if not returned.

CARDBOARD BOX WITH THE FOLLOWING:

	No. of Items	Circle New or Used	Item Description
	___		pencils, No. 2 yellow, ~ 3
	___		drawing pencils, 3
	___		mechanical pencil
	___		mechanical pencil leads, 1 tube
	___		pens, black, ~ 4
	___		eraser stick
	___		block eraser
	___		hole reinforcements and tabs
	___		ruler
	___		thumbtacks & paperclips
	___		rubber bands

	No. of Items	Circle New or Used	Item Description
*	___	N/U	flashlight
	___		extra batteries, 4
*	___	N/U	knife
*	___	N/U	forceps, 1
*	___	N/U	scalpel handles, 2
	___		scalpel blades, 10
*	___	N/U	thumbcounter
	___		2 m tape measure
	___		ear plugs 3 pr.
	___		3 vials for sab. tags & oto.
	___		looseleaf rings, 3

ISSUED PUBLICATIONS:

	No. of Items	Circle New or Used	Item Description
	___		sampling manual
	___		logbook
	___		binder of data forms
	___		wallet folder for long forms

	No. of Items	Circle New or Used	Item Description
*	___	N/U	Eschmeyer, fish guide
	___		Species I.D. guide
*	___	N/U	Marine mammal guide

SPECIAL PROJECT EQUIPMENT

STOMACH SAMPLING: Buckets, bags, etc. are issued by the stomach lab and these items should be returned to that lab when debriefing.

OTOLITH/SCALE COLLECTION:

___ otolith vials, 200, 100 per box
___ vial block, 1
___ plastic otolith form
___ cod knife
___ forceps (1 pr.)

FISH COLLECTION:

___ various plastic bags, manila and waterproof tags

OPTIONAL EQUIPMENT

CATCHER BOAT OBSERVERS:

* ___ N/U Mustang suit
* ___ N/U knee pads
___ leg wrap bands

LONGLINE OBSERVERS:

* ___ N/U Mustang suit
___ thumbcounters, 3 more
___ protective eyewear

WOC COASTAL HAKE OBSERVERS:

* ___ Miller & Lea ID book

OPTIONAL (ALL OBSERVERS):

___ twine or light cord
___ AC adaptor for calculator
___ cellophane tape
___ pencil sharpener
___ 1" looseleaf rings
___ Zak roe knife for sexing fish
* ___ Pacific Fishes of Canada, (an ID guide by Hart)
___ whetstone

Personal Gear Storage:

Please read and acknowledge with your signature: I understand that storage of flammable, hazardous, or illegal chemicals and substances is not permitted. I understand also that the NMFS Observer Program does not guarantee the safety or security of the items I am leaving in storage.

Signed_____ Date _____

Number and description of items in storage, for example: 1 box and 1 suitcase. (You do not need to list contents.)

_____

Vessel Data Forms for 3 months:

Form 1US (for longliners)	20
Form 2US	20
Form 3US (for trawlers)	150
Form 3US (for longliners)	150
Species Description Forms	
Rockfish	20
Flatfish	20
Misc.	15
Form 7US	45
Form 8US	1
Form 9US (obs. collecting age structures)	30
Form 9US (other obs.)	5
Form 10US	3
Form 11US	10
Catch message Form A	40
Catch Message Form B	25
Catch Message Form for Voice (CMV)	2
Catch Messages - Daily (CMD)	3
Inseason Halibut Viability Form	4
Salmon Retention Form(s)	15
Plain white paper for misc. fax messages	5
Tagged Fish Form	3
Marine Debris:	
Observations (of Disposal - all observers)	2
Observations (of Catch & Disposal - special project)	4
Sighting Survey Form (special project only)	2

Plant Sampling Forms:

Form A Plant Delivery	15
Form A Delivery Composition	20
Form 3US	25
Form 7US	45
Form 9US	30

Preparation and Care of Sampling Equipment

The sampling gear provided for you may not be new, but should be in good working order. Most gear is expected to be used for several observer contracts. Therefore, we depend on you to give proper care and maintenance to the equipment. All gear given to you will be examined upon return, to see that it is in good condition before it is checked in. Facilities are available for cleaning gear NMFS offices if this could not be done aboard the ship. All returned gear must be clean and free of scales. *All* metal parts must be clean, free of rust, and oiled. Here are a few tips for shipboard maintenance that should make your job easier:

1. Protect your gear from loss overboard and from theft. Do not leave gear items such as baskets and scales on the weather deck unless there is no alternative and they are well secured. Stow all sampling gear when you are finished and inform the skipper and crew not to borrow or use your equipment without your permission.

2. Keep all paper products and small, loose equipment (pencils, pens, thumb tacks, scissors, counters, etc.) in plastic bags throughout your trip.

3. Try to keep as dry as possible: calculator, stopwatch, and thumb counters. Wipe the steel tape measure down with an oiled cloth after use. Books should always be protected from water and slime.

4. *Most important:* Every day before use, the weighing scales must be checked over. Keep them cleaned and oiled. Adjusting screws must be kept coated with grease. The scales have steel springs inside which will rust. Oil must be squirted up inside the scales.

5. Steel 2m tape measure, and thumb counters must also be rinsed and oiled each day when used. On the thumb counters, the plastic viewing window may need to be removed to clean and oil the inside. (Be careful to keep oil away from plastic forms, since a pencil won't mark on an oily surface).

Remember--others must use this gear after you, and proper care of equipment will help make all our work easier.

Do not give away any gear or books! Equipment items marked on the list with an asterisk will have to be replaced if they are not returned regardless of the reason for loss. Replacement calculators for instance cost about $30.00 and must be of the type specified. Your contractor may make you personally responsible for replacement.

Calibrate your scales during gear check out. Then prepare a known weight by selecting items that may be easily assembled later. (i.e., a basket, wheels, and books) List the items weighed and their total weight. This known weight may then be used later to check your scale adjustment or to check the accuracy of shipboard scales.

Before using your baskets for weighing, weigh the empty baskets so you will know how much to subtract from each weight figure to reflect the weight of the basket contents only. Be sure to keep track of the basket fitted with wheel sockets as it will be heavier than the others.

Accurate weights are usually hard to obtain when the ship is rolling. When possible, secure the top of the scale directly to a fixed structure, such as an overhead brace. If the top of the scale has to be attached to the ceiling by a length of rope, use three ropes attached to widely separated points on the ceiling to reduce the swing of the scale. Using a pair of double sheave pulleys from the overhead to the top of the scale provides a 4:1 mechanical lift advantage and you can raise and lower the basket of fish easily, timing it with the ship roll. Shortening the length of the ropes to the basket also helps. Scales located close to the center of the ship will swing less. If a better shipboard scale is available for your use, by all means use it, but check it for accuracy first.

All sampling gear and forms will be packed in sampling baskets for transport to and from the vessel. The baskets may be exposed to salt spray. Therefore, sensitive items should be packed in plastic bags. Just before checking in your baggage at the airport, remove the wheels from the baskets to avoid losing them and fouling the airline conveyors. You will want to have a plastic bag handy to carry the wheels in.

TRAVEL TO THE SHIP

Shipment of Gear

The observer carries the sampling baskets with him to the various ports whether traveling via auto, bus, train, or airplane. If traveling by plane, the baskets are normally transported as part of your personal luggage. Excess baggage costs may be avoided by careful planning and keeping the number of personal and equipment items at a minimum. Your personal baggage should not weigh more than about seventy pounds. Distribute baggage weight between your pieces of luggage so that no piece exceeds the weight limit of the airline with which you are flying. The usual procedure is to pay cash for the amount of excess baggage at the time of check-in, so it is very important to limit the amount of personal items and to allocate enough cash to pay for the excess baggage upon your return. (Excess baggage charges will typically run $200-250 from Dutch Harbor to Seattle.) Do not ship your baggage unaccompanied. You cannot do your job without your gear. If you get separated from your luggage, initiate a luggage search from your end immediately. **Do not board a vessel without your luggage even if you are told it can be brought out to you later.**

On the flight to the embarkation port, carry the observer training manual in your carry-on luggage. (Some extra sampling supplies are kept at Kodiak and Dutch Harbor but manuals are not easily replaceable.) On the return journey from the ship, pack your manual and carry the completed data forms with you. If these forms are lost, your whole trip is essentially wasted.

Expenses Incurred While Traveling

The contractor should inform the observer before departure, on the procedure for accounting for money spent while traveling from Seattle to the vessel and back again. While sometimes it may not be necessary, it is a good idea to save all receipts for transportation, hotels, meals, and other legitimate expenses. Be cautious in spending your travel advance. Costs are high in Alaska and observers are frequently delayed, both in getting on their ships and while in port between assignments. Some hotels and restaurants in Dutch Harbor do not accept credit cards but you can probably use them as identification for a personal check. If you have to pay cash for any excess baggage charges on your return flights, do not forget to allow enough money (and get a receipt). Remember, excess baggage charges from Dutch Harbor to Seattle can typically run from $200 - $250. Retain any unused airline tickets and turn them in to your contractor upon your return.

Transport to Port

Normally, airplane flights are arranged so that an observer arrives at the embarkation port at least one day in advance. This is often necessary since the weather is notoriously bad in certain parts of Alaska, and flights are often postponed. Delays caused by weather may be unavoidable, but it is important that the observer not be the cause of delays by missing the flights, or having his equipment miss the plane. If you **do** miss your flight, notify your contractor immediately.

Upon arrival at the embarkation port, follow your contractor's logistics instructions and stay in contact. Let your contractor or agent know of your whereabouts so that they can contact you if there is a last-minute change of plans. The observer program has offices in Dutch Harbor and Kodiak where you can get help if there is a problem and your contractor may have a permanent contact in port to help with logistics.

ARRIVAL ABOARD THE SHIP

Vessel assignments are arranged by your contractor with the vessel company. Logistic arrangements are also made by your contractor. Observers must be aware that fishing schedules are often changed by weather, mishap, break down or fishing success and these events often change observer schedules. If you find out that your ship's schedule is changing unexpectedly, call or send a message to your contractor explaining the matter. Do not make changes in your schedule yourself. Observer coverage of vessels is a large logistical "net." Movement in one part affects the whole and your contractor has logistical perspective that you cannot see.

Living Conditions Aboard Vessels

Conditions vary widely depending on the ship type and size, company and skipper's policies, and the fishing success. "Conditions" include cleanliness and upkeep, safety, comfort of quarters, quality of food, general attitude, and good personnel management. Of these, only accommodation equivalent to management level personnel and compliance to safety requirements and regulations is addressed by regulations for observers. Observers must be flexible as only a few generalities on what to expect can be made. Personal quarters are usually cramped. The most personal luggage one

should ever carry on is a duffle bag. When going aboard a shoreside delivery vessel, experienced observers recommend taking only a day pack or knapsack of personal gear. Petty theft may occur on some vessels. It is a good idea to have a small lock on your bag or at least to keep your valuable items, such as tape players and cassettes, out of sight when not in use.

Crews' quarters range from twelve to one per room. Catcher/processors will usually arrange separate quarters by sex but on catcher boats and small longline vessels, women observers may need to be quartered with men for lack of alternatives. In these cases, however, the work aboard is often so intense that no one has the excess energy to be concerned about gender differences. The observer must usually bring their own sleeping bag. Showers and laundry facilities (or laundry service by a steward) will be available on larger vessels. Smaller vessels may or may not have a shower. Laundry is done by hand or waits until port. Catcher/processor vessels will have cooks and routine meals available. Shoreside delivery vessels may have a designated "cook" and a meal may be prepared on the way to the fishing grounds, but once fishing has begun, the galley will probably just be open for "help yourself" food. If the fishing pace is hectic, observers may find themselves caught up in a little-or-no-sleep and "survive on coffee, candy and pop" routine until the return trip to port. Cigarette smoking inside is the rule rather than the exception.

Guidelines developed from experience are: show respect to others and it will be returned to you. Be a good neighbor. One way to accomplish this is to try to remain clean and neat. Clean up after yourself. Do your best to maintain your sense of humor.

Illness and Accidents Aboard

Each vessel that operates with more than two individuals on board must have at least one individual certified in first aid and one (or the same) person certified in CPR. Each vessel that operates with more than 16 individuals on board has to have two persons certified in each and with more than 49 aboard, four persons have to be certified in first aid and CPR (46 CFR Part 28.210). Where an injury or illness is not immediately life threatening, it is recommended that an observer not get involved in providing any type of treatment to crewpersons. However, if vessel personnel need additional assistance that you feel you can lend, or an injury is life threatening and you are the first responder, you should:

1) not interfere with the first aid help that is being given by others,
2) follow directions given by the Captain, follow accepted and recognized emergency care procedures, and only do what any reasonable, prudent person would do under the circumstances,
3) do not act without the informed consent of the patient, or if that is not possible, the Captain*;
4) do not leave the patient or stop care until relieved by a qualified and responsible person.

* Refer to manual appendix title: "First Aid Responder, Legal Aspects" for further information. When serious injuries or illnesses occur, it is up to the captain to decide when (or if) to return to port. Interim treatment and the decision to interrupt fishing can be aided by calling the Coast Guard and relaying symptoms to a medic or doctor. Refer to the appendix section title: "Medical Diagnostic Chart" for directions on relaying symptoms if there is no other medical aid arrangement for your vessel.

In case of an emergency such as an injury or illness requiring hospitalization, the vessel master will initiate a call to the Coast Guard and they will attempt a rescue and/or advise you on how to proceed. If it is you or another observer is involved, have the Coast Guard also notify an Observer Program office and keep us advised.

If you become ill, such as coming down with a severe cold or flu that inhibits your work, ***you must inform your contractor and NMFS*** of your situation just as you would if you were expected to show up at an office each day. If your illness gets progressively worse or continues to affect your performance over more than three days, your assignment may need to be changed (when possible).

Seasickness often hampers observers at the beginning of a cruise, but give it time - most of the effects of seasickness disappear after a few days. Seasickness occurs because, "information about the vertical line as it is received by the eyes is forever clashing with the information assimilated by our sense of position and sense of balance. When it comes to a conflict of sensations like this, the visual system almost always dominates. ...This perceptual conflict is one of the causes of seasickness. With time, however, one learns to perceive the 'perpendicular' which arises from the movements of the boat and the direction of gravity. Thus the body maintains its balance when upright and learns to ignore the conflicting visual data afforded by the interior of the boat and the horizon outside the window. Movements with low frequency and greater amplitude are more likely to make us ill than movements with a high frequency and smaller amplitude... Head movements in addition to the external motion stimuli serve to precipitate discomfort... There are additional factors besides movement which can precipitate the syndrome."[1] Indigestible stomach contents, unpleasant fumes or cooking smells, and anticipatory fear will trigger seasickness. The symptoms are nausea, headache, drowsiness, and depression. This is **normal**, it's just difficult to live with. Remember, no one ever dies of seasickness, but what can be a danger is weakness, so you must make yourself drink water or some non-acidic juice and try to eat some mild food (soda crackers are often recommended) to keep up your strength.

Take seasickness medication along even if you don't plan on using it. Dramamine and Triptone are trade names of the drug dimenhydrinate. This is a form of antihistamine which commonly causes drowsiness. Driving and hazardous activities are not recommended when taking these medications. Advertized as their less drowsy formula, Dramamine II is meclizine hydrochloride, as is Antivert and Bonine. Meclizine is also an antihistamine but the drowsy side effect is likely to be less and it's effect lasts longer. Marezine is the trade name of cyclizine; another antihistamine which may be restricted as a prescription drug. Taking capsules of powdered ginger is an herbal remedy for soothing nausea without sedative side effects. Sea Bands are two elastic bands each with a plastic bead that you wear with the bead centered on the inside of each wrist. This is the acupressure point for relieving nausea. These may alleviate mild cases or help those who wish to avoid medication.

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[1]Michael Stadler Ph.D., Psychology of Sailing (Camden, Maine: International Marine Publishing Co., 1987), p. 57 - 74.

The U.S. Coast Guard formerly used meclizine with moderate success. Then some research by the Coast Guard "found that a combination of two drugs, promethazine hydrochloride (an antihistamine, trade name Phenergan), and Ephedrine sulfate (a decongestant), was by far the most effective treatment available. Similar tests on Navy and Air Force personnel corroborated the Coast Guard's results. The recommended dosage is 25 mg of each drug one to two hours prior to motion stress, and at six-hour intervals as needed thereafter."[2] Promethazine hydrochloride is a prescription drug, may cause drowsiness, and cannot be used by pregnant women (none of the drugs mentioned here can). Ephedrine sulfate may aggravate existing cases of hypertension. Neither drug can be taken within 12 hours after ingesting alcohol. It is recommended that you take one dose of a motion sickness medication as directed before you leave the dock as taking the medication afterward will at least delay or may nullify effectiveness.

In addition, here are some guidelines for getting through a bout of seasickness actively. Stadler states that these actions will speed up the process of re-adaption:

"Try not to think about seasickness, put it out of your mind, force yourself to think of other things.
Take heart and build up your confidence.
Practice releasing the tension in your muscles; as soon as you begin to feel apprehensive try and relax (desensitization).
Avoid unpleasant smells (especially tobacco, damp clothing, and vomit). Stay away from the galley
Below deck: lie down, keep your eyes closed.
In the saloon: fix your eyes on a freely suspended object.
Seek out cool, fresh air and take calm, deep breaths.
Where possible, keep away from enclosed spaces, go up on deck.
Reduce the amplitude of the motion stimuli: keep amidships or astern, avoid the fo'c'sle berth.
Try not to sit and let yourself be rocked passively back and forth with the motion of the boat.
When standing, avoid leaning against anything; stand erect and make active compensatory movements to keep your balance.
Try to move your head as little as possible.
`Lock' onto the horizon; watch the swell and anticipate the movement of the waves
Participate in the normal duties on board.
At all events see a job through to the end, do not give up on it."

Determine that you will persevere through the mental and physical discomfort due to seasickness, do not dwell on fear. It is simply a matter of adjustment. If severe discomfort persists for more than five days let your contractor know. They can arrange for the vessel to drop the observer off onto a transport boat or at the nearest port, but this is done only for extreme cases.

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[2]Wayne Haack, Motion Sickness (Sea Kayaker magazine, Summer 1986).

Safety Aboard Vessels

Fishing vessels have many potentially dangerous areas. Extreme care should be taken to avoid injury. The following points must be adhered to while on the vessel:

1. The first day aboard, find and read the station bill which is a placard with instructions on what to do in case of an emergency. Note where the lifeboats, life preservers, and other safety devices are kept. Memorize the exit route from your cabin, the factory, the galley, and other locations where you spend a fair amount of time. Keep your survival suit where you can get at it in a hurry.

2. Observers are required to wear a hard hat, life vest or other flotation and boots when on the weather deck for any reason.

3. Be cautious whenever wading through fish since fish spines (especially rockfish) can penetrate rubber boots and cause painful wounds to the feet.

4. Apparel with loose strings or tabs should be avoided, as they might become caught in the equipment or belts. Long hair should be tied back and jewelry such as rings should be avoided as they can also get caught in machinery.

5. Don't run aboard ships, particularly up stairwells. Always hold handrails in stairwells and ladders. Slipping, tripping, and falling are the most common sources of observer injury. These accidents often happen when an observer is in a hurry. Specifically, watch out for slick spots where the deck is wet and oily or frozen, step carefully over the half-foot combing rising from the bottom of metal latch doors and passageways, and look out for low overheads in vessel stairwells and watertight doors.

6. The observer should not stay outside on the aft deck during rough seas. An observer has been swept forward over a trawler's winches by waves sweeping up the stern ramp. When the observer is outside, he/she should remain in full view of a second party at all times.

7. Trawler's cables that break under strain have maimed and killed sailors. Whenever a cable is subjected to tension, stand in a place where a backlash would not hit you. If your sampling station is on deck, don't work while a trawl is being set or retrieved; interrupt your work to go to a safe place during the process. Explain to the deck boss your need to watch the haul-back for marine mammal interaction and, when the winches have stopped fully, to go out on deck for codend measurements and ask where would be a safe place to stand. When nets are being hoisted off the deck, stand well clear. Heavy nets have fallen near observers when the suspending cables parted.

8. When working near the exit chutes in the factory floor, where bycatch and factory offal wash out, the observer should be extremely cautious not to slip and fall in the wash of bilge water.

9. Observers are cautioned not to pry loose any fish caught in the chinks of slat or rubber conveyors, since this may result in getting a finger or hand mangled in the machinery.

10. Factory processing areas are crowded with machinery, electrical lines, and conveyor belts. It is often difficult to get to the area where an observer needs to sample because of the maze of equipment. Climbing over, under and around heading, filleting, and skinning machines on oily and wet floors especially at sea in rough weather is extremely hazardous. Observers must watch carefully where they step and where they grab for handholds.

11. The observer should ask the skipper to notify the U.S. Coast Guard should an injury or illness occur to him/her which requires immediate hospitalization. The contractor should also be notified and, when possible, all details should be recorded in the observer's log for documentation.

12. Treat all minor cuts, especially those on hands, with antiseptic to avoid infection from fish slime. Poisoning from fish slime is called cellulitus and is a form of staph infection. Should a staph infection be left untreated and allowed to develop, your lymphatic system becomes involved and the threat to your health becomes much more far-reaching than simply a pair of inoperative hands. Wash hands thoroughly after sampling in a solution of very hot water and an antiseptic such as betadine or providone iodine (1-2 oz. per qt. of water). Disinfectants such as Clorox, Lysol or Purex tend to sap your skin's natural chemicals and prolonged use may make you even more vulnerable to fish poisoning.

13. Take extra precautions against infection, such as new gloves, when collecting specimens from marine mammals. As these animals have similar biological systems to our own, organisms which infect them can infect us. "Seal finger" is a fungal infection of the hands which can easily be contracted.

14. Ask ship personnel which water sources are safe to drink. Some ships have lines containing water for washing and not drinking.

Safety in At-Sea Transfers

Observers will normally board and disembark their vessel at dock, but a transfer at sea may be necessary in certain circumstances. Transfers between vessels are potentially hazardous, especially in rough weather. The observer must assume responsibility for deciding whether or not to transfer based upon their own evaluation of the transfer conditions.

There are no hard and fast rules for allowable safety limits during transfers. Conditions such as mode of transfer and vessel size, swells versus waves, current and impending weather, good visibility and distance to cross affect the decision as to whether or not to transfer. Observers must use their best judgment. Be cautious--not foolhardy. Do not be forced into transferring against your better judgment by an anxious or impatient captain. Review "Vessel Responsibilities" for transfer of observers at sea, items 9 to 12, page 1 - 10.

Whenever possible be preceded or accompanied by a crewman. Always go with an experienced crewman if you are transferring in a small boat or raft. Never transfer via a small boat if you can't see your destination. If boarding a small skiff or inflatable boat, see that the engine has

been started and warmed up, and that there are oars stowed as a backup. As general guidelines, do not transfer at dusk, in darkness, or in any other low visibility conditions. Transfers involving a small boat or raft should never be carried out at night. Observers should not transfer when the sea state is two meters or more. An ADF&G crab observer and two crewmen died when their small transport skiff overturned in rough water. Points to remember when transferring:

1. Observers will wear life jackets at all times on skiffs or other small-sized vessels and while transferring.

2. Observers will not encumber themselves with baggage when transferring vessels. Balance is important. Both hands must be free during transfers.

3. All baggage will be secured with lines and transferred via rope lines or cargo nets. Observer baskets have been lost overboard because they were thrown between ships without lines attached.

4. Given a choice between using a Jacob's rope ladder or a gangway (a stairway ramp) to board a ship, in most cases use the Jacob's ladder since the use of a rigid gangway in rough seas can be extremely hazardous to the observer and to the transfer boat.

5. If a cargo net, transfer basket, or cage is used to transfer observer or baggage, make sure that a line is attached to the conveyance from both vessels for greater control and to reduce swinging. The observer should maintain a crouched (knees bent) position as opposed to sitting or standing with straightened legs, to avoid back injury. Be sure to wear your hard hat in addition to your lifevest when using this mode of transfer. Keep your arms, particularly elbows and fingers, inside the conveyance when transferring

First Days On Board

As quickly as possible, the observer should adapt to the new surroundings, meet people, and make preparations for work. If there are hours before your vessel leaves the dock, or at least on the way to the fishing grounds, you should have a meeting with the captain. Cooperation from the captain, mates and crew is essential in many instances in order to obtain the unbiased samples the observer needs for his work. It is important at this meeting to set the tone for a friendly but business-like working relationship. If the captain is receptive, take this opportunity to mention the following points:

1. Tell the captain that you want to routinely see the ship's fishing logs.

2. On catcher/processor vessels, inquire as to how to send the weekly catch messages.

3. Ask to be informed, in advance, of changes in the fishing schedule so that you may adjust your schedule accordingly.

4. If you would like to take pictures of the bridge, decks, or factory, request the captain's permission. You do not need permission to photograph fish, birds, marine mammals, etc. as that *could be* considered part of your duties.

5. Ask to be notified if any marine mammals are found in the catches; request that mammals be held for your examination. If possible, sightings of marine mammals would also warrant notifying the observer.

6. After having done your own survey of safety equipment and instructions ask the captain additional questions. Ask about the location and operation of the EPIRB(s) on board; what are the procedures on board in case of emergency such as fire; where is the VHF radio and how does it operate; what are the working channels of nearby vessels; are there any hazards that you should be aware of?

During the first few days aboard a catching and processing trawler, as you familiarize yourself with life on board, initiate your work by noting the following:

1. When the deck is inactive, perhaps on the way to the fishing grounds, make measurements which will aid you in estimating codend dimensions. Then watch the net retrieval and handling. Decide when and where you will need to take additional measurements and who to enlist for help.

2. 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 and whether different hauls are mixed in the tanks.

3. Notice where the catch is sorted by species and size and what is the destination of fish on each line of conveyor belts. What products are being made?

4. Consider the location of your sampling station. Remember, you have to be present at or ahead of any sorting area. If at all possible, avoid having to haul baskets of fish long distances or up or down stairs. Basically, you need a place where you can gather your samples, have a few baskets of fish around you and a place to hang your scale. Adequate lighting will be necessary and you'll need to locate the nearest hose for cleaning yourself and your area.

5. Try collecting one or more baskets of fish. Familiarize yourself with the species being caught, start writing species descriptions and practice using the keys. Practice sexing the target species and/or other species that will have to be sexed for your work.

6. Work out routines for sorting, weighing, and counting fish.

7. Get started with the most obvious methods for making catch weight estimations and determining sample weights. Then after your work is underway, consider variations or other methods which may improve your sampling or be contingency plans should the catch composition change.

On board a catcher-only trawler, the operation is much simpler and an observer has less opportunity to get oriented as only a few tows are made each trip. Do your best to find or rig a place to weigh fish. Ask where the last observer weighed fish. Ask what they'll be fishing for and get an idea how diverse the catch will be. If they sort on deck, ask which fish go where. Let the skipper and crew know you'll need to take a few quick measurements of the net. Get any deck measurements you can before fishing begins.

As retrieval begins, get yourself and your sampling tools ready. When fish are dumped, watch what's happening all around you as you go to grab a couple baskets of catch. Learn quickly where you can be and where not to be! Watch how they handle the catch. Then you can get some identification and sexing work done while figuring out and practicing your sampling methodology for the next tow.

OBSERVER OBJECTIVES AND GENERAL INSTRUCTIONS

The main work objectives of observers are to record fishing effort information from the ship log, record any incidental take of marine mammals, make independent estimates of catch weight, determine the catch composition, estimate percent retention of catch species, collect biological data on prohibited, target, and other species and monitor for compliance to fishery regulations. Secondary objectives include marine mammal and bird observations, and working on special study projects which may be assigned.

Since ship design and procedures vary from ship to ship, in many fisheries it will be the responsibility of the observer to select the best sampling methods to obtain the needed data. In the following sections, the methods of sampling will be outlined. To use any of the prescribed sampling methods, the observer will be relied upon to devise and apply good, statistically sound, fish collection techniques.

When conducting biological sampling, the most important thing to remember is to take random, unbiased samples such that your data will be representative, not of any particular catch but of the vessel's catches over time. We stress the taking of random samples in all data collections. Accuracy is important in all aspects of the work, including: the physical sampling, recording the data on plastic sheets, transposing the data on the plastic sheets to the final copy, and correctly summing and transposing data for the weekly catch reports. The need for random, unbiased sampling and accuracy cannot be over stressed.

SAMPLING DUTIES FOR VESSEL OBSERVERS

Every Haul, Delivery, or Set: (numbers in parentheses represent order of priority, where one is the highest priority.)

(1) Obtain or compute haul, delivery or set data on fishing location, effort, and catch. (Form 1US or 2US).

Make an independent estimate of haul weight (Form 2US) from as many hauls as possible, but aim for at least 3 per day--estimates should be made of some hauls that were not sampled as well as of sampled hauls. Making observer estimates may be less important than sampling for species composition when they are not being used as the Official Total Catch.

Sampled Hauls, Deliveries or Sets:

(3) Sample for species composition of catch (Form 3US). Observers sampling trawl catches sample according to the random sample table schedule, longline and pot vessel observers sample most of the sets retrieved each day.

Estimate percent retained per species (non-prohibited species only) for each haul or set sampled (3US & CMA Form).

Record incidental take of seabirds (3US and observer logbook).

Monitor randomly selected hauls or sets for marine mammal interactions or incidental catch (Form 1US or 2US). Usually marine mammal monitoring can be accomplished while composition sampling on a longline or pot vessel and while watching for presorting of catch on a trawler. If not, sampling for catch composition and subsequent biological sampling takes precedence.

(6) Identify to species and sex all the salmon, king and Tanner crab in your composition sample if possible, or take a random subsample for sexing (Form 3US).

Collect scales from salmon in your samples for species confirmation and ageing (Form 9US).

Check salmon for missing adipose fins or other fin clips or marks, and other fish and crab for tags. If you collect a tag be sure to record all pertinent data as requested under "Collecting Tagged Fish and Crab Information" in the Appendix of this manual.

Take length measurements of all salmon, king and Tanner crab in your composition sample (Form 7US). When incidence rates are high, take a subsample such as every third one. A subsample should be of at least 20 fish or crab. Additional crab measuring is specified in two circumstances.

Measure lengths and estimate viability condition of halibut from the hauls sampled for composition (Form 7US).

Every Day:

(7) Take sexed length measurements of the target species (Form 7US). Measure about 150 randomly collected fish per day of the one (or possibly two) sample species. If it's not possible to measure that many, do as much as you can but do not drop this task altogether unless instructed to do so.

(8) Special study projects may be assigned. Examples of some projects are: collecting otoliths or scales for ageing, stomach content samples, catch density sampling, maturity sampling of a species, or studies on sample methods and variance. Some projects may be placed at a higher priority in the observer's duties. Conduct work according to directions given. Data for some of these projects are recorded on form 9US.

(9) Observer logbook entries -- Record <u>all</u> catch estimate calculations. Sampling calculations not recorded on the 3US worksheet must be recorded here. Maintain a record of daily notes. Make a record of sampled hauls and communications.

Weekly (or Daily if requested):

(4) Send a summary of fishing effort, catch composition information, and halibut viability sampling to the Observer Program office in Seattle (1US or 2US, CMA, CMB, Halibut Inseason Viability Form). If daily messages are requested, the content will be specified.

Upon Occurrence:

(2) Record species, numbers, condition, and circumstances of any incidental mammal catch. Collect specimens (canine teeth) according to instructions (Form 10US).

(5) Observe the compliance or lack of compliance to specified U.S. fishing regulations and document suspected violations to those regulations when observed (Observer logbook).

(10) Record sightings of marine mammals (Form 11US) and birds (Observer logbook).

Per Vessel:

Also in the observer logbook -- make sampling area diagrams.

OBSERVER LOGBOOK ENTRIES

Completing an observer logbook is required of all observers. As with your data forms, this documentation is the property of the NMFS and anything which you record may be released with your name (after debriefing) to the vessel owner upon their request. Assume then that this is a public document. Do not use it as a personal diary or as a place to vent personal frustrations or make offhand, slanderous, or sarcastic remarks.

From the logbook table of contents, the sections are:

- Sampling area diagram
- Catch estimates / Calculations
- Trawl observer's sampling record
- Communications record
- Scale Verification
- Seabird record
- Daily notes

Under Daily Notes, you should not make comments on non-work-related subjects such as the race, color, age, religion, or sexual orientation of any crewperson. Do not characterize people, particularly in derogatory terms. This will only be taken as an indication of *your* bias. Instead, substantiate your observations by describing factually and impartially what you saw, what happened, and what was said. *Do record* anything which affects you personally or in your work.

Appropriate entries for daily notes include: Problems that occurred while fishing, any difficulties you may be having, what circumstances dictated your choice of method for total catch estimation and for sampling, notes for your final report answers, notes on your assigned special project or any other project concerning observers, comments on unusual catch, details on sorting criteria, processing, product types, or record keeping. Record the circumstances of these possible violations: observer interference or harassment, handling and/or retention of prohibited species, harassment of marine mammals or retention of marine mammal parts, illegal dumping under Marpol regulations, and violations of careful release standards for longlining vessels.

Documentation is different than technical (or creative) writing. Your original notes are filed in an archive for *years* as a reference and may be needed as evidence. We cannot rely on your memory of details of events. Realize that your audience may be a judge who has never been on a fishing vessel or a researcher who knows very little about the observer program. Explain it to them! For these reasons, all written comments should be in ink, and any events that are recorded should be in chronological order. (See also the section on "Steps To Take If You Suspect A Violation.") If a correction must be made, draw a line through the incorrect word(s) instead of erasing or blackening them out. Do not use any correction fluid or tape. Do not tear out any pages or parts of pages. When making a diagram or documenting a calculation, label each part properly. Use your logbook for all original calculations. Do not use scratch paper and then copy entries into your log. Take special care to safeguard it against loss and tampering.

GENERAL INSTRUCTIONS FOR DATA FORMS

Observers occasionally have to be inventive to overcome sampling problems, but once the data are ready to be transferred from the plastic on-deck sampling forms to the paper keypunch forms, all creativity must cease. Data from hundreds of cruises a year have to be processed, analyzed, and summarized, and there is no way to footnote data from a particular cruise after they are compiled. Thus, certain data columns always have to be filled in and only specific characters will be recognized by the computer program. On paper forms, printed decimal points have to have at least a zero filled in behind them, and decimal points must be entered by observers in other cases. Refer to specific directions and examples for each form. If you do need to make a note to alert us to make a decision on some of the data, place the comment on a portion of the form which is not keypunched.

The forms should be neat - all the numbers should be precisely printed in conventional Arabic numbers so that they are readily legible. Sloppy forms multiply the number of keypunch mistakes and sometimes require guesswork to interpret. Use a sharpened *pencil*, not a pen, to fill out all forms so that erasures can be neat if changes have to be made. Brackets and arrows (refer to example forms) can be used to indicate that the numbers in a column are to be repeated. Ditto marks *cannot* be used to repeat a number in key punch columns. Enter numbers to the right margin (right justification) in wide data fields of the forms.

Much of forms 1US, and 2US should be filled out from the ship's fishing logs. Observers should take care to record the correct information and avoid making copying errors. All sampling data require the vessel position data on these forms, so if these are missing, other data cannot be used.

Cruise Numbers And Vessel Codes

A "cruise" number is assigned for each observer contract and the observer program also assigns a vessel code to each boat. Therefore, the cruise number and vessel code combination identifies each observer's work assignments individually. The vessel code is for our program use only and does not have anything in common with the ADF&G boat number, the permit number or the processor code. Each of these identifiers has a specific use and observers must be careful to record the specific identifier asked for! Cruise numbers and vessel codes will be given to you at the end of the three week training or during pre-trip briefings. **Maintain separate sets of each form type for each boat (and year)** and mark your name and the ship's name on the first page of each type of form for each boat or plant.

Multiple Cruise Numbers

1. Sampling over the change to a new year -- There are two instances when you would have more than one cruise number for a trip. One is if you are sampling in December and continue to work on that assignment into the new year, you will be assigned a new cruise number for the new year's data. Start a new page for each set of forms and start their numbering again from page one as of January 1st (0000 hours, between December 31 and January 1). For the weekly report, the week ending date of the last week of December is December 31st. The first day of the first week of the new year is January 1st.

2. When a vessel fishes with more than one type of gear -- The second instance when two cruise numbers would be assigned to one observer contract is if a vessel uses two different types of gear such as a trawl net and cod pots, either simultaneously or one and then the other. The observer should keep separate sets of data forms for the samples from each gear type, separate catch summary forms (the 2US and 1US forms), separate sets of composition forms, etc. It would be very important to sample catches from each type of fishing each day it occurs. These instructions **do not** pertain to the different types of trawl nets but only to trawl versus longline versus pot gear, etc.

Page Numbering

On the top of each sheet of each form is a phrase "page ___ of ___." This helps to keep the forms in order and alerts us to a missing sheet. Keep a separate set of data forms for each boat or plant worked. Each type of form (i.e., 2US, 3US) within that set will have its own consecutive page numbering. Enter the first number as you do the daily forms and fill in the second number after the sampling work for that boat or plant is complete. For example, if you used 58 Form 3USs on a boat, then the first sheet will be page 1 of 58 and the last sheet will be page 58 of 58. Form 9USs are further subdivided by species so that you may have a page 1 of 10 for king salmon scales, a page 1 of 3 for coho salmon scales on one boat and then a page 1 of 5 for king salmon scales on your second boat.

Decimal Places in Computations and The Rounding Rule

Leave a floating or full-field setting on your calculator and do not use values rounded to less than four places in your calculations. In your observer logbook, note on the first page of calculations and each time it changes, the number of decimal places used in computations. On our data forms, most weight entries are required to two decimal places. For logbook documentation it is preferred that you record: 1) the procedure or formula used, 2) the original weights (or numbers) labeled as to units and species and, 3) the results to four decimal places.

For example: Proportioning Delivery Weight To Individual Hauls. (Note: derivation of the delivery weight must have been detailed previously.)

Haul No.	Deck Estimate			Delivery Wt. (All spp.)		Proportioned Delivery Wt.
1	45.57 mt	÷ 154.27 mt	x	145.4567 mt	=	42.9666 mt
2	30.12					28.3993
3	53.22					50.1796
4	25.36					+23.9112
	154.27 mt					145.4567 mt ✓ (math check)

Please notice: If in haul 1 above, the ratio of deck estimates was rounded, 45.57 ÷ 154.27 = .30 x 145.4567 = 43.40 mt. Compare this to 42.9666 mt -- a significantly different value!

"Computations carried out on an automatic desk computer are so simple that it is very possible that the final result of a sequence of calculations will appear more precise than it really is.

Rules concerning numbers of significant digits resulting from the application of the arithmetic operations are available but somewhat impractical. In most statistical work, it is best to carry more figures, say not less than two extra, into the final computations than seem necessary and then to round the result to a meaningful number of digits, relative to the accuracy of the original measurements."[3]

For density calculations, your measurements may be to .1 or .01 meter and weights from the fifty kilogram scale may be read to .2 kilogram. Also, on this program's data forms, nearly all weight data are entered to two decimal places, so it makes sense to keep all intermediate calculations, such as average weights of fish, out to at least four decimal places (or preferably full field all the way through) and only round to a meaningful (or required) number of decimals for the final data entry.

Observer Program Rounding Rule:

≥ 5 is rounded up, ⟨ 5 is rounded down.

Example: rounded to two decimal places: .52499 = .52

(When rounding, look only at the first digit to the right of the place you are rounding off at. In the example above, since we are rounding off at the hundredths, we would only look at the "4" and thus leave the "2" as it is. We would not look at the "9" and change the "4" to a "5" and continue to round the "2" to a "3" thus getting an answer of ".53.")

Reminder: to increase a number by a percent, do not multiply the number by 100 plus the percent. Instead, divide the number by 100% minus the percent. Example:

120 is 70% of what number? We need to increase 120 by 30% but do not multiply 120 x 1.30.

120 ÷ .70 = 171.43 correct

120 x 1.30 = 156 incorrect!

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[3]Robert G. D. Steel and James H. Torrie, Principles and Procedures of Statistics With Special Reference to the Biological Sciences (New York: McGraw-Hill Co., 1960), p.30.

HAUL SUMMARY FORM 2US FOR U.S. TRAWLERS

OBJECTIVE:

Ascertain and record the best information available on fishing effort and catch. Catch per unit of effort, the type of gear used, where in location and depth that gear is deployed, and who's doing the fishing are the basic pieces of information fishery managers need to monitor and control the harvest of the public resource. "Fisheries" management is not management of fish as much as management of the fishermen and our use of the resource. Haul summary information is the basis of all the rest of the data gathered aboard a vessel. If this form is not complete and correct, the rest of the data collected cannot be used. The collection of haul summary information is the top priority for an observer. All subsequent sampling data for a vessel are tied to the Haul Summary Form with the date and haul numbers. Be certain your haul and date correlations are correct on this and all other forms.

Topics:

HAUL SUMMARY FORM 2US FOR U.S. TRAWLERS ..... 2 - 1
- FORM 2US - EXAMPLE ..... 2 - 2
- FORM 2US--HAUL FORM INSTRUCTIONS ..... 2 - 3
- VESSEL FISHING AND CUMULATIVE PRODUCTION LOGS ..... 2 - 9
- OBSERVER ESTIMATES OF TOTAL CATCH ..... 2 - 9
  - Methods for Observer Estimates of Codends ..... 2 - 10
  - Density Sampling ..... 2 - 12
  - Observer Estimates by Bin Volume ..... 2 - 14
- CATCHER-ONLY TRAWLERS
  - OFFICIAL TOTAL CATCH WEIGHT ESTIMATION ..... 2 - 16
  - Methods and Considerations ..... 2 - 16
  - Estimating Discards On Catcher Vessels ..... 2 - 16
  - Obtaining Delivery Weights ..... 2 - 17
  - ADF&G Fish Tickets ..... 2 - 18
  - Proportioning Delivery Weights ..... 2 - 19
- CATCHER/PROCESSOR TRAWLERS
  - OFFICIAL TOTAL CATCH WEIGHT ESTIMATION ..... 2 - 21
  - Methods and Considerations ..... 2 - 21
- 1996 PROCESSOR CODE LIST ..... 2 - 23

FORM 2US - HAUL FORM FOR U.S. TRAWLERS

Page 3 of _____ for vessel

List of catcher boats for motherships

Cruise number	Vessel code	Year	Full name of catcher boat	ADF&G #
4011	A110	97	Aleutian Challenger	50570

Observer name Jane Observer

Vessel name Sea Peace

Page _____ of _____ for transmission

Plant/Processor name	Location	Processor code #
Best Seafoods	Dutch Harbor	F0909

534 ORC

Hauls sampled for composition	Date: Month	Date: Day	Haul #	Monitored for MM?(Y/N)	Gear type	Gear performance	Vessel type	Location code	Haul or Delivery position: Latitude (N)	E or W	Longitude (100)	Fishing times in ALT: Nets on bottom	Nets off bottom	Fishing duration (minutes)	Average fishing depth	Average bottom depth	M or F	Avg. speed (knots)	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	B or C	Density used in mt. per cubic meter	Vessel's Total Catch Estimate in metric tons	Catcher boat's ADF&G #	Processor code	CDQ/IFQ number
✓	09	17	101	Y	1	2	3	R	5838	W	7624	2315	0525		130	130	F	3.5	16.00	.		.	16.00		F0909	
✓	↓	↓	102	Y	1	1	↓	↓	5837	↓	7630	0610	0920		135	135	F	↓	8.22	8.22	C	.88	7.50		↓	
✓	↓	↓	103	Y	1	5	↓	↓	5838	↓	7627	1015	1145		140	145	F	↓	0.00	0.00	C	.	0.00		↓	
✓	09	17	104	Y	1	1	3	R	5838	W	7624	1635	1830		138	138	F	3.5	18.64	18.64	C	.90	20.00		F0909	
																		.	.	.		.	.			
	09	18										Delivery to Best Seafoods								.		.	.			
																		.	.	.		.	.			
				↑ A CATCHER VESSEL ↑																						
												↓ CATCHER/PROCESSOR TAKING OUTSIDE DELIVERIES ↓															
																		.	.	.		.	.			
	08	31	0					N	5726	W	6553	No Fishing - Rough Weather							.	.		.	.			
																		.	.	.		.	.			
✓	09	01	48	Y	1	1	1	R	5759	W	6531	2215	0045		50	50	F	3.5	22.34	22.34	C	.89	20.00			
✓	↓	↓	49	Y	1	1	1	R	5751	W	6531	0730	0915		52	52	F	2.5	17.53	17.53	C	.87	15.00			
✓	↓	↓	50	N	1	1	1	R	5751	W	6554	1000	1218		68	70	F	4.0	43.21	43.21	C	.98	35.00			
✓	09	01	51	Y	1	1	1	R	5746	W	6551	1440	1730		66	70	F	4.0	54.41	54.41	C	.93	58.00			
																		.	.	.		.	.			
	09	02	52	N	1	9	2	R	5746	W	6550		0730	120	70	75	F	4.5	44.24	44.24	C	.93	45.00	50570		
																		.	.	.		.	.			

Revised 1/1/97

* Zipper opened

FORM 2US--HAUL FORM INSTRUCTIONS

This form summarizes fishing effort and total catch by haul for catcher-only trawlers, catcher/processor trawlers and motherships. *Observers on floating processors which pump the holds of catcher boats and observers at shoreside plants do not fill out 2US, but fill out the Form A - Plant Delivery Form instead.* (Refer to the Plant Sampling section of this manual.) Obtain the data for 2US forms from the ship's logs, from vessel personnel, and from direct observation. Vessel logbook information may need to be corrected on your 2US if it is wrong or not recorded according to the instructions below. Check carefully to see that no errors are made in copying the data to the forms and that the data are reasonable. Points to note in completing the 2US are:

1. **An entry must be made for every day you are assigned to the vessel.** Start your entries with the day you put your gear aboard and end them on the day you disembark with all your gear. Skip a line between each day's entries. Each delivery or day in port must be noted on a line of 2US. Observers on catcher boats should use one line to note a delivery even if there are also hauls made on that day. Make certain that you record all the hauls. **Do not** make the mistake of recording only the sampled hauls.

2. **Heading:** The identifying cruise number and vessel code will be given to you prior to deployment, in training or briefing. Each vessel you are on will have a different vessel code. Keep data for each vessel separate. For "Year" enter only the last two digits, such as "97."

3. For each fax transmission of 2US data forms to NMFS, you will need to enter an ORC (Observer Routing Code) number in the box above the date and haul number columns (one per transmission). The ORC is a three-digit security code entry which will be explained to you in training.

4. Place check marks in the first column to indicate which hauls you sampled for species composition.

5. A given haul number should be used only once - no duplicates. The haul numbers should usually be in numerical sequence. Observers on pair trawlers and mixed gear types may need to skip haul numbers and if this is done, a general explanation should be written on the head of the form and a specific explanation on a separate line at each occurrence. Haul numbers must be in ascending order.

   All hauls must be recorded unless there was a gear malfunction resulting in a zero catch. If a zero catch is not due to a gear malfunction then the haul must be recorded. A haul number must be assigned to every haul. Haul number "0" is only used for a non-fishing day where the vessel was at sea at noon. The haul number field is left blank on days spent at moorage.

6. Under "Monitored for marine mammals" enter a "Y" or "N" to indicate which hauls were randomly selected and monitored.

7. Enter a code for trawl gear based on the configuration of the gear, not whether it's fished midwater or on the bottom. If you are on a vessel using trawl gear not listed, please contact NMFS for directions.

Gear code 1 - Non-pelagic trawl - any trawl net towed by one vessel which does not meet the configuration specified for a pelagic trawl net (in the fishing regulations section of this manual under "Definitions").

Gear code 2 - Pelagic trawl net - The pelagic net definition is in the fishing regulations section of this manual under "Definitions."

Gear code 4 - pair trawl - A trawl net (usually a large pelagic net) towed between two vessels. Each vessel has one of the two warp cables and no doors are used. The catch is landed aboard one of the two vessels.

Gear code 5 - shrimp trawl (sampling instructions in manual section 7)

8. Enter the gear performance code:

1 - no problem
2 - problem--crab pot was in the haul
3 - problem--net hung up on some bottom obstacle (vessel had to back down)
4 - problem--net ripped
5 - problem--other problem, put a note of explanation on a non-keypunched part of the form 2US.
6 - problem--trawl net or codend lost, longline cut, skates or pots lost
9 - shortwiring occurred.

"Shortwiring" means to haul in the main wire to bring the net up out of the fishing level but not out of the water. The trawl doors may or may not be brought up to the stern. The vessel continues to tow to keep the fish corralled in the net until haulback. The towing speed may be reduced. Shortwiring (1) may be done by a catcher boat for a mothership to hold the fish in good condition until delivery, (2) may be done to keep the warp cables from tangling when turning the ship around, or (3) may be done to raise the net to see the amount of catch.

9. Enter the code for vessel type. This code identifies how the vessel received and processed fish for any given tow. The codes are:

1 - Catcher/processor (c/p). This vessel caught and processed its own catch on this tow. Catch is stored in a *freezer hold* aboard.

2 - Mothership. This vessel received **unsorted** catch in a codend transferred from a catcher vessel on this tow.

3 - Catcher-only vessel. This vessel caught its own fish and retained it for delivery to a processor (shore-based or "floater"). On board, the catch is kept on ice or in RSW (refrigerated seawater) tanks, not frozen.

4 - A mothership or catcher/processor is receiving this tow as **sorted** (or *potentially* sorted catch from a catcher vessel. (Catch was transferred by brailer or by pumping; any method other than by codend transfer.) Sorted catches should not be sampled by the observer.)

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

If a catcher/processor (c/p) vessel also acts as a mothership, fill out only one set of 2US forms as shown in the bottom half of the example 2US form above. The two types of catches are indicated by the "vessel type" column entry. In this case, make entries on *separate sets of catch message forms* according to vessel type but record only one set of 2US forms.

10. For the location code, enter R if the location is a retrieval position, and N for noon position entries on days at sea when no tows were completed. (See item 11. below.) Observers on motherships should enter "R" and retrieval positions if at all possible. If retrieval positions are not available from the catcher boats, enter "D" and the position of the mothership at the time of delivery. The location entered **must** correspond to the location code type.

[Note for Mothership observers: Deliveries of catch will often not be made in the order in which the nets were retrieved on the various catcher boats. The retrieval time determines the date of the catch just as with catcher/processor vessels, but on the Form 2US for a mothership, the fishing times will not be sequential. Recording the catches in order of delivery or retrieval time is all right as long as each catch is attributed to the correct date according to retrieval time and the dates are sequential. The only lines of data on 2US which may require reordering are those for deliveries around 0000 hours.]

11. **Noon positions:** Do not enter noon positions for days when the vessel was in port (or bay or harbor) at noon, waiting to deliver, picking up parts, or whatever. **Enter a noon position only if there were no hauls completed on a day *when the vessel was at sea at noon*.** This is usually due to bad weather, mechanical breakdowns, or traveling to or from port. Then enter "0" in the haul number column, a location code "N," and the noon position according to Alaska Local Time (ALT). On the remainder of the line, comment on the reason there was no fishing. **All days aboard must be accounted for with fishing information, a noon position, or a note for days in port (see item 1).**

12. For mothership observers, information on gear type and performance, retrieval location, fishing times and/or fishing duration, fishing and bottom depth, and average towing speed has to be obtained from the catcher boat skipper. This may be accomplished by talking to

the skipper on the VHF radio after the delivery is complete, that is, when they are no longer busy coordinating the delivery maneuvers.

13. The location entered should be the haul retrieval position - the location of the ship when a particular haul is begun to be retrieved, i.e., when the winches begin bringing in the cable. (For a mothership the location entered may be a delivery position if retrieval positions are not available.) Check the latitude and longitude for all positions entered on 2US to make sure that they are reasonable, i.e., 58°63′ does not exist; double check positions that indicate large movements if you have not been aware of any. Plot a few positions on a chart yourself to verify that they correspond to where you believe yourself to be. The first digit of longitude (1) is understood, so record only the following digits. Each haul must have a position. On non-fishing days at sea, record ALT noon position in these columns.

14. The time system used (on this and all other forms) should be Alaska Local Time (ALT) and dates. From the last Sunday in April through the summer to the last Sunday in October, entries should be made according to daylight-saving time. Times must be recorded according to the 24-hour system.

15. A haul is assigned to a day according to the time the net is begun to be retrieved from the fishing level (nets off bottom time), which is not necessarily the same day the net was set or the day that you sample. Thus, hauls retrieved before 0000 hours are attributed to the previous day, and hauls retrieved on or after 0000 hours are assigned to the next day. For mothership observers, who can't get retrieval times from catcher boats, estimate the day of retrieval to the best of your ability.

16. "Nets on bottom" refers to the time that the net first reaches the fishing level and the winches stop paying out cable. The time when net retrieval is begun is recorded under "nets off bottom." ("Bottom" in this context refers to the fishing level rather than the ocean floor.)

    Note: Substantial time spent shortwiring should not be included in fishing effort. **If the fishing duration is substantially less than (by ten minutes or more) the difference between the on and off bottom times, record only the duration and off bottom time** (refer to item 19 below).

17. All 2400-hour notations should be changed to 0000 hours. If this occurs in the "nets off bottom" time, the date should be changed accordingly.

18. Double check haul times to see if they are reasonable times for your vessel. An overlap in haul times for two hauls is an obvious error.

19. You do not need to enter fishing duration for trawl effort unless a catcher boat is splitting a catch and the fishing effort also has to be divided (call Seattle office for instruction); you cannot get one or both of the fishing times; or shortwiring occurs. (Shortwiring requires a code "9" in the gear performance column.)

20. Average fishing depth and average bottom depth can be recorded in either fathoms (more likely) or meters, depending on their preference. Both depths must be recorded in the same unit of measure. Try to obtain both depths as that will indicate whether the net was fishing on or off the bottom. Record depths to the nearest whole number; no decimal values please. In the next column to the right, be sure to label the depth information as fathoms or meters.

21. Record the average trawl speed to tenths of a knot. Trawl speed is not recorded in the NMFS vessel logs so you will have to ask the bridge personnel for this information. Ask whether they ever change their average speed of towing and under what conditions. Be mindful that changes in gear, area, depth or target may require a change in average towing speed.

22. Official total catch (OTC): according to the observer's judgement, this is the best estimate of total catch weight (round weight, all species included) for each haul. All subsequent uses of haul weight by the observer and in the observer program data base will use these figures. Thus, it is the "Official" Total catch. There must be an entry of OTC for every haul recorded on the 2US form. The entry must be made to two decimal places.

    Occasionally, large items like a crab pot, large amounts of mud, a boulder, a large shark or a dead walrus are caught. If the large item is an organism, include it as part of the catch weight and it must be recorded in the species composition data as well (refer to 3US instructions). If it's not an organism, it's weight should be included either in **both** the OTC and the composition data **or in neither** place.

23. Observers' estimate: on trawlers this is a volumetric estimate of total catch made from the volume of fish in a codend or fish bin (or tank) and applying a density factor. All dimensions are made from independently derived or verified information. Make independent estimates of as many of the catches as possible. Instructions and information on making estimates of catch weight follow. Record the weight estimate to two decimal places. Enter "B" or "C" in the next column to indicate whether this estimate is taken from a bin or codend volume.

24. Record the density value used in calculating the observer's estimate. There should at least be an entry when there is an observer estimate. Record the density to two decimal places. Record all density sampling data and calculations in your observer logbook.

25. The "Vessel's Total Catch Estimate" is the "Estimated Round Weight of Catch" recorded by the skipper in the vessel's NMFS log. Record that figure here in metric tons. Do not adjust it. There should be an entry for every haul unless one was not made. You do not need to also record this in your logbook. Just record the figure on the 2US.

26. The column for "Catcher Boat's ADF&G #" and the box for "List of Catcher Boats" at the top of the form are *for mothership observers only*. If you're on a catcher/processor which doesn't take outside deliveries or if you're on a catcher-only vessel, leave these areas blank.

    If you're on a mothership, the name of each catcher boat which delivers *only needs to be listed once* in the box at the top of the first page (or second page if there are six or more

catchers) of the 2US forms for that mothership. Then the "Catcher Boat's ADF&G #" identifies for each delivery which boat did the fishing. If a catcher/processor operates as a mothership and also fishes for itself, enter the catcher's ADF&G boat number when appropriate and leave the lines for self-made hauls blank in that column.

27. *Processor Code (and the list of processors at the top of the form) is entered only by observers on catcher vessels* to identify the processor delivered to. Observers on c/p and mothership vessels should not make any entries in this column or box. Catcher vessel observers need to look up the name of the processing plant listed alphabetically at the end of section 2. Write the name of each processor delivered to, its location, and the corresponding code only once in the box. Make this list at the top of only the first page or two of catcher vessel 2US forms. Catcher vessel observers must then record the appropriate processor code for every haul entered on 2US.

    If fish from different tows are mixed in the tanks and the delivery is sold in part to one processor and the remainder to another, the catch of the entire trip is attributed to the processor that got *most* of the delivery.

28. CDQ/IFQ number: (Community Development Quota/ Individual Fishing Quota) Observers on vessels participating in CDQ must identify which tows are to be attributed to CDQ quota by entering the appropriate CDQ number. Refer to the vessel log. The number they record has the format "CDQ" then the year such as, "97" and then two digits, for example, CDQ9753. On Form 2US, the observer should just enter "C" and the last two digits (example, C53). The list of CDQ partnerships, their numbers and associated vessels are in the section on CDQ in manual section 7.

    If your vessel is attributing their catch to an Individual Fishing Quota enter "IFQ" in this column. (At this time, only longline vessels are given IFQ.)

29. Leading zeros must be written only in the dates and times. Skip a line after each day. Any notes, or comments (other than notes for non-fishing days) should be written in the margins or footnoted to the back of the form or the observer's log.

VESSEL FISHING AND CUMULATIVE PRODUCTION LOGS

A skipper may keep several types of records or logs. He (she?) may keep fuel and fishing logs for himself or his company and there are fishing and marine mammal logs required by NMFS for fishery management. The Alaska Department of Fish and Game (ADF&G) requires information on "fish tickets" for their landing records. Your job is to obtain the best information on the fishing catch and effort from these ships' logs, from vessel personnel, and by direct observation and accurately record it on your Haul Form 2US. **All of the tows made while you are aboard must be recorded on your haul form whether you sampled them or not.**

The captain may wish to use the observer's sampling data as a basis for logbook entries, perhaps for total catch "deck" estimates but more likely for estimates of amounts of discarded species. Observers may provide the vessel's officers with copies of their "raw" sampling data obtained from that vessel, but observers may not make extrapolations from any of their sample data for entry in vessel logs or use by vessel or company personnel. Should the vessel's log or a statistic be called into question, the observer could be held accountable for release of incorrect information. An observer must never make any entry in the vessel's logbook nor should they sign the log or any statement regarding the catch or operation of the vessel. Refer all requests of this nature to the Observer Program's Seattle office, or the NMFS Regional Office in Juneau, AK.

OBSERVER ESTIMATES OF TOTAL CATCH

The observer estimate must be an **independent, non-biased and substantiated** estimate of catch weight. Each component of the estimate must be derived by the observer. If the observer uses preexisting height or length marks or a vessel's weight scale, the observer must check them for accuracy. There are many variables in estimation of total catch weights. Even when the catch is weighed, it may already have been sorted or the scale may the tared for "water weight" or other factors. When analyzing total catch, your estimates will be used as a criterion. Your estimates of total catch are an important part of the reason you are there, so you should do your best to get good data. Do not, for instance, make any total weight estimates simply "by eye." Document your measurements and calculations in your logbook and record your "Observer Total Catch Estimate" on the 2US form whether you believe it to be a good estimate of total catch or not. When your observer estimates are used as the OTC, record them in both fields on the Form 2US.

Objectives: Observers should make an independent estimate of the total catch weight of as many tows as possible. Only observers on trawlers which pump the fish out of the net as it lies in the water are not expected to make observer estimates. Usually an observer's estimate is made of the tows sampled for species composition and you should make an effort to estimate the weight of some non-sampled tows as well. Each component of the estimate is made or verified by the observer and all dimensions and calculations are documented in the observer logbook. Observer estimates are recorded on Form 2US.

Options, Catcher Boats: Make volume estimates (a) of checker bins, (b) of codends or (c) of codend sections added together. Convert the catch volume to a weight estimate using the observer's density sampling data or NMFS specified density.

Options, Catcher/Processors: Make volume estimates (a) of live tanks or holding bins or (b) of codends. Convert the volume to a weight estimate by using your density sampling data unless given a specific density value to use.

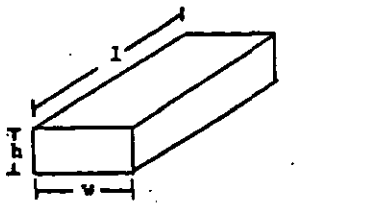
On trawlers, a volume estimate from a fish bin is preferred over a codend volume because a solid sided container is usually an easier, more regular shape to measure than the expandable tube of a codend. However, codend volumes are more commonly used for observer estimates because live tanks may not be accessible for measurements, may have seawater in them, or they may not hold the entire catch at one time.

Methods for Observer Estimates of Codends

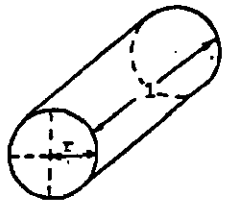
As scientists, observers must have recorded data to verify their estimations. Dimensions of the codend are recorded to determine volume (m^3) and volume is multiplied by the sample data on weight per volume mt/m^3 (density) to derive an estimate of the catch weight. Observers must not record their "eyeball estimates" of total weight. Whether the whole codend is pulled onto the trawl deck before zippers are pulled, or only a few sections at a time are on the deck, the first step in the estimation of the volume of fish in the codend is to decide which geometric shape your "solid" most closely resembles: a rectangular solid, a cylinder, an ellipsoidal solid, a semi-ellipsoidal solid, or perhaps a combination of two of these shapes. When the net is very full, the most appropriate formula to use may be the one for a cylinder. Catches which don't fill the codend to capacity may be flat on top but may fill the trawl "alley" width. A rectangular solid formula would work well in that case. Nets of two to twelve tons may look more like a pear. Use your judgement to estimate what the dimensions would be if you could "square it up."

You will need to determine length, width and height to use with the most appropriate formula for volume. Look for measurement marks which may have been made by previous observers along the trawl alley length; measure the alley width. Look for height marks on posts or a gantry. Remember when sighting across a net to a reference mark for height, your eye level should be level with the top of the net (as much as possible). You can also gauge net height to your height (with boots on) at your shoulder, nose, etc. but never stand next to a net if you could get pinned by it against the side of the trawl alley. Nets slide and roll! When only part of a net is landed at a time, the best point to gauge the height may be the top of the ramp where the net breaks over onto the deck. Where the net is greater or less than a pre-measured distance, actual measurements of the difference are preferable over dimensions estimated by eye but will take a couple more minutes to do. Take actual measurements if possible and, failing that, estimate the dimensions by eye and record and label this information as such in your observer log. If a dimensional measurement varies, take a measurement at several points and average them.

Plan the most efficient method for taking your measurements. The deck crew will want to empty the net as quickly as possible. They may be reluctant to allow an observer time to make actual measurements. Prepare for this by talking to the skipper and the deck boss after you have looked the situation over and made your plan. They may have some good suggestions from working with previous observers that you should consider. Once you have coordinated your plan with the deck crew and are waiting for your first net to estimate, be ready to step on deck as soon as the winch cables are relaxed. Wear your hard hat! Show that you are mindful of their concerns for your safety. If you need assistance, having one of the deck crew help you regularly will help everyone. The two of you will soon learn to work quickly as a team; measuring will be easier for you and you will finish faster so they can get on with their work. On a big net of fifty tons or more, single handed measurements might take eight or more minutes. With help you might be able to shave several minutes off that time. If the deck crew are reluctant to give you a hand, explain your idea to the skipper and ask for his cooperation. If cooperation is not forthcoming, estimate the differences from pre-measured distances by eye and use that to calculate total volume. You must still be on the deck however, to do this with sufficient accuracy.

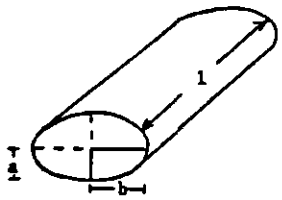


Rectangular solid
Volume = height x width x length
$V = hwl$

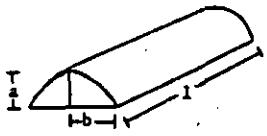


Cylinder
Volume = π x radius^2 x length
$V = \pi r^2 l$

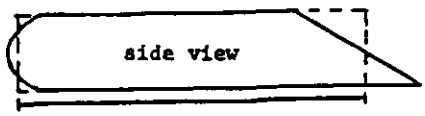
$(\pi = 3.1416)$

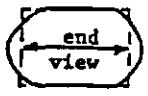


Ellipsoidal solid
Volume = π x short radius x long radius x length
$V = \pi abl$



Semi-ellipsoidal solid
Volume = $\frac{1}{2}\pi abl$
$V = \frac{1}{2}\pi abl$





(Allowances can be made for irregular shapes or partially filled portions of the net by the way in which the measurements are taken.)

On vessels less than 125 feet in length, it is common that a full codend will be longer than the trawl deck and can only be emptied several sections at a time while the remainder hangs off the stern ramp, still in the water. Codends have reinforcing cables or "expansion straps" around their circumference and "riblines" (which may be rope lines or are often made of chain) running their length. These straps and riblines will usually limit extreme bulges and the volume of fish between some straps will be similar. Similar sections of the net can be added as a consistent unit of volume. This can be added to the volume of odd sized sections of the codend (which you also determined the volume of) for a total net volume. Do not measure volume of net sections on only one catch and thereafter simply count the number of full bands. Like any mesh bag, when the net is very full, the mesh will expand and bulge and there will be more tonnage per section.

Simply counting the number of full bands does not provide enough documentation for an observer estimate of total catch. For official total catch, however, a band count may be used to determine the relative weights of nets in a pollock fishery if catch sizes are similar from haul to haul (refer to the next section). **So, do not use band counts for your observer estimate but you may use them for proportioning delivery weights.**

Record the dimensions for each catch in your logbook. Also in your log, calculate the volume in cubic meters using the appropriate formula, then multiply the volume times the density, obtained as explained below, to obtain the metric tonnage of the catches.

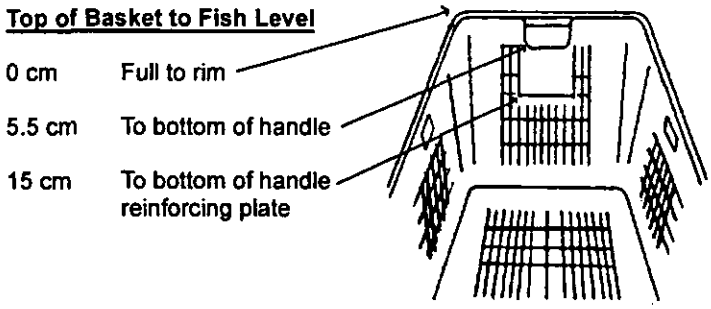
Density Sampling

Codend or bin volume (in cubic meters) is multiplied by a weight per cubic meter ratio, (termed "density") to obtain a catch weight estimate for that haul. Density is the ratio of mass, or weight, to volume. One cubic meter of fresh water by definition weighs one metric ton. Its **density** then is $1 \div 1$, or 1.00. The density of seawater is 1.026. When sampling catches of $\geq$ 95% pollock composition, we have sufficient data to allow the use of .93 mt/m^3 in volume to weight conversions. Density of cod catches may be less than that, and pollock and flatfish catches may have a density slightly greater than 1.00. We are compiling data on densities of different species mixes. Until there are sufficient data, we ask that observers sample for density as explained below and do not make unsubstantiated assumptions.

Density is variable and should be derived from random samples taken from each sampled haul. Average density values for the day or area should be calculated and used for observer estimates of unsampled hauls. Measure the volume of the density samples in any simply shaped container that holds five hundred kilograms or less (half a cubic meter). If the only small-volume container available is a blue observer basket, a minimum of four baskets should be used to calculate density.

First determine the volume of fish in the sample. When taking a four basket sample, fill all the baskets to the same level. (Unless you want to measure and record the depth of fish in each basket and calculate and sum the volumes.) One centimeter difference in the height of fish in the basket, for a given weight, can change the resultant density value by several percent. This in turn,

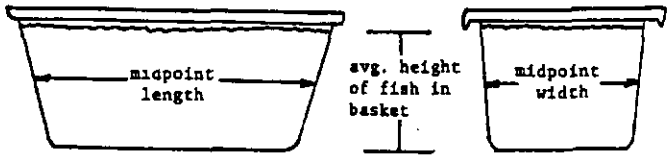
changes the volume to weight conversion of a codend by several tons! For your use, the volume for three fill levels of the Program's standard blue basket is provided:



Top of Basket to Fish Level		Length	Width	Height	Volume
0 cm	Full to rim	.52 m	.365 m	.290 m	.055042 m^3
5.5 cm	To bottom of handle	.51 m	.360 m	.235 m	.043146 m^3
15 cm	To bottom of handle reinforcing plate	.50 m	.350 m	.140 m	.024500 m^3

If you are using a different fill level than the ones above or a different container, measure carefully. The basket sides are sloped slightly, so use the midpoint width and length measurements. Remember that the midpoint is half the distance from the bottom to the level **of fish** in the basket (or other container) not to the top of the basket.

Midpoint length x height of fish x midpoint width = total volume



Examine the way that fish are packed in your basket or small container. It is important that it approximates the way that fish are packed in the fish bin or codend. For instance, if you have very large fish in your basket, such as Pacific cod or turbot, they may not be lying flat on top of each other as they would in a large fish bin. The density of the fish in the basket will be less than the density of fish in the bin because there are more spaces or air pockets between the fish in the basket. It is appropriate to arrange or settle the fish into the container to minimize the interstitial spaces but do not compact or smash the fish in an attempt to duplicate the force in the codend. Your resulting density value would be too subjective. A better solution is to find a larger container or have one built.

After the total volume of the sample is calculated, sum its total weight. Then simply divide the total sample weight by the total volume to obtain the density value for that haul. If you are not confident in your sample technique, examine your work. Remember it is important to take a random sample of the catch and to fill all your baskets consistently to the same level. Using the volume of

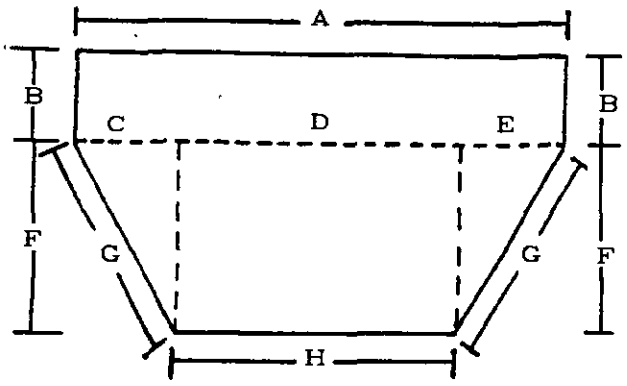
the fish in the codend or live tank and the density of those fish, you can calculate a total catch weight estimate. Remember:

Volume of fish (m^3) x density (mt/m^3) = weight of fish (mt)

Observer Estimates by Bin Volume

On some ships, it may be possible to estimate the catch size by the volume of fish in a live tank, holding tank (surimi vessels) or checker bin (catcher boats). Tank or bin volume is preferred over codend volume because of the consistency of the shape but often cannot be used. The tanks may be enclosed such that the depth of fish cannot be determined; the tank may hold fish **and** an indeterminate amount of water; the tank may be too difficult a shape to measure; or there may be little depth of fish for the area of the bin they're in.

Measure the fish bin into which the fish will be emptied to obtain the area in meters squared. If the fish bin is shaped like a rectangle or square, it would be relatively easy to calculate the volume. Simply multiply the floor area (length x width) by the height of fish. However, many fish bins are irregularly shaped, in which case the floor area of the bin must be broken into sections which can be easily measured. The example below shows how one fish bin was broken into shapes easily calculated or measured to obtain floor area.



Useful Formulas You May Need

Area of a circle = πr^2 Circumference = $2\pi r$ ($\pi = 3.1416$)
Area of a square or rectangle = length x width (In diagram above: A x B)
Area of a triangle = ½ base x height (In diagram above: ½ E x F)
Length of triangle's hypotenuse in diagram above: $C^2 + F^2 = G^2$ *and*, $\sqrt{G^2} = G$
Note: Surface area multiplied by height = volume
For bin floors with a conical shaped depression: Volume of a right angle cone = $1/3\pi r^2 h$

The height of fish in the bin is the third dimension needed to determine volume. If the bin is sided with common width boards of known dimension, use the height of each board to estimate the height of fish in the bin. If the bin is sided with metal plate, ask if you can use some paint to make a height gauge at four places on the sides. If the floor of a bin is a half cylinder and/or is sloped, it may be easiest to determine the volume to level and then mark the sides of the bin from level to the top in increments of 10 cm. The volume to level would be added as a constant to the level area times the average depth from level to the top. Alternatively, the tank sides could be marked from the top down so you can calculate the volume of air above the fish (also termed ullage) and subtract that from the "full bin" volume. Be aware of overhead structures which may reduce the volume capacity of a bin when it is filled above a certain point.

To determine an average height of fish, it is best to measure the height of fish at four or more points around the inside of a bin. Height gauges painted on the sides of tanks below deck might be read by standing on the trawl deck and looking down into the tank through the hatch(es) or you may be able to go below to the tank and see in over the sides or through a viewing port. With deck bins, some observers have improvised a calibrated "dip stick" to measure fish depth at several points. Again, the area of the fish bin (a constant) multiplied by the height of fish from that catch equals the volume. Volume times density equals the catch weight.

There is no need to be surreptitious about your estimates of catch weight or composition. In some cases, captains have improved their record keeping by learning from the observer. On the other hand, do not argue with the captain about catch estimations. His logbook hail (deck) weights do not have to equal or even approximate yours.

Notice on the example 2US form that the observer was not able to make an independent estimate for every haul. This is typical aboard a catcher/processor but an observer aboard a catcher-only vessel should be able to estimate nearly every haul. Official total catch weight estimates, however, must be made for every haul. Whether you use the observer estimate of total catch as the OTC or one of the other options explained below, whatever you decide is the OTC weight is the figure you must use when you refer to the total catch in your composition data and catch reports.

The observer estimate of total catch is only one of several sources of information which may be used to determine official total catch. To make those estimates, use the following lists of options which are arranged by vessel type. For your final report, document in your logbook the circumstances which led you to choose the method(s) you used.

CATCHER-ONLY TRAWLERS
OFFICIAL TOTAL CATCH WEIGHT ESTIMATION

Total catch weight is the fresh weight of all species caught whether utilized or not. The only thing official about "Official" Total Catch is that the observer has determined that to be the best weight figure available and will be using that value in all subsequent references to total catch weight for that haul. As an observer gains experience and familiarity, the method used to obtain the best estimate of total catch may change--simply record methods and calculations in your logbook.

Objective: For each haul made while the observer is aboard, derive or obtain the best possible total catch weight estimate (round weight, all species, whether utilized or not, Form 2US).

Options List: 1. Record the weight of each haul as weighed by the vessel.

2. In pollock, or other pure catch fisheries, proportion the round weight of fish delivered to a plant to the individual hauls. Then, for each haul, add the weight of any catch discarded at sea to the proportioned delivery weight for that haul.

3. The observer makes an estimate of catch volume and calculates the catch weight with a volume to weight ratio, or density value, obtained from each sample. (An average density value should be used for non-sampled hauls).

4. Record the skipper's deck estimates if you are unable to make your own.

Methods and Considerations

Option 1: If your vessel has an in-line conveyor belt scale which weighs the catch before sorting (which is rare), record the weight of each haul as weighed by the vessel. Not many vessels currently fishing weigh their catch at sea yet, but the technology exists. Certainly if it was mandatory or incentives were given to do so, it has been shown to be feasible and would be preferable. Total catch weight, fishing effort, and catch composition are the basic pieces of information needed by fishery managers.

Option 2: For total catch weight of shoreside delivery or catcher-only vessels targeting pollock (or other pure-catch species), observers commonly use a proportioned delivery weight when there is little or no sorting at sea. This is because most of the catch is actually weighed at the plant. When fishing, the majority of the catch is dumped, one tow after the other, into the "live" or holding tanks of the boat. So, to estimate the total catch by **haul**, the observer must proportion the delivery weight based on estimates or percentages made at sea for each tow, and then add to each haul the weight of catch discarded at sea.

Estimating Discards On Catcher Vessels: Discarded catch weight (of fish and any other organisms) could be actually weighed by the observer if the amount was less than half a metric ton

(500 kg), and the crew assisted the observer by putting it aside to weigh. If one undesirable species is prevalent, that part of the discard could be counted by the observer if they have the cooperation of the crew. An average weight, as obtained from a sample of about 50 or more individuals, multiplied by the total number would estimate the discard weight of that species. Then, any other discard would have to be weighed and added in for a total discard weight. This method can be extended to two prevalent discarded species. The observer must not rely on crewpersons to count fish they are throwing overboard; crew are not employed to make accurate counts!

If fish to be discarded were all thrown or shoveled into a small holding bin and they accumulated to a measurable depth, the weight of the discard might be estimated with a volume to weight ratio. Refer to the previous section on Observer's Estimates for calculating weight of discarded fish from a measurement of their volume. Also, If the last catch of a trip is used to top off the holding tanks and a large amount of the catch is dumped back, do your best to estimate the tonnage by codend volume or use an estimate made by the deck boss or skipper.

Obtaining Delivery Weights: The best data are obtained when the observer is on the dock to verify the delivery weight by copying the scale weights recorded by a factory worker or by copying the electronic printout. By doing this, the observer has delivery data available immediately and can see and understand the operation more clearly. This is better than waiting for and trying to figure out the fish ticket.

In case the vessel observer needs a break from sampling, or must get back aboard their vessel before the catch is finished being sorted, the plant observer needs to check with the vessel observer to arrange to stand in or complete sampling the delivery and to get sampling and delivery weight data to the vessel observer when they're done. Data may be held until the next delivery to that plant or it may be sent on to the next plant delivered to.

Some plants have had a policy of subtracting a percentage of the delivery weight to adjust it for water in the weighing hopper. If you suspect this, document what you've heard and look at the weighing hopper yourself to see if there is water in with the fish. Ask the plant personnel if there is a standard percentage for water weight being used. If there is a difference between scale readouts and fish ticket weights, use the fish ticket weights for the target species.

ADF&G FISH TICKETS AND THEIR USE

Groundfish catch "landed" in Alaskan ports from state and federal waters off Alaska is required to be reported to the State of Alaska via their Fish Ticket system and a fish ticket must be made out for each delivery. Fish tickets also serve the processors as a record of the deliveries that were made to their plant and they serve fishermen as a receipt of deliveries and price settlements that were made. Observers all too often however, glibly accept fish ticket entries as accurate when there are many potential pitfalls.

The purpose of the groundfish fish ticket is to record domestic groundfish landings from state and federal waters. Now the NMFS permit and logbook system is also required for all groundfish operations of vessels which fish federal waters (outside three miles from the coastline). Prior to the advent of this federal data gathering program in 1990, the fish ticket program provided data essential to the in-season management of the resource. These data form the historical domestic catch record which is in the archives at the Pacific States Marine Fisheries Commission in Portland, Oregon. The fish ticket data base is used by the Commercial Fisheries Entry Commission to determine the value of fisheries by gear type. The Department of Revenue utilizes fish ticket data to evaluate tax compliance by fishermen and processors. The North Pacific Fisheries Management Council has used fish ticket data to evaluate new management strategies, in particular, the Individual Fishing Quota (IFQ) system for the halibut and sablefish fishery. NMFS has contracted ADF&G to collect, edit and enter data from the fish tickets into the groundfish data base. Personnel in Kodiak, Sand Point and Dutch Harbor collect the tickets which are then edited for accuracy and completeness by groundfish staff in Kodiak. The tickets are merged into a statewide database by a manager in Juneau.

The fish tickets need to be, and are, extensively edited by ADF&G before they are passed on for data entry. To the chagrin of the editors, people have been very creative in filling out these tickets and the editor often needs to go to the plant for clarifications and corrections. All of these editing corrections take place well after observers have used the ticket data so observers are asked to limit their use to weights of target species and to be extremely careful that what they get from the tickets is interpreted correctly and makes sense.

ADF&G Fish Tickets: When observers use the fish ticket information we see these commonly made mistakes:

(1) Completion of fish tickets is often delayed and too often, observers have stepped off a boat missing figures they expected to get from the fish ticket only to get on another boat or an airplane without the data needed to complete their work on their last vessel.

(2) Do not assume that the reported weights are always for whole fish - if bled fish are delivered, the weight on the fish ticket will be for the bled fish. Always check the "condition code" which is the same as the "product codes" listed in the appendix of this manual. Condition codes will indicate whether the fish weight is for round weight or not and will also indicate whether the fish listed were discarded at sea.

In addition, watch for an "A" designation on products such as cod stomachs. This refers to ancillary or additional product produced from fish already listed on the ticket. As the fish used to produce these ancillary products should be accounted for based on their primary product, it would be incorrect to convert ancillary product weight to round weight and add it to the total for a retained catch weight.

(3) The three digit ADF&G species codes are the same as the observer report group codes but are not the species codes which the observer uses for sampling forms such as 3US.

(4) Do not assume that the weights and species identification of discarded fish are complete and correct. Processing plants pay very little attention to discard figures. They generally weigh the discarded fish as a group and record it on the ticket but do not include this weight in the total delivery weight of "money fish". The composition of this discard is generally reported as "waste" fish or "flatfish" and is generally composed of several species. Fish that were discarded at sea may or may not have been reported on the ticket.

5) Do not assume that the total weight at the bottom of the ticket includes all the species weights listed on the ticket. The total weight is probably only for fish paid for.

6) Figures given for crab, halibut and salmon are usually numbers rather than weights.

Proportioning Delivery Weights: Choose the best option for proportioning delivery weight--the skipper's deck estimate of catch weight, your observer estimate, or your estimate by band count of relative percentage of haul size. **Whichever estimate you choose, use only one source of catch estimates for proportioning a delivery.** If four hauls make up a delivery for instance, do not use the skipper's estimate for hauls one and two and your observer estimate for hauls three and four to proportion the delivery weight. Choose one type of estimate. For the next fishing trip, you may make a different choice.

Observers are often unsure of their own total catch estimates when they are only seeing a couple sections of the net on deck at one time. As you record the skipper's deck estimate next to your own on the Form 2US, do not assume that because your estimate is different from the skipper's by more than a few tons, there must be something wrong with your estimate! Do your best to check your work. Ask the skipper how he makes his estimates. Learn all you can about the vessel's hold capacity, net specifications and accuracy of delivery weights. All of this information will help you decide which is the best estimate to use for proportioning.

To begin with, the skipper's deck estimate or hail weight is the easiest to use. Until you can refine your technique and gain confidence in making your observer estimates, you should at least note the relative fill of the net from one haul to the next. Band counts should be combined with estimates of codend height and width though, because larger catches may fill the same number of bands and simply expand and bulge each net section. Observers in a shoreside pollock fishery where the haul sizes are consistent sometimes use the count of full bands on the codend to determine

relative size. The relative number of band counts can then be converted into percentages per haul which, when summed, make up 100% of the fish retained for delivery.

You may see large amounts of a catch discarded at sea. Many processors will not accept deliveries of fish held in the net on deck because of resultant poor product quality. Sometimes then, the last tow is used to top off the tanks and the rest of the last catch is discarded. If a large amount of fish are dumped at sea, the deck estimate of that haul should be lowered by a rough estimate of the discarded weight before using it to proportion the delivery weight. Then that estimate of discard is added back in for the total catch estimate:

Proportioned delivery wt. + discard at sea = OTC

Option 3: The observer makes volume estimates of all codends and calculates weight with a volume to weight ratio (density value) specified by NMFS (for pure pollock catches) or obtained from each sample. Use an average density from similar hauls of a day or two for non-sampled hauls.

Observers should use their own estimates (based on catch volume) for OTC when catches are sorted at-sea or when delivery (or discard) weights are not obtained or are inaccurate in a pollock fishery. Work on improving your precision and your confidence in your estimates. When the net is only brought up a couple sections at a time on deck, stand to the side of the top of the stern ramp to judge the height and width. The dimensions of most sections between expansion straps are fairly consistent, varying perhaps only in height. Calculate and sum the volume of similar sized sections. Make separate dimensional estimates of the first and last sections and add these to the rest. Refer to the previous section on "Observer Estimates of Total Catch" for a discussion of volumetric methods.

Option 4: Record the skipper's deck estimates as the OTC if you are unable to make your own estimate.

If the catches are sorted at sea and the amount of at-sea discard cannot be quantified, using deck estimates may be a better alternative for OTC weight. The accuracy of judgement of the weight of a net and the fish in his holds is more directly rewarded to a catcher boat skipper than to the skipper of a catcher/processor. When his holds are full or his available time is up, he makes a delivery and gets paid. A shoreside delivery skipper's fishing time may be strictly limited by the processing plant which does not want any catch older than a given number of hours and is expecting his delivery according to a schedule, in line with other boats. To be most profitable, his fishing must be successful within a limited amount of time. At the end of each one to four day trip, his actual catch weight is reported to him. Therefore, the appearance of the net coupled with the net maker's specifications and past experience with delivery weights can make catcher-only skipper's deck (visual) estimates very accurate. However, do not accept the skipper's deck estimates out of hand without verifying them with your own substantiated estimates. Sometimes a captain is only estimating the weight of fish he will get paid for and is not estimating total catch!

Also, many observers on their first trip, or when faced with only a couple sections of the net on deck at time, are not confident of their catch estimation technique. Using the skipper's estimate as

the OTC is a good alternative until you have improved your own method. Do work on improving your own estimates until you can use them with confidence.

CATCHER/PROCESSOR TRAWLERS
OFFICIAL TOTAL CATCH WEIGHT ESTIMATION

Options List:

1. Record the weight of catch weighed by the vessel.

2. The observer is able to make an estimate of catch volume for every haul and calculates weight with a density value (which may be averaged for hauls not sampled for density).

3. The observer's volume to weight estimates are used when available but the skipper's deck estimate (or adjusted estimate) is recorded for catches not estimated by the observer.

4. The skipper's deck estimate is recorded as the OTC weight if the observer is unable to make independent volumetric estimates.

Methods and Considerations

Option 1: Use the weight of the haul as weighed by the ship. As explained for catcher vessels above, if the vessel weighed its catch before sorting, this would be the best (and easiest!) weight to record for OTC. As of yet, few vessels are equipped with these conveyor belt, flow scale weighing systems installed prior to the catch sorting stations.

Option 2: The observer makes volume estimates of all catches from (a) the live tank or bin, or (b) the codend and calculates weight with a density value which may be averaged for hauls not sampled for density.

The methods for observers to use in making volumetric estimates of catch size and weight have been presented in a previous section. If the observer's catch estimates are being used as the official total catch, try to estimate as many of the catch weights as possible. However, if hauls are coming in around the clock and there are more than five hauls per day, it will be difficult to estimate them all.

Option 3: Observer's volumetric estimates are recorded when available, but the captain's deck estimate or an adjusted estimate is recorded as OTC for catches not estimated by the observer.

The skipper or mate on watch will commonly make a deck estimate by looking at the codend and counting the number of expansion strap sections full of fish. The amount of fish between each strap will often be added as a consistent unit of weight even if the amount per strap is not consistent.

He may also be basing his estimate on the net capacity specifications (which may not be realistic after use and modifications) or on the live tank capacity (which may have fish in it left over from the last haul, or water added to it). An estimate made by vessel personnel is required to be reported in the NMFS Fishing Log. The skipper's deck estimates aboard a catcher/processor are often not accurate. Observers report that they can be highly optimistic with large catches and pessimistic with small ones. In the absence of a series of other estimates available for comparison however, just use the vessel log estimate without adjustment.

To decide whether to adjust the skipper's estimate, look at the vessel log estimate in comparison with your observer estimate ***over the course of five days or more.*** If the differences are less than ±5% simply record the skippers estimates for hauls you don't observe. If nearly all of the skipper's estimates are higher than your estimates by more than 5% then you may consider adjusting the skipper's estimates when needed for OTC. If almost all of the skipper's estimates are lower than your estimates by more than 5% then you may also consider adjusting the skipper's estimates. *If some of his estimates are higher than yours and some are lower, even if this fluctuation is by > 5%,* ***do not adjust his estimates.*** Just use his estimates as the OTC. ***When in doubt, do not adjust his estimate.*** Formula for adjustment factor:

$$\frac{\text{Obs. est. of observed hauls}}{\text{Skipper's est. of the same observed hauls}} \times \text{skipper's est. of a non-observed haul} = \text{OTC of the haul not estimated by the observer}$$

Option 4: If you are unable to volumetrically estimate catch weight, record "Estimated Round Weight of Catch" from the vessel log as OTC. It is also recorded in the columns for "Vessel's Total Catch Estimate" on 2US. Continue to make volumetric estimates for comparison. Work on finding ways to obtain volume calculations. Document your work and conclusions and contact one of the NMFS Observer Program offices for consultation.

1996 PROCESSOR CODE LIST

CODE	NAME	CITY
F0528	10TH & M SEAFOODS	ANCHORAGE
F2194	ALASKA CUSTOM SEAFOODS	HOMER
F0321	ALASKA FRESH SEAFOODS	KODIAK
F1814	ALASKA GENERAL PROC.	KETCHIKAN
F0210	ALASKA PACIFIC SEAFOOD	KODIAK
F0937	ALASKA SEAFOOD CO.	JUNEAU
F0403	ALASKAN GOURMET, INC.	ANCHORAGE
F1991	ALASKAN LEADER	KODIAK
F0622	ALEUTIAN DRAGON FISHERIES	CHIGNIK
F0222	ALL ALASKAN, KODIAK	KODIAK
F1804	ALL PORT FISHERIES	SITKA
F0753	ALYESKA SEAFOODS	UNALASKA
F1255	ANDERSON SEAFOODS JV	SEWARD
F9517	ANNETTE ISLAND PACKING	METLAKATLA
F1795	AQUATECH	ANCHORAGE
M5314	ARCTIC ENTERPRISE	FLOATER
F1861	ARROWAC FISHERIES INC.	BELLINGHAM
F0001	ARROWAC-JAMES INT'L	SEATTLE
F0305	ATKA FISHERMEN'S ASSO	ATKA
F1973	ATKA PRIDE SEAFOODS, INC.	ATKA
F1759	BESSIE-M SEAFOODS	HOMER
F2169	BROOKS ALASKAN SEAFOOD	HOMER
F0984	CAN-ALASKA SEAFOODS	KETCHIKAN
F1673	CANNERY ROW FISH CO.	CORDOVA
F1940	CHATHAM STRAIT SFDS.	PETERSBURG
F0365	CHIGNIK PRIDE FISHERIES	CHIGNIK
F0132	CLAUDIA'S FISHERIES	SITKA
F1840	COAST TO COAST SFDS, INC.	SEATTLE
F0186	COOK INLET - KENAI	NIKISKI
F1155	COOK INLET - KODIAK	KODIAK
F1070	D & G ENTERPRISES	EAGLE RIVER
F1051	DEEP CREEK CUSTOM PACKING, INC	NINILCHIK
F0030	DRAGNET FISHERIES CO.	KENAI
F0110	E.C. PHILLIPS & SON,	KETCHIKAN
F1053	EMERALD ISLAND GOURMET SEAFOODS	KODIAK
M4111	EXCELLENCE	MOTHERSHIP
F1013	FAROS SEAFOODS, INC.	KODIAK
F0398	FAVCO, INC.	ANCHORAGE

F1552	FISHERMEN'S QUAY	KETCHIKAN
F1500	GARDEN COVE SEAFOODS	
M1607	GOLDEN ALASKA	MOTHERSHIP
F1678	GREAT PACIFIC (ANCH)	ANCHORAGE
F1267	GREAT PACIFIC SFDS	WHITTIER
F1640	HAMMER & WIKAN, INC.	PETERSBURG
F2038	HIRA FISHERIES	KLAWOOK
F0777	HOONAH COLD STORAGE	HOONAH
F0768	HY-WAVE, INC.	
F0133	ICICLE SFDS, HOMER	HOMER
F0134	ICICLE SFDS, PBURG	PETERSBURG
F0135	ICICLE SFDS, SEWARD	SEWARD
F1812	IND. FISHERMENS COOP	PETERSBURG
F1231	INLET FISH PRODUCERS	KENAI
F1039	INLET SALMON - KENAI	KENAI
F0020	INT'L SFDS MARINE WAY	KODIAK
F0021	INT'L SFDS SHELIKOF	KODIAK
F1705	JON-K SEAFOOD INC.	DOUGLAS
F1330	KACHEMAK BAY SEAFOODS	HOMER
F1737	KACHEMAK FISH PACKERS	HOMER
F1663	KAKE FISHERIES	KAKE
F1206	KANAWAY SEAFOODS	KETCHIKAN
F0394	KEENER PACKING COMPANY	SOLDOTNA
F1929	KING CRAB, INC.	KODIAK
F1839	KINGFISHER SFDS	KODIAK
F1461	NORQUEST - KETCHIKAN	KETCHIKAN
F1486	NORQUEST - CORDOVA	CORDOVA
F1460	NORQUEST - CRAIG	SEATTLE
F1459	NORQUEST - PETERSBURG	PETERSBURG
F1681	NORTH ALASKA FISHERIES, INC.	ANCHORAGE
F0232	NORTH PACIFIC PROCESSORS	CORDOVA
F1439	NORTHERN LIGHTS SMOKE	PETERSBURG
F1319	NORTHERN VICTOR	FLOATER
F1202	NOYES ISLAND FISHERIES	CRAIG
F1930	OCEAN BEAUTY - ST. ELIAS	CORDOVA
M3703	OCEAN PHOENIX	MOTHERSHIP
F1764	OSTERMAN FISH	DUTCH HARBOR
F1834	PACIFIC STAR SEAFOODS	SEATTLE
F2327	PELICAN SEAFOODS KAKE TRIBAL	PELICAN
F1171	PELICAN SEAFOODS, INC	PELICAN
F0142	PETER PAN - KING COVE	KING COVE

F1041	PETER PAN - VALDEZ	VALDEZ
F0597	PHOENIX FISHERIES	
F0306	POINT ADOLPHUS SEAFOODS	GUSTAVUS
F1937	PRIME ALASKA SEAFOODS	UNALASKA
F1816	PRIME SELECT SEAFOODS	CORDOVA
F2213	PRISTINE SEAFOOD COMPANY	SITKA
F0331	QUEEN-EAST PT. DUTCH	DUTCH HARBOR
F0330	QUEEN-EAST PT. KODIAK	KODIAK
F1093	ROYAL ALEUTIAN SFDS.,	DUTCH HARBOR
F0409	ROYAL PACIFIC FISH.	KENAI
F1485	SAHALEE OF ALASKA	ANCHORAGE
F0037	SALAMATOF	KENAI
F0493	SALTRY INC.	HALIBUT COVE
F0223	SEA HAWK SEAFOODS, IN	VALDEZ
F0709	SEA LEVEL SEAFOODS	WRANGELL
F1206	SEAFOOD PRODUCERS COLD STORAGE	SITKA
F0172	SEAFOOD PRODUCERS COO	SITKA
F1372	SEASIDE SEAFOOD	KODIAK
F1356	SITKA SEA MART	SITKA
F0147	SITKA SOUND SITKA	SITKA
F0900	SITKA SOUND YAKUTAT	YAKUTAT
F0983	SPECIALTY FISH PRODUCTS	ANCHORAGE
F1936	STAR OF KODIAK	KODIAK
F0115	TAKU SMOKERIES	JUNEAU
F0939	TRIDENT SFDS AKUTAN	AKUTAN
F0940	TRIDENT SFDS SAND PT.	SAND POINT
F1927	TRIDENT-ST. PAUL	ST. PAUL
F1605	UNALASKA SEAFOOD CO.	UNALASKA
F1373	UNIPAC	ST. PAUL
F0188	UNISEA BARGE(ST.PAUL)	ST. PAUL
F1180	UNISEA, INC. DUTCH G1	DUTCH HARBOR
F1325	URSIN SFDS. 511 SHEL.	KODIAK
F0266	WARDS COVE ALITAK	SEATTLE
F0274	WARDS COVE EXCURSION	EXCURSION
F0268	WARDS COVE PT. BAILEY	KODIAK ISLAND
F1379	WARDS COVE SEWARD	SEWARD
F2000	WASH. FISH & OYSTER	SEATTLE
F0320	WESTERN AK FISHERIES, INC.	KODIAK
F1366	WESTWARD SEAFOODS	DUTCH HARBOR
F0319	WRANGELL FISHERIES, INC.	WRANGELL
F2278	YKI FISHERIES	YAKUTAT

SPECIES COMPOSITION OF THE CATCH
FORM 3US

OBJECTIVE:

Resource managers need composition of catch to determine, for each gear type, what species will be caught in association (bycatch) with the species of interest (target species) and in what relative quantities. One fisherman's discarded bycatch is another fisherman's target species. Groundfish fishing (target species: pollock, cod, flatfish, rockfish, sablefish, and Atka mackerel) geographically overlaps all of the other major fisheries of Alaska (halibut, salmon, crab, shrimp, herring). Observers species composition data is used for both in-season management of the fishery and for long term stocks assessment. Strive for data that is representative of the catch over time by collecting random, unbiased samples of unsorted catch. Topics:

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RANDOM SAMPLE TABLE FOR TRAWLERS

The fishing industry in Alaska asked the North Pacific Fisheries Management Council to develop a program to penalize trawl vessels which have a high bycatch of prohibited species. The Vessel Incentive Program has been formed to address this request by industry. The bycatch of prohibited species is determined by observer sampling and therefore observer sampling data must be legally defendable as non-biased. To prevent any accusations of observer bias regarding which hauls were selected to be sampled, the hauls you are to sample for species composition and prohibited species have been predetermined by NMFS using a random numbers table. Observers on longline or pot vessels do not need to use this system to select which sets to sample. **All trawler observers must refer to the random numbers table developed by NMFS to determine which hauls will be sampled during a fishing trip. Using the appropriate random sampling table is not an option. For observers on trawl vessels it is a requirement for your work.**

Observers on shoreside delivery vessels have a different random sample table than observers on catcher/processors and motherships. Look at the title of the table to be sure that you are using the correct one. In addition, observers on catcher/processors and motherships will also have a break table to use if needed. Instructions for using both tables follow, the random sample tables will be discussed first, followed by the break table and how to integrate both tables. Be sure you have a complete understanding of both tables before you are deployed.

The Random Sample Table is made up of rows of numbers in **bold-faced** type alternating with rows in normal-faced type. The bold-faced rows indicate the number of consecutive hauls you sample, the normal-faced rows are the number of consecutive hauls you do not sample unless you can exceed the upcoming hauls to be sampled. During training you will be instructed how to determine your starting point on the table. From that 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 continue at the top of the next column. If you reach the end of the table (Z,Z) continue on at the top of the table (A,A).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	**2**	**3**	**2**	**4**	**4**	**2**	**3**	**2**	**4**	**3**	**4**	**2**	**4**	**2**	**4**	**3**	**2**	**3**	**4**	**3**	**4**	**4**	**2**	**3**	**2**	**4**
	1	2	1	2	1	2	1	1	1	1	2	1	1	1	1	1	2	2	1	2	1	2	2	1	1	1
B	**4**	**3**	**4**	**4**	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**2**	**3**	**2**	**3**	**2**	**4**	**3**	**2**	**4**	**2**	**2**	**3**	**2**
	2	2	2	2	2	1	2	1	1	2	2	2	1	2	2	1	1	2	1	1	1	2	2	2	1	2
C	**2**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**4**	**3**	**3**	**2**	**3**	**4**	**3**	**3**	**2**	**4**	**2**	**3**	**2**	**2**	**4**	**3**
	1	1	2	2	1	2	2	1	2	1	2	1	2	1	1	1	2	1	2	2	1	1	1	1	1	1
D	**4**	**4**	**3**	**4**	**4**	**4**	**3**	**4**	**4**	**4**	**4**	**3**	**4**	**3**	**3**	**2**	**4**	**2**	**2**	**2**	**2**	**3**	**3**	**2**	**3**	**3**
	1	2	1	1	1	2	1	2	1	2	2	1	1	2	2	2	2	1	2	2	2	2	1	2	2	1
E	**3**	**3**	**3**	**2**	**2**	**3**	**4**	**2**	**4**	**2**	**4**	**3**	**3**	**3**	**2**	**4**	**2**	**2**	**3**	**4**	**2**	**2**	**4**	**2**	**4**	**4**
	2	2	1	1	1	2	2	2	2	1	1	2	1	2	1	2	2	1	2	2	2	1	1	1	2	2
F	**4**	**4**	**4**	**4**	**4**	**3**	**3**	**2**	**3**	**2**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**4**	**2**	**3**	**4**	**4**	**4**	**4**	**3**	**2**
	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	1	2	2	1	2	2	2	1	2	1	2

Since it takes most observers a couple of days to set up their sampling station, observe the operation, and get comfortable with their sampling duties you do not need to use the Random Sample Table on your first day or two of sampling. Observers on catcher processors should begin using the table on their second or third day on board, and observers on shore-side delivery vessels should begin using the table on their second trip, or as soon as your sampling methodology is established.

If you find that this sampling schedule is too rigorous, consider and try the following recommendations. 1) If your vessel is a catcher/processor or mothership, use the break table each day or on some days as needed. 2) Reduce the sampling time by reducing the sample size of one or more hauls in the series. Sampling a catch on a c/p vessel should usually take two to three hours. If you are spending more than three hours per sample you will not be able to stick to the table when four or more hauls per day are being landed. If you were sampling the entire catch for prohibited species, try cutting back to a smaller sample size so that all designated hauls in the series can be sampled. It is more important to have good sample collection technique, smaller samples and stick to the random sample table than to sample the whole catch and sample fewer hauls.

3) It is important that you look ahead at your schedule and plan to make best use of your rest time. For example, if the table dictates that you have a four on, one off, four on schedule, get more rest before this series and plan on getting paperwork, chores, and meals done in between samples so you have as large a block of rest time in between the sets of four sampling hauls as possible. Consider altering your sampling method. Is it practical to whole haul sample a series of four hauls or will you need to basket sample some to complete the set? If you were to basket sample from the first part of one haul and sample the last part of the next haul (assuming presorting is not a problem), you get a larger break between hauls while still avoiding stratification over time. This is not as good as sampling from all parts of each haul but is acceptable.

4) If you get caught in an unworkable situation you can, if necessary, skip one of the hauls in the series to be sampled but then complete the remainder of the sample series, counting the unsampled haul as part of the block. As in the example of a four on, one off, four on series, if the observer needs to rest for two hauls, the observer should sample four hauls, rest for two, and sample three hauls to complete the series. If it is necessary to skip sampling hauls on a continuing basis, get in contact with an NMFS office for advice.

If you find yourself on a vessel that makes few hauls/day or you don't need as much rest as your sampling scheme allows you, you should sample additional hauls as long as designated hauls are given priority. The NMFS might not use data from additional hauls in Incentive Program calculations, but it will be used in all other analysis programs. In your logbook entries you will be recording when you sample additional hauls and which hauls they were.

If you go to another vessel during your contract, or if your vessel delivers fish to either a plant or a floater, when fishing resumes continue from where you left off in the table. Begin using the table immediately (on a new boat you may need to watch and not sample one haul in the series just to get acclimated). If you were in the middle of a sampling block continue with that block. If you have just finished a sampling block, or if you are in the middle of a non-sampling block, then go to next sampling block as you begin your next trip.

Example: Suppose you begin following the table with haul 6 and your starting point on the table is column N row C. You leave vessel A after haul 10 and board vessel B. The first haul to come on board after your arrival is number 56 and you stay on board for 5 hauls. Using the manual example table you would sample 2 hauls, not sample 1 haul, sample 3 hauls, not sample 2 hauls, sample 3 hauls, etc. Your activity for all hauls landed while you were on board would look like this:

Vessel A		Vessel B	
3/21	Haul 6, On - Sampled	3/26	Haul 56, On - Sampled
	Haul 7, On - Sampled		Haul 57, Off - Not sampled
3/22	Haul 8, Off - Not sampled		Haul 58, Off - Not sampled
	Haul 9, On - Sampled	3/27	Haul 59, On - Sampled
	Haul 10, On - Not sampled, cut hand		Haul 60, On - Sampled
			Haul 61, On - Sampled

In pollock fisheries, observers aboard catcher-only trawlers normally will be sampling every tow as commonly there are only four to six tows made per trip. Therefore, catcher boat observers in a pollock fishery don't usually need to refer to a table to determine which hauls to sample. If you are on a catcher-only trawler in a cod or flatfish fishery and you cannot sample every haul, use the "Catcher Trawlers" Random Sample Table to determine *which* hauls to miss. Certainly you should sample more hauls than are indicated by the table if you can. The difference between these tables and the tables for c/p observers is the number of hauls skipped between sampling blocks. Catcher boat tables always have only one haul skipped instead of one or two.

Now that you have an understanding of the Random Sample Tables let's move on to the break table. The break table can only be used by observers on catcher/processors or motherships. It was designed to give observers a block of time off each day, in response to the difficulty observers were having on motherships and when flatfish fishing with many small tows per day. For many observers however, following the directions above to reduce sample size, plan ahead, and occasionally to not sample an "on" haul will satisfy their needs. So, the following guidelines are provided for use of the break table.

If the vessel <u>averages</u> less than four hauls per day, the observer should disregard the break table but still follow the random sample table. Also, if the vessel does not fish for a certain part of each day, usually at night, or makes one long tow at night, the observer should consider that their break and disregard the break table. The break table may just be used occasionally, when needed. In this case, track each day on the break table, whether the break time is used or not. For example, if no break is taken for two days, just record the dates on two lines and use the time on the third line for a break on the third day.

The break table is made up of three columns of cells. Each cell consists of a space for the date and gives a break starting-time for each day. As with sampling data, 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 Random Sample Table and check to see when you could 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.

DATE _____ 0400	DATE _____ 0800	DATE _____ 1600
DATE _____ 1300	DATE _____ 0100	DATE _____ 0900
DATE _____ 0400	DATE _____ 0700	DATE _____ 0400
DATE _____ 1800	DATE _____ 1300	DATE _____ 1300
DATE _____ 1500	DATE _____ 1600	DATE _____ 0500

Although neither the break nor the random sample table is particularly difficult to follow, when you put the two together things can get a little confusing until you focus on the haul retrieval time. If a break is to be taken and it is to start one minute after the retrieval time of a haul to be sampled, sample the haul. If a break starting time occurs one minute before the haul retrieval time of a haul to be sampled, don't sample, take your break. At the completion of the break period you should re-enter the random sampling table. If you are in the middle of sampling when your break starts, finish that sample first, then begin your six-hour break. **Hauls that were retrieved during an observer's six hour break continue to be counted against the random sample table.** In summary:

1) Each day that you need to take a break, start the break after sampling is completed on hauls whose retrieval time is before the break time indicated on the break table for that day.

2) Break for six hours.

3) Sample the next "on" haul whose retrieval time is after the six hour break.

All observers on trawlers are required to fill out the Trawler Observer Sampling Record in your observer logbook. In your table list the haul number of each haul made, whether it was an "on" or "off" haul (that is, to be or not to be sampled) according to which column and row in the Random Sample Table, whether you were on break and whether you did or did not sample it and the start and end times of your samples. Finally, when an "on" haul is not sampled, we need to know the reason. In your final report we would like to have a written commentary on your difficulties, if any, with using this sampling scheme.

Haul No.	RST On/Off	Col/ Row	Break On/Off	Sampled Y/N	Samp. Time Start	Samp. Time End	Reason for "On" Haul Not Sampled
34	on	H/C		Y	1630	1825	
35	on	H/C		Y	2005	2200	
36	on	H/C	on	N			Break
37	off		on	N			
38	on	H/D	on	N			Break continued
39	on	H/D		Y	0715	0930	

Commonly Asked Questions:

1) **I am supposed to sample 4 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?** 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 random sampling table. To re-enter, check the fishing schedule against the random sample table to see when the next "on" haul will be retrieved.

2) **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 set for four hours. Do I sample this haul?** 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.

3) **Can I skip breaks and only take them on a few days when I need to?** Yes. On the table though, record the date of each day whether or not a break was taken. Note: you cannot accumulate break time by skipping a day and taking a longer break or more than one break on a following day.

4) **Can I sample more hauls than those indicated on the random sample table?** Yes! please do! Just make sure that if you sample some "off" hauls you can do this in addition to the "on" hauls. Do not switch sampling "off" hauls for "on" hauls to make your schedule more agreeable.

5) **My break is over and the haul currently being processed is an "on" haul and is about half processed. Can I basket sample from the remaining portion?** No, because you were not present to verify that no presorting of the catch occurred. So, you will have more hours off in addition to the six hour break.

6) **Suppose a break is just over but the next haul retrieved is an "off" haul, resulting in a longer break than I need. Should I stick to the random sample table and not sample?** Yes, you could, resulting in a longer break than the six hours scheduled. Or, look ahead at your table and fishing schedule. If sampling an "off" haul is not going to put you in a bind, causing you to miss upcoming hauls to be sampled, please sample! We need you to sample as many hauls as possible.

FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:	Yellowfin					
Wt. of above:	86.2					
No. weighed:	306					
Avg. weight:	.2817					

Other calc.& comments: 3 Halibut presorted from deck by crewmember who "didn't know I was going to sample." - See Daily log. Estimates: 90cm & 2 @ 150cm Additional 15 minute sampling - found 3 more halibut per Tus

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	48

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	1017	330.63	X	290
King Crab		2	B	0	0	330.63	
Herring		611		1	.3		
Bairdi Tanner crab	M	4		1	.32		
Bairdi " "	F	4		6	1.89		
Halibut		101		0	0		
Salmon		220		0	0		
Yellowfin sole		140		900	253.4		100
P. cod		202		6	8.6		100
Flathead sole		103		15	13.36		0
Rock sole		104		30	6.1		90
Alaska Plaice		106		4	2.4		0
Skate		90		1	5.1		0
Sculpin		400		3	2.0		0
Poacher		450		3	.5		0
Starfish		20		9	1.9		0
Arrowtooth Fl.		141		4	5.8		0
Pollock		201	↓	33	28.95	↓	0
Lyre crab		840	B	1	.01	330.63	0

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FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:	YFS	Hbt				
Wt. of above:	82.2	45.6	119.37	kg	44.02 kg	= 208.99
No. weighed:	305	12 + 1 estimated 200		cm + 1 measured @ 147		cm = 14
Avg. weight:	.2695					

Other calc.& comments: Monitoring belt for prohibs. & collecting & setting aside baskets of fish. Sorting baskets when belt is stopped. Sub-sampled Bairdi for measuring

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	49

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	1739	650.43	X	278
King Crab		2	W	0	0	17530.0	
Herring		611		0	0		
Tanner Crab unident		3		562	89.5		
Bairdi	m	4		32	5.44		
Bairdi	F	4		59	8.70		
Opilio	m	5		3	.43		
Opilio	F	5		1	.17		
Halibut		101	↓	14	208.99	↓	
Salmon		320	W	0	0	17530.0	
Pollock		201	B	37	29.6	337.2	0
Yellowfin		140		994	267.9		100
Cod, Pacific		202		8	15.3		100
Flathead sole		103		2	1.1		0
Rock sole		104		15	5.7		78
Arrowtooth		141		3	5.2		0
Ak Plaice		106		5	2.3		0
Skate		90	↓	1	8.3	↓	0
Sunstar		24	B	3	1.8	337.2	0

FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments: Switched to pollock fishing, non-pelagic (bottom) gear. Partial by Bin volume.

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	50

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	286	267.1	X	297
King Crab		2	P	0	0	21709.2	
Herring		611	|	1	.3	|	
Tanner Crab		3	|	0	0	|	
Halibut		101	|	0	0	|	
Chum Salmon	M	221	|	1	3.2	|	
Arrowtooth Flounder		141	|	1	2.0	|	0
Flathead sole		103	|	5	3.0	|	0
P. Cod		202	|	4	6.2	|	100
Eelpout		250	|	12	13.1	|	0
Shortsp. Thornyhead		350	V	6	6.1	V	100
Yelloweye rockfish		322	P	1	4.6	21709.2	0
Pollock		201	B	176	173.8	228.6	97
Jellyfish		35	B	79	54.8	228.6	0

FORM 3US–SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:	Salmon shark					
Wt. of above:	Consensus	estimate	= 200lb	or	~90.0 Kg	
No. weighed:						
Avg. weight:						

Other calc.& comments: Herring & Tanner crab were partial haul sampled 'cause I wasn't sure I'd see them in the rest of the sorting. Partial by bin volume

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	51

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	163	233.2	X	199
Salmon shark		67	W	1	90.0	54408.0	0
King crab		2	W	0	0	↓	
Halibut		101	W	0	0	↓	
Salmon		220	W	0	0	54408.0	
Herring		611	P	0	0	18922.5	
Tanner crab		3	P	0	0	↓	
P. Cod		202	P	11	30.0	↓	100
Jellyfish		35	P	29	24.4	↓	0
Flathead sole		103	P	4	1.5	18922.5	0
Pollock		201	B	118	87.3	87.3	99

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SPECIES COMPOSITION FORM 3US - INSTRUCTIONS

On Form 3US record composition sampling data by haul.

1. Enter the **date, and haul number**. (The cruise number and vessel code will normally be given to you during training or briefing.) Remember that the date of the sample should correspond to the information on Form 2US. The date should thus be the day the trawl began to be hauled in, which may not be the date you sampled it.

2. Group your species composition samples by the sample size and enter data from the **largest sample first**. Skip a line between sample types (see examples).

3. **List prohibited species first.** Usually these groups have the largest sample weight. Each of the five prohibited species groups must be represented on each form because it's necessary to have some indication of how much catch was monitored for each. The groups are: king crab, herring, Tanner crab, halibut, and salmon. If no individuals of a species group are observed, then the observer enters the group name, species code (use codes 2, 611, 3, 101, 220), sample type, sample weight, 0 for the number, and 0 for the weight. (See 3US examples.)

4. List each **species** or species group **by their common name** and the corresponding code from the Species Code List on 4 - 1. Look up a species under its group name--rockfish, sculpin, sole, etc. Most fish, especially the commercially important species, should be identified to species, if possible. See also the section on Species Identification which precedes the Code List.

5. Each **species code may only be listed once** for each haul except those listed also by sex -- salmon, king and tanner crab. You cannot have two sample weights for any species.

6. All **Tanner crab, king crab, or salmon** should be listed separately by species and sex whenever possible. Once identified to species, determine the sex and **record an "M," "F," or "U"** (for unknown) on 3US. "U" is used when sexing was attempted but could not be determined. In the example haul 49, Tanner crab which were not identified to species would not be sexed so sex is left blank. Do not sex halibut or herring even if they're dead. Leave the column for sex blank for halibut and herring.

   Sub-sampling: If large quantities of one of the crab or salmon species groups are seen, it is permissible to take a random subsample of the group and record the subsample by species and sex. Then, either count or weigh the rest of the group and apply an average weight (from your subsample totals) to get the weight or number. Record these remaining ones as tanner crab, king crab, or salmon unidentified and unknown sex. Make sure that no individual is recorded twice on the forms (none of the subsample should be reported in the larger group of unidentified individuals). See 3US example haul 49, tanner crab, for an illustration of how to record the data in this type of a subsample situation.

7. For occurrences of **decomposed fish** (sp. code 899) and/or **miscellaneous** items (code 900) in your samples, record the total weight, not a weight by species or by item, and record the **number as "1"** because total numbers and thereby, average weights, are not needed. Decomposed or waste fish are those obviously in a state of decomposition as evidenced by a breakdown of skin and muscle. Decomposing fish must be distinguished from damaged but fresh fish. Damaged fish must be coded and listed along with undamaged fish of the same species. Miscellaneous items are garbage, debris, fishing gear, wood, seaweed and other such items that may occur in your samples. Decomposed fish and miscellaneous items are reported under the "non-allocated" category in catch messages.

8. Sometimes a vessel will accidentally pick up a **crab pot** that has been snagged by the fishing gear. This incident would be recorded as a gear performance code two on form 2US (see instructions for the form). If the crab pot occurs in a sample, it would be a miscellaneous item (code 900). **Do not count any crab** that may be in a crab pot as part of your sampling for the incidence of King and Tanner crab. The crab were caught by the pot, the pot was caught by the fishing gear. Note the incident in your logbook and include a description of the pot, any identifying numbers, and describe the contents.

9. **Occasionally a large item** like a 55 gallon drum or a large shark will be caught. If the large item is an organism, it must be included in both the Official Total Catch (OTC) and the composition data (3US). On 3US enter the code, number, and estimated weight of the organism as a whole haul sample--sample weight equal to OTC. If it's not an organism, its weight should either be included in both OTC and on 3US or in neither place. An entry of this type will not be used during the fishing season, so a large item may have a different sample weight than other bycatch (even in a Bering Sea flatfish fishery which has special rules). It is possible, in this case only, there may be two sample weights for one species group. Also, it should not be included in catch message data unless all species are whole haul sampled.

10. **Indicate sampling type** or method for each species listed. For species that were whole-haul sampled, use "W"; for partial haul sampling, use "P"; for basket (or actually weighed) sampling data use "B."

11. **Species number and weight:** Every number must have a weight and every weight must have a number. All weights must have a well-defined decimal point and one or two places following the decimal. Even if you feel the weight cannot be accurately read to a tenth of a kilogram, it is required to enter at least a trailing zero after the decimal point. **Do not enter any weight to more than two decimal places.** If something weighs much less than .01 kg, ignore it.

12. **Estimated weights** sometimes have to be recorded when large items such as a shark or a crab pot occur in the catch you're sorting. The estimation method should be explained at the top of the form. Estimated and actual weights may be added to obtain the total weight of a species in your sample, such as halibut. (Note: For halibut there is a length/weight relationship that can aid you in estimating the weight of large individuals, refer to the table on

3 - 42 and in the appendix. Length/weight relationships cannot be predicted for other species.)

13. **Sample weight** *is the amount of catch sorted through* from which the species listed were found. Enter the sample weight for each species, using a well-defined decimal point and one or two digits following the decimal. If you whole-haul sampled for the species composition, the rounded sample weight must match the official total catch weight on the Form 2US.

    If you basket sample, the sample weight must equal the sum of the weights of the individual species that were basket sampled.

14. **% Retained** is a rough estimation of the round weight (before processing) of each species kept divided by the weight of that species caught in the sampled haul. Retention applies to organisms kept for any reason such as: consumption, processing, delivery, souvenirs, or home pack. For halibut, salmon, herring, king or tanner crab, leave this column blank. For all other species in your sample, an entry is required. Your methods of approximating these values are explained later in this section. Express this estimate as a whole number, to the nearest whole percent. While one or more target species may be near or at 100, many species caught will all be discarded and their % retained is zero. (The sum of the % Retained column should not add up to 100!)

15. **Complete the keypunch check (line 999 at the top of each form)** by adding all the figures in each of the Number, Species weight, and % Retained columns and entering the sum of each column on the top line. The sums serve a valuable role as a keypunch check and it's important that you double check your summations.

16. Record on the **worksheet, at the top of the form**, any raw data such as samples for average weight that might otherwise be lost because an extrapolated figure is entered on the keypunched portion of the form. Use the worksheet for:

    - ➤ average weight sample data and results to three or four decimal places.
    - ➤ numbers and weights of presorted fish (see also 3 - 30)
    - ➤ halibut length to weight table values
    - ➤ estimation method of other organisms too large to weigh, see example 1.
    - ➤ total number tallied of a predominant species.

17. **Note in the comments** section anything unusual about the catch or sampling. If you changed your method or sample size, what caused this? If the composition changed because the vessel switched to a different fishery, make a note. Comment when there is no correlation of length data on Form 7 with the crab, halibut, or salmon data on 3US.

DEFINITIONS OF SAMPLING TERMS

Basket sample - When the amount of catch which was sampled by the observer is actually weighed. Basket sample weight may be as small as 100 kg or less, or as large as the OTC weight.

Bycatch - any species in the catch other than the target species.

Partial haul sampling - When less than the Official Total Catch (OTC) weight was sampled (sorted) by the observer. The sample weight is estimated in one of two ways. The sample was not actually weighed.

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 you are collecting your sample.

Prohibited species - For groundfish fishing vessels, species whose allowable catch and retention is zero. *In regards to observer sampling, the prohibited species groups are salmon, herring,* halibut, king crab and tanner crab. For vessel operators, the prohibited species include the above as well as any other species declared prohibited by a notice of closure.

Prohibited species sampling - the weight of groundfish catch sorted by the observer to determine only the numbers and weights of salmon, herring, halibut, king crab, and tanner crab present.

Sample weight - the weight of catch which was sorted and sampled by the observer.

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.

Sub-sample - the weight of catch designated by the observer which weighs less than the sample weight and is processed for a supplemental task to determining the composition of a haul, such as sampling for average weight.

Target species - the species the vessel was fishing for.

Weighed sample - a "basket" sample. The catch sampled by the observer is weighed on a scale.

Whole haul sample - The entire catch was sorted, or the sorting was supervised, by the observer.

OBJECTIVES AND RULES FOR SPECIES COMPOSITION SAMPLING

Determination of the species composition of the catch is one of the high priority duties of an observer. When sampling, the relative amounts of species in the sample will not necessarily reflect their proportion in the haul. However, our database contains many samples taken within an area/week, and reflects the relative species proportions over time. **Never** "hand-pick" a "representative" sample based on your visual estimate of the composition. Observer's species composition samples must be collected such that fish (or organisms) from any part of the catch could have landed in the observer's sample.

For several fisheries, the sampling method is prescribed. In others, it is up to you to choose a sampling method and devise a sample collection technique which is most appropriate for your situation. If you feel you must deviate from the methods described in this manual, contact an Observer Program office for consultation and document your procedures fully. Remember, you must have defendable sampling data to back up any assumptions that form a basis for the rest of your data collection. When you have a choice of sampling methods, you'll face the natural constraints of your available time, energy, and work space. You must also consider the size of the catch and its diversity. To guide your judgement in choosing a sampling method, please also comply with the following:

1. Strive to collect unbiased samples from throughout the set or tow. Believe in scientific sampling and in the "long run" accuracy of it. After many samples, the level of occurrence will closely approximate the true value. Remember that in many analyses your data will be merged with other observer's data in that area, year, month, and vessel type classification.

2. Allocate your time appropriately. Maximize your sample size according to the amount of time you can afford for a haul. Keep in mind your schedule according to the Random Sampling Table, the scope of your duties, and priorities.

3. The weight of catch which was sorted by the observer is the "sample weight". You must be present to sort, or directly supervise the sorting, of **all** of every sample. If you see or suspect that the sorting of your sample is not completely thorough, reduce your sample size and/or change your sampling method until you can control the sorting. You must ensure that the fish passing by you are not too deep or moving too quickly for you or those you are supervising to sort.

4. For each sampled haul or set there are six groups of species, to each of which you must apply one of three sampling methods.
   Groups: king crab, herring, tanner crab, halibut, salmon, and all other species (i.e. target and other bycatch).
   Methods: whole haul, partial haul, or basket sample

5. You cannot sample for some species and not others; you cannot leave out any component of the catch. If you are sampling a catch for prohibited species, you must also sample for target and other bycatch and vice versa.

6. Use any of the combinations of sample methods shown in the four examples of Form 3US. Note that you cannot have two sample weights assigned to one sample type within a haul. For example, you cannot have two basket samples with different sample weights or have two different sample weights, both labeled as "P."

7. Any partial or whole haul sample must also have a weighed, or basket sample with it. If you whole or partial haul sample for prohibited species, a basket sample is taken for all target and bycatch species. If you whole and/or partial haul sample for all species, a basket sample must be taken for the one or two predominant species.

8. You cannot have two sample weights for any one species or species group. For example, if you whole haul sample for salmon, you cannot have salmon in your basket sample.

9. The sample is sorted according to species or species groups, and the weight, and number of individuals for each group is recorded. It is best to count and weigh all of a species sorted from your sample weight, but if you cannot, you must at least count them all and weigh some of them or vice versa. **You cannot estimate both the number and the weight of any species.** When an average weight is used to estimate the total number or weight of a species, the sample for average weight must be recorded in the worksheet at the top the 3US form.

METHODS OF SPECIES COMPOSITION SAMPLING

There are a number of different ways the above information can be obtained. The sampling methods you choose are dependent on the diversity and size of the catch, the shipboard setup and your time and energy. Whenever a vessel is targeting *flatfish* in the Bering Sea, using an actually weighed or basket sample method is mandatory for all species because of the Vessel Incentive Program. Basket sampling is the most common means of sampling when the catch is diverse. When the catch is predominately one species it is often possible to sample the whole haul to determine composition. If the composition is more diverse but there are very few prohibited species, they may be whole or partial haul sampled while target and bycatch species are basket sampled. These methods will be discussed in detail. It is up to you to decide which methods provide the most accurate information in your particular situation. Devise a sampling scheme which will provide **complete** species composition data for any sampled haul.

Whole-Haul Sampling

Criteria:

- When sampling on a c/p for all species groups, hauls must be almost pure (1 - 5% bycatch weight), as is typical of the pollock or whiting fisheries. Consider that one percent bycatch in a 50 mt haul is 500 kg, or about *thirteen* 40 kg baskets of bycatch!
- For whole haul sampling only one or more of the prohibited species groups, the catch weight composition may be diverse as long as there are not too many prohibited species per ton of groundfish to deal with.

- You are "upstream" of any sorting of the catch
- The flow of fish is such that you are able to see everything in the haul; either the flow of fish is slow and controlled or the flow of fish is shallow.
- On a c/p, sorting the catch does not usually take more time than you can afford.

When your vessel is fishing pollock in Alaska or whiting (hake) off Washington and Oregon, hauls commonly have less than one percent bycatch. You should whole haul sample for prohibited species catch whenever possible aboard catcher/processor or mothership vessels. When working aboard a catcher-only vessel you must basket sample at sea for target and bycatch species and whole haul sample for prohibited species during delivery to the processor.

When whole-haul sampling on a c/p or mothership for all species groups, the entire *unsorted* catch must pass by you at one point and you must be able to see and pull out all bycatch for counting and weighing later. The observer cannot weigh the whole catch but does *sort through all of it.* Or, when whole haul sampling for only one or more prohibited species groups, only those species are pulled from the catch during sorting. The sample weight, when rounded, is equivalent to the Official Total Catch weight. It is important to have large sample sizes when feasible for these species. On catcher/processor vessels, if processing is very slow, the observer may have to change to some other sampling method if sorting the entire catch will take too long, leaving no time for other duties.

An observer must be present **at all times** to sort or supervise the sorting of bycatch when whole haul sampling. Ideally, the fish flow passing by the observer at one point would be **slow** and **shallow** to allow for the complete sorting of catch. If you are sorting out bycatch along with the crew, make sure they know that you are sampling (not just helping out) and that you need the bycatch set aside for you. Do not have crew simply count bycatch for you and then rely on their counts multiplied by an average weight. **You must have direct, visual supervision of anyone helping you to gather sampling data.**

Whole haul sample species that have been sorted out of the catch must be counted and weighed. Their numbers and weights are entered on the Form 3US first with a sample type designation of "W." If the observer is whole haul sampling for only prohibited species, that part of composition sampling is complete. If the observer is sorting the whole haul and pulling out *all* bycatch, everything but the target (or predominant) species should be counted and weighed.

Now take a smaller, weighed or "basket" sample of the predominant species. Collect a random sample and count and weigh them. ***If there is only one predominant species of average size, 30 - 50 cm (like pollock), take a minimum of 80 kg*** *which is two or three baskets of fish.* This is the "B" sample data entered on the 3US form.

The method of sorting the whole haul for all bycatch may be expanded to include the situation of whole haul sampling when two species dominate the catch weight. A predominant species in the catch is not necessarily a species the vessel was targeting on. For example, when fishing for pollock, vessels will occasionally tow through clouds of jellyfish or a school of herring, and when fishing for Atka mackerel, they will sometimes pick up lots of brittle stars. If more than two species (other than

prohibited species) each make up a significant proportion of the catch weight, as is often the case in cod and flatfish fisheries, you must basket sample for target and all bycatch.

In the example for haul 50, a majority of the catch is comprised of pollock and jellyfish. Although there are lots of other species, the combined weight of other bycatch is very small. The procedure in this case is to sort out anything that is not pollock or jellyfish from the entire haul and identify, count and weigh it. Take a basket sample of pollock and jellyfish as they occur in the catch to determine their relative percentage by weight. Count and weigh them and record these data as sample type "B" on the 3US form. ***A basket sample to determine relative percentage of two species must be of a minimum of 200 kg.***

Sampling on Catcher Boats and at Plants: In pollock fisheries, catcher boat observers are to basket sample at sea for target and non-prohibited bycatch and then sample the delivery at the processing plant for prohibited species. Large capacity catcher boats which fish the Bering Sea can take many hours to off-load. So during delivery, Bering Sea catcher boat observers will almost always need to be relieved at the sorting belt by the plant observer. Deliveries by the smaller capacity boats in to Kodiak can be finished before the observer has finished sampling and sending catch messages! For these reasons, make sure you contact the plant observer and coordinate a work schedule with them.

If, for whatever reason, you were not able to successfully sample the delivery at the plant you will have to fall back on the basket sample data for all species. So, in the at-sea sampling, make a record of any prohibited species that turned up in your basket samples even though they will usually be removed and recorded only as part of the whole haul sample. Remember, the goal is whole haul sampling for prohibited species and basket sampling for composition of target and other bycatch species.

As the hauls of a catcher boat's trip are usually mixed together in the holds, sampling discrete hauls at the plant is not usually possible. All catches of a trip are usually sampled as a whole *delivery* sample for prohibited species. Then the number and weight of each species are proportioned to individual hauls based on relative catch weight as estimated at sea. If each catch is dumped into a separate RSW tank and there is no mixing (a rare circumstance), it may be evident which hauls prohibited species came from at the plant.

During pollock fishing at sea, if the crew is sorting and discarding some fish, you must take your composition sample from unsorted catch and ask that any prohibited species pulled out be given to you to sample. You must work in a place where you can supervise their sorting to be confident that you have not missed any prohibited species being tossed out. If you obtain prohibited species from sorting at sea then the whole delivery must be sampled at the plant. Partial delivery sampling is not an option at that point. The data for prohibited species discarded at-sea is added to prohibited species data obtained at the plant. If there was an unusually high incidental catch of a prohibited species being sorted at sea, you could just count them and then sample for and apply an average weight to estimate their total weight or just include them as one of the basket sampled species.

Flatfish and cod catches are usually sorted at sea on catcher boats but normally the composition is too diverse to whole haul sample for all bycatch. In a cod or *Gulf of Alaska* flatfish fishery, a catcher boat observer might sample the whole catch for one or more of the prohibited species groups at sea but will usually basket sample for all other species. (Bering Sea flatfish fisheries have a special sampling requirement, see 3 - 33.) However, if the catch was washed or sluiced from the deck into the tanks, the vessel or plant observer would have to monitor the sorting line at the processing plant to get prohibited species missed during sorting at sea.

Partial Haul Sampling

Criteria:

- sorting the bycatch or prohibited species from the whole haul would be too much to handle or take too long because the catch is large and/or because the processing rate is slow, but you are still able to sample a fairly large portion of the haul.
- the catches are still very pure or else they are relatively small
- you are "upstream" of any sorting of the catch
- the flow of fish is such that you are able to see everything in the portion of the haul that you are sampling
- **you are able to get an accurate sample weight** (this is discussed below - read carefully!)

There may be times when whole haul sampling is not possible; you are faced with a haul containing large numbers of non-target species (bycatch), an unreasonably long processing time, extremely large hauls, or insufficient access to the entire haul. Sampling only a portion of the haul is an alternative. The sampling procedure is the same as when whole-haul sampling, but bycatch is collected from only a portion of the haul and your sample weight is less than the Official Total Catch weight. **There are only two methods you can use to determine your partial haul sample size.** Visual estimates such as "about ½ or ¼ of the catch" are not allowed. Using a codend or bin estimate of total catch minus an estimate of unsorted catch dumped at sea is not allowed. *If you use a partial haul sample method you must report all sample size calculations in your logbook!* Remember, fish tend to stratify in a bin, and if you are frequently partial haul sampling you need to sample from different parts of the bin or hold. If sampling from all parts of the catch cannot be done in each sample, then sample different parts of the catch over several hauls. **The following two methods are presented in order of preference:**

1. Bin Volume: The most accurate, and easiest, way of estimating sample weight is by determining the volume of fish sampled from a bin. This is done by measuring the difference in the height of fish in the bin at the beginning and end of the sampling period. Multiply the difference in the height measurements times the area and then multiply that volume by the density, to determine the sample weight.

$$\text{height (m)} \times \text{floor area (m}^2\text{)} \times \text{density (mt/m}^3\text{)} = \text{sample size (mt)}$$

Refer to "Observer's Total Catch Estimates" in section two for instructions on measuring the amount of fish in a bin. You cannot use this method if you have not measured or verified the measure of the

bin, if you cannot see into the bin well enough to determine an accurate depth of fish, if there is standing water in the bin sufficient to float the catch load, or if unknown amounts of additional fish are added to the bin during your sampling period.

When partial haul sampling the target and bycatch, the sample weight is sorted and bycatch is removed from the target (predominant species). The bycatch is then sorted to species, counted and weighed. A weighed or basket sample is taken of the one or two predominant species.

The bin volume method can be used for just sampling one or more of the prohibited species groups too. Then the target and all other species could be basket sampled. The sample weight is calculated based on the volume that is sorted. Then only the species you decide to partial haul sample are sorted from the sample weight, counted and weighed. If you are whole haul sampling for some prohibited species and at the same time partial haul sampling for other species, any whole haul sample species that occur in the partial haul sample must be removed. If they were in the bin when a volume estimate was made, subtract the weight of whole hauled species from the bin volume sample weight. Whole haul sampled species may not be included in the species list or in the sample weight of partial haul sampled species.

2. Tally Method: Tallying fish is the primary method for sampling aboard a longline vessel and may be employed on trawlers too. On a trawler, when working beside a conveyor belt only distinctive or large fish such as cod can reliably be counted as they pass by. Smaller, numerous fish like pollock should only be tallied if the conveyor belt can be stopped while you count and remove bycatch.

To tally sample, a prevalent species is accurately counted and *all other species are collected* to be sorted, counted and weighed later. Just before and/or after the tally periods, a random sample of the tallied species is gathered to determine average weight. ***Try to collect a minimum of fifty fish for average weight.***

Be Careful: *average weight = weight ÷ number,* ***not the other way around!***

Tally sample weight = (# of tallied fish x avg. wt.) + bycatch wt.

On 3US, the entries for only the bycatch (non-tallied) species are recorded under sample type "P" for partial haul sampling. The sample for average weight of the tallied species is recorded below this as a weighed, or basket sample, sample type "B." Record the *total* number of fish tallied on the worksheet at the top of the form.

When sampling for prohibited species only, the tally method cannot be used to determine a partial haul sample weight. This is because getting a tally sample weight is dependent on accounting for the weight of all the fish sorted. When sampling only for prohibiteds, other bycatch is not also pulled out and weighed.

Partial haul sampling methods not to be used: There have been other methods for deriving a partial haul sample weight used in the past which are *no longer acceptable*. Sometimes a difficult

situation calls for creativity. If your solution doesn't clearly fit methods described in this manual, contact a NMFS office for authorization. On some c/p vessels there may be two conveyor belts emptying fish out of one live tank. If you monitor one of the two belts until the tank was empty, you *cannot assume* you sampled half of the haul. The speed of the belt and the depth of fish on the belt are too variable to use this generality. Using the tally method would be more appropriate. There are also vessels that divide their catch among two or more bins. If the catch fills two bins of equal size and you sample an entire bin you cannot assume that you sampled half the haul. Calculating an actual bin volume is required. Another method which is not acceptable is timing either a crewman or a machine.

Basket Sampling

Criteria:

- The rest of the species have been sorted from a whole and/or a partial haul sample and a sample of the predominant species is needed, or
- The catch is diverse in composition and no species have been sorted from the catch.
- The available time or the situation does not permit whole or partial haul sampling.
- You are sampling a Bering Sea flatfish catch where it is stipulated, because of the Incentive Program, that observers must use a "Basket" sample method.

In the course of your work you will be collecting baskets of fish for various purposes. However, when employing "Basket" sampling for species composition, this means that ***your sample is limited to an unbiased, random selection of organisms which were actually weighed.*** Weights based on average weight multiplied by the number are not acceptable. Do not use halibut weights taken from the Length/Weight Table unless the halibut are larger than one meter. A basket sample is ***not*** necessarily a sample collected and weighed with baskets. A variety of containers are used to collect and weigh the sampled catch: brailers, checker bins, garbage cans, totes and hoppers. Weighed or "Basket" sample sizes may range from the total catch weight to the weight of fish in one basket. The Observer Program's *guideline* is a 300 kg minimum sample size. If your sample weight is less than 300 kg there is usually *no problem* as long as the sample was collected in a random, unbiased manner, but an explanation for small sample sizes is requested. Be sure to record under "Daily Notes" in your logbook any difficulties you encounter.

Some biases to avoid when collecting samples of catch:

1. The heterogeneity of the catch in the net - i.e., some species, such as rockfish and crabs, tend to be found at the head end of the net while other species, such as flatfish, tend to concentrate at the bottom of the codend. Therefore, samples should be taken from different parts of the trawl.

2. As the fish are dumped into a bin, or as they pass onto a conveyor belt, the physics of fish flow may cause further sorting to take place - sampling should compensate for this.

3. Note the points where species sorting or size selection by crew members or by machines takes place - samples must be taken before such sorting takes place.

Sampling flatfish or Pacific cod fisheries differs from the pollock fishery in that the codends tend to be smaller and are brought entirely aboard the vessel and dumped on deck for sorting. The crew sorts the fish, discarding bycatch and prohibited species. In most of these fisheries then, all of your work will have to be done at sea. The preference for sampling on these vessels, except for Bering Sea flatfish fisheries, is to whole haul for prohibited species and basket sample for other species composition. However, on some c/p vessels fishing flatfish there may be five or more small hauls in a day. They can be processed quickly and an observer may barely have enough time to collect a good basket sample. Also, in flatfish and cod catches there is sometimes a high incidence of halibut and crab. If you cannot sort and collect prohibited species via whole or partial sampling, basket sample for all species. Basket sampling for all species is mandatory for Bering Sea flatfish fisheries (see 3 - 33).

Collecting baskets on a c/p: To collect samples, various methods are used to avoid unconscious selection for certain sizes or certain species. On catcher/processor vessels, a good method is to hold the basket where unsorted fish are falling from the live tank hatch to a conveyor belt, or from one conveyor belt to another. Or, the conveyor bringing fish from the live tank to the sorters could be stopped just long enough for all the fish from a predetermined point to point to be removed. Yet another technique is to find or design a diverter board for the conveyor belt. This is a board hinged into the side of the conveyor belt trough capable of blocking the fish flow along the conveyor belt, thereby allowing the catch to spill off the conveyor belt into a basket.

On catcher/processors it commonly takes an hour or several hours for all of the fish to be emptied from the bins to the factory and sometimes you do not have many baskets available and/or the sampling space is limited. Therefore it is recommended that you collect only two or three baskets at a time and do this at intervals during the haul processing. This also allows you to gather your samples effectively from different parts of the catch.

Collecting baskets on catcher boats: On catcher boats the observer usually works on the trawl deck. If the fish are dumped onto the deck for sorting, as is commonly the case in a cod fishery, the observer might partition off a section of the catch on deck with a board or shovel, then sort, count and weigh all the catch in the section. On some catcher boats the fish are dumped into checker bins (compartments on either side of the trawl deck). If they are not filled with too much fish, the observer could sort, count and weigh all the catch dumped into one of these checkers. The disadvantage of this is that the sample comes from only one part of the catch. Different bins might be used for other hauls or that bin could be filled from different parts of the codend on other hauls.

The best way to fill baskets is to "catch" the fish as they are flowing from point A to point B by inserting a basket into the flow or *diverting* the flow of fish into a basket. It may be possible to get samples directly from the codend by getting assistance from a crewman on the deck to hold a basket into the flow of fish as they fall from the net onto the deck but carefully consider your safety. If the catch is piled in a deck bin or the trawl alley, avoid shoveling fish into the blue baskets. Shovels are very size selective. The baskets are also size selective and make very poor shovels. Avoid size and personal bias in filling the baskets. Look at the sides of the trawl alley for hatches which can be raised to allow catch in the alley to spill through into a side pocket for sampling. If this can be done with small amounts of catch several times, the sample will more likely come from

different parts of the catch. The rim of an overturned basket or a hatch cover in the deck might be used as a sampling circle. Any organism touching, or inside of the circle, is part of the sample. Again, try to take your sample from different parts of each catch.

Processing your sample: Once the sample has been taken, there are two ways to handle the weighing of the species groups. One method is to *sort the sample before weighing, then weigh* each species group, count the number of individuals making up each group, and total the weights of each group to obtain the total sample weight. A second method may be more practical when one species is most prevalent in the sample. In this method, *the unsorted fish are weighed, then the observer sorts* the sample by species. Count and weigh the bycatch species groups. The weight of the dominant species group can then be obtained by subtracting the total weight of the bycatch species groups from the total sample weight. Divide the total predominant species weight by their average weight to obtain an estimate of their number.

With organisms such as brittle stars or jellyfish it might be easiest to weigh them all and divide the total species weight by their average weight to obtain an estimate of their number. Try to sub-sample at least fifty organisms for average weight. *However, **in a Basket Sample**, the weight of a species group may **only be obtained by actually weighing** or by subtraction of actually weighed fish. In a basket sample, **do not use halibut weight taken from the Length/Weight Table (unless the fish are longer than one meter)** and a species weight may not be obtained by their average weight times their number.*

Three Sample Types (W, P, & B) In One Haul

Using all three sample types to sample one haul is more to keep track of than most observers want to tackle but this type of sampling is employed occasionally on catcher/processors targeting pollock. It may occur when, for instance, the observer starts to whole haul sample for all species and then discovers there is too much bycatch to handle. (This observer would have to have measurable fish bins and have taken an initial depth reading.)

The observer stops sorting for all bycatch and takes a bin depth reading to determine the partial haul sample weight. The observer then decides to continue to sample the whole haul for only prohibited species. [The observer at this point *could* decide to just partial haul sample for all species and avoid the rest of this discussion!] When sampling is done, the observer may have some prohibited species which were found in the partial haul bin volume(s) and some which were found in the rest of the haul. From careful notes on the plastic sheet, the observer has to be able to tell these apart.

Once the partial haul sample weight is calculated based on bin volume, the weight of prohibited species which were found in the partial haul sample weight will have to be subtracted from that sample weight. Of course, whole hauled species *numbers and weights* are all listed under "W" sample type and cannot be listed under partial haul sampling either. The weighed sample of the dominant species will be listed last, as a basket sample. It can be seen that where whole haul sampling is requested for prohibited species, that utilizing three sample weights is not too difficult conceptually. It is just important to keep in mind:

- ☞ that a single sample should be sorted for all non-prohibited bycatch,
- ☞ whole haul sampled species may not be included in the species list or in the sample weight of partial haul sampled species, and
- ☞ the weighed sample of the dominant species must be listed as a basket sample and cannot be listed as part of the partial haul sample.

Catcher Boat Sampling In Pollock Fisheries

Our goal is to have all hauls basket sampled at sea for composition of target and bycatch and have all deliveries monitored completely at the plant for prohibited species. Salmon bycatch is a very contentious issue in pollock fisheries and it is difficult to determine the sample weight when only part of a delivery is sampled. Therefore vessel and plant observers must carefully coordinate their work to sample whole deliveries for prohibited species. Plant observers need to keep informed as to which boats have observers and vessel delivery schedules so they can meet observers coming in. Vessel observers are asked to stay aboard or at least in close contact with their vessel until it is off-loaded. Plant observers can then find the vessel observer and arrange to relieve them on the sorting line and/or finish their samples as needed. In this way complete deliveries can be monitored for prohibited species.

When basket sampling at sea, do not let the crew grab *any* fish prior to the point at which you take your sample. Then, your sample at sea can be used as a back-up sample for prohibited species if

something unexpected happens at the plant. If part of the catch could be spilled into a checker bin or other measurable volume, a partial haul sample at sea might be possible. It is understood that the weather and sea conditions can make on-deck sampling miserable and dangerous at times. As possible then, keep your sample size high to better represent the true composition of bycatch in the haul. Pollock from your target and bycatch sample should then be used for length frequency sampling but the length frequency sample should be a minor subset of the sample taken for species composition.

Typically, the crew will sort out the obvious prohibited species at sea and you will need to count, weigh, and measure them. Note these data in the comments section of the 3US form and leave room for them to be recorded in the keypunch section as you will likely find more prohibited species to add to that haul as you sort at the plant. From salmon take a scale sample and check for a clipped adipose fin indicating a coded wire tagged salmon. As the ship delivers its catch, it will be necessary to sort the off-load only for the prohibited species. Do not attempt to do your composition sampling at the plant.

Some Bering Sea catcher boats have sorting belts below deck and sort their catch at sea. Sorting at sea, even for prohibited species may not be thorough enough. The only way to check this is to sort the delivery at the processor. You will need the plant observer to help.

Sometimes catcher boat skippers dump large amounts of catch at sea. Remember, if it's in the net it must be recorded as catch. If a large part of a codend was dumped at sea, though the whole delivery was sampled, that haul will have to be listed on the 3US form as a partial haul sample for prohibited species. The partial haul sample weight would be based on the delivery weight. Note: this means none of the species in the catch were 100% retained. If this happens, refer to instructions for percent retained on page 3 - 32.

The first time your vessel delivers to a plant, catcher vessel observers should make a point of meeting with the plant observer (if any) before sampling to have them show you around and familiarize you with the operation. Find out how you can leave messages for the plant observer to arrange for them to spell you when you need a break, get the data they collect, or to send your catch messages to Seattle.

We ask that you sample the entire delivery for the occurrence of prohibited species. For that reason, you must stay with your vessel or at least in touch with your ship prior to off-load to insure you don't miss any of the delivery sorting. Delivery schedules and locations can change with little notice when the pressure is on to get back to fishing. ***You must not leave and miss part of the off-load, unless a plant observer is ready to take over while you are away.***

The weight and number of prohibited species found in monitoring these off-loads will have to be proportioned to the respective tows based on the relative catch weights of the trip. Then for each prohibited species, the total for each haul is the proportioned numbers and weights from the delivery sorting plus those sorted out at sea. See example of proportioning below.

If you did not basket sample all hauls at sea, due to weather or illness, sample the delivery for prohibited species as usual. Proportion the prohibited species data to all the hauls and simply discard prohibited species data for the hauls not sampled at sea. Remember, composition samples must represent all species in a haul and sample data for non-prohibited species must be discrete by haul.

Sampling the Kodiak Pollock Fishery: Observers on shoreside delivery vessels out of Kodiak during pollock openings have a special set of circumstances that necessitate the sampling routine described above. Experience has proven that this is the best overall scheme for this fishery in Kodiak. Vessel observers must not change the sampling scheme and then leave extra work for a plant observer to cope with.

Most of the processing plants in Kodiak require 100% observer coverage during pollock fishing yet contractors usually have their plant observers covering two plants. These plants are sometimes backed up with fish during the short, two to three week pollock openings and the 60 to 125 foot boats may deliver and head back out before the boat observer can sample the whole delivery. When the plants are backed up, a boat may deliver to any plant that can off-load it or may split their delivery between two plants.

In Kodiak, our field office personnel are in contact with contractors to keep an updated list of observer assignments. Plant observers are then kept informed by the Kodiak office as to which boats have observers and they will know delivery schedules so they can meet vessel observers coming in. During the short, intense openings in the Gulf, Observer Program staff in Kodiak will also be on-call and working at the plants as needed for backup. When sampling vessels deliver pollock to Sand Point, Chignik or other Gulf ports, this level of support may not be possible.

Catcher-only trawlers delivering pollock to Kodiak processing plants do not normally sort their catch on board except for the occasional salmon or other large bycatch fish if it is easily grabbed. The catch is dumped directly into tanks below deck and it is pumped out at the plant. At one time, observers felt that they could whole haul sample these catches, sorting them as they were dumped below. We had observers test this by sorting through the catches again at delivery and found that nearly half of the bycatch had been missed when whole haul sampling on deck. Therefore, do not attempt to whole haul sample at sea.

Proportioning Plant Data

This is an example of proportioning the data collected at a plant to obtain OTC and prohibited species incidental catch data on a per-haul basis. This is the typical method used by observers on catcher-only vessels in pollock fisheries.

Step 1: Basket sample each haul at sea for the composition of target and bycatch species. Use this sample as a back-up prohibited species sample by noting which (if any) prohibited species occurred in the basket sample. Record numbers, weights, and appropriate biological data from *any* prohibited species sorted out of the catch at sea. Collect length frequency data of target species while at sea.

	At-Sea Discards:	Vessel Estimate of Total Catch
Haul 1:	One 3.3 kg male chum salmon (not in sample)	40 mt
Haul 2:	52.0 kg of jellyfish	55 mt
Haul 3:	10 mt unsorted catch dumped at sea because the tanks were full	20 mt (before dumping)

Step 2: Sample for prohibited species at the plant.

This requires you to work on the sorting belt to collect prohibited species and record the plant scale readings for delivery weights of species other than prohibited ones. Convert weights taken from the plant scale from pounds to kilograms (1 kg = 2.2046 lb).

Twenty chum salmon were subsampled. Scale samples were taken from the first ten chum salmon as these were the first ones of the cruise. The other ten were sampled for sex, weight and length data. On your plastic sheet you have them listed:

Specimen No.	Sex	Length (cm)	Weight (kg)	
1	F	62	3.3	
2	M	63	3.2	
3	F	59	2.8	
4	F	75	6.2	
5	F	57	2.4	
6	M	55	2.3	

Specimen No.	Sex	Length (cm)	Weight (kg)	
7	F	62	3.5	
8	F	66	4.2	Haul 1: 2 males 5.5 kg, 6 females 22.4 kg
9	M	60	3.7	
10	M	63	3.7	
	M	71	5.0	
	F	53	2.2	
	M	75	6.2	
	F	66	3.9	
	F	57	2.6	
	M	69	4.7	
	M	57	2.4	
	M	58	2.4	Haul 2: 7 males 24.4 kg, 3 females 8.7 kg
	F	64	3.5	
	F	66	5.7	Haul 3: 2 females 9.2 kg

Step 3: Proportion prohibited species found at the plant to the individual hauls.

The estimates used for proportioning can be observer estimates, vessel estimates, or band counts. To be consistent, use only one of these three types of estimates for hauls of a single trip. In this example, the ratios are from the skipper's estimates of delivered catch.

Haul 1: 40 mt
Haul 2: 55 mt
Haul 3: 10 mt (20 mt was recorded in the log minus the 10 mt dumped at sea, unsorted)
Total 105 mt

The at-sea discards (salmon and jellyfish) from haul #1 and #2 were not subtracted from the total catch estimates used for the proportioning because they would not significantly affect the proportions. The codend dumping in haul #3 was significant, so the estimated discard was subtracted. It is important that you note in your log whether the vessel's estimate does or does not include the tonnage discarded.

Use the relative catch weight to distribute the weight of delivered species to the hauls.

Delivered Species	Totals		Haul 1 (40/105 mt)	Haul 2 (55/105 mt)	Haul 3 (10/105 mt)
	No.	Weights (kg)			
Pollock Broken pollock		180627.32 163.51			
Bycatch		542.60			
"		86.50			
"		54.60			
"		114.80			
Non prohib. totals		181589.33	69176.89	95118.22	17294.22
Chum, subsample	*20		(8 fish)	(10 fish)	(2 fish)
Chum, remainder	64	217.62	82.90	113.99	20.73
King salmon	*1	4.50		4.50	
Halibut	*3	14.20	1 @ 3.60	2 @ 10.60	
Discard At Sea			chum: 1 M @ 3.3 kg	jellyfish, 52.00	10000.00

* *Numbers are proportioned* and then individuals are assigned to hauls randomly if their total number is less than the number of hauls and when individual data is collected. Those individuals must have the same assigned haul number for any other data such as length, viability, or specimen samples. Apportion *the weight* of more prevalent species to hauls according to relative haul weight.

For numbers of each high frequency species by haul, either proportion the total number as was done with weight or calculate them using average weight data.

Step 4: Complete 3US forms and calculate OTC.

Enter prohibited species data on 3US. Remember that prohibited species should be listed first on the form. For any prohibited species where some were sorted at sea and some were found at the plant, the data will have to be combined. For example haul 1 this applies to male chum salmon.

For the OTC of each haul, add the proportioned, non-prohibited delivery weight, the prohibited species weight and the weight of any catch discarded at sea.

Haul 1: 69176.89 kg + 5.5 + 22.4 + 82.9 + 3.6 + 3.3 = 69294.59 kg or 69.29 mt
Haul 2: 95118.22 kg + 24.4 + 8.7 + 113.99 + 4.5 + 10.6 + 52.0 = 95332.41 or 95.33 mt
Haul 3: 17294.22 kg + 9.2 + 20.73 + 10000 kg discard = 27324.15 kg or 27.32 mt

Haul #1 and #2 are whole haul samples for prohibited species, haul #3 is a partial-haul because the fish dumped at sea were not sampled (sample weight is 10 MT less than OTC).

If Presorting Occurs

Presorting is the sorting of any individuals, species, or species groups prior to the point where you are collecting your sample. It normally takes place on the deck, but can also occur in the holding tanks. Prohibited species and low quota species are most commonly presorted, however vessel personnel may also presort skates, sharks, or other large individuals. Although this practice makes perfect sense to vessel personnel, as an observer, presorting interferes with your ability to obtain a random and representative sample. Though fisheries regulations prohibit presorting you may have limited success preventing this practice from continuing. Given that, there are a few things you need to do when presorting is taking place.

1. Talk to the skipper. Give him the benefit of the doubt that he doesn't know it is occurring, or the effects it has on your sampling. This is not a confrontation! Try to work out a compromise with the skipper so that presorting does not occur when you are sampling. You may suggest basket sampling from the spill of the net rather than in the factory or the plant. It may be possible to whole haul sample for the presorted species. Start on the deck counting (and weighing if possible) the presorted species before they are tossed back and getting any missed individuals in the factory or plant. Either of these options will require some cooperation from the crew which you should discuss with the skipper at this time. Regardless of the outcome of this discussion write up a detailed account in the "Daily Notes" section of the logbook.

2. If all efforts to eliminate presorting haven't solved the problem, collect numbers and weights of all species that are presorted, for halibut you can collect lengths instead of weights. The fastest way to get lengths is to take your tape measure or measuring strip to the fish. Make sure you're not getting a curvilinear length. Or you could create a measuring "stick" for quick lengths. At the least, estimate the size and try for accurate counts of what is being tossed. Continue to log the presorting incidences in the Daily Notes section.

You also have the option of notifying NMFS of the problem. However, if you do we will assume that you want us to address the problem with the vessel and company. We will respond by sending written notification to both that we understand there is a problem with presorting on your vessel and reminding that presorting is specifically addressed in the regulations. Although this may solve the problem it may also put you in a difficult position on the vessel. You will have to weigh the pros and cons, and make the decision you feel most comfortable with. Regardless of your decision continue to document presorting in your logbook.

3. Why is it important to collect numbers and weights (or lengths for halibut) of presorted species? The measured lengths and viability of the halibut are important data to record on the 7US form. (Remember do not record estimated lengths on 7US). For halibut, convert both measured and estimated lengths to weights using the table in the manual. For non-halibut species that you counted but could not weigh, multiply the number by an average weight (calculated from actual numbers and weights for that species from like hauls). If you are whole haul sampling, add these weights and numbers to your sample data. If you are partial haul or basket sampling; these weights can be used to correct your data.

Depending on the weight of the presorted species, your sample size, and the haul weight, presorting may or may not have a significant effect on your data. In the worksheet section of each 3US form for hauls with presorting, record the weights and number of all presorted species in that haul unless you have been able to account for them in your data. (They may be included in your data by changing your sampling method to whole haul sampling for halibut and including the number and weight of presorted ones or making a whole haul entry for the occasional large shark, giant squid or possibly, large skate.) During your mid-cruise check-in or when debriefing, advise the NMFS staff member of the problems you encountered. The staff member will determine if your data needs to be revised to account for the presorting. Regardless of the degree of presorting, it is of **vital importance** that you record the numbers and weights at the top of the 3US, and continue logging all occurrences in your logbook.

Mixing of Hauls On C/P Vessels

A special sampling problem exists when hauls are being unavoidably mixed and you must sample after mixing occurs. If this happens, there are at least three possible courses of action:

1) Look at the arrangement and capacities of the fish bins and consider the frequency and tonnage of the fish being delivered. If it is possible to do so, ask the captain or fishing master to keep the hauls separate. If several bins empty onto the conveyor belt from which you are sampling at one time, ask the factory manager if he could arrange for only one bin to be emptied at a time while you are sampling.

2) If the fish are thoroughly mixed before you start, take a larger sample (double the normal size if possible) from the combined hauls and divide the sample data proportionally by haul weight and enter the data as two separate samples. Adjust the species weights as necessary to preserve their actual average weight. Haul by haul information is a convenient and necessary way of dividing up the data, but if the hauls are from the same area, vessel and time period, it is not critical that the fish are attributed to the exact haul they were caught in.

3) If you observe differences in the species composition of the mixed hauls as they are being dumped, use your judgement to attribute bycatch to the appropriate haul. This could only be done if the mixed hauls were very different in composition, such as a pelagic haul of pollock and a bottom haul of turbot.

4) If you observe layering of fish after the mixing of hauls, you possibly could see the difference in new fish versus old fish in freshness and in state of rigor. Noticing this difference can allow you to sample either or both hauls and obtain discrete data.

5) If you had already been sampling for awhile and a new catch is dumped on top of the one you were working on, finish your sample, attribute it all to the haul you started on and call it good.

PERCENT RETAINED ESTIMATION

The percent retained by species group represents the round weight of fish (before processing) that is retained by the vessel from any given tow or set that the observer samples. Observers are to make their best estimate of the weight of whole fish of each species that is retained (whether retained in whole or in part) on each sampled tow or set. This figure needs to be estimated and reported on the 3US form. Then, for some of the species report *groupings* on the CMA form, the percent retained will have to be recalculated for several species together. See the example CMA form for haul 50.

There is no clear scientific way for observers to arrive at the percent retained by species because of the variability in discarding that occurs on vessels, and the many different places discard takes place. Recognizing these limitations, we want observers to make an approximation based on what they see happening on their particular vessel. Because this is an approximation, corresponding time and effort given to obtaining it should be minimized and complex mathematical approaches to this task avoided.

Because the focus is the entire tow or set, observers need to take all discard into consideration. If a trawler dumps a significant portion of any sampled haul back into the sea before sorting, then none of the species groups of that haul were 100 percent retained. For example, if 30 tons of an 80 ton net were dumped, then no more than 5/8ths or 63 percent of each species group should be reported as retained. Further, if fish are falling off the belts in the factory beyond the observer sampling station and are later washed out of the vessel, these too should be considered as discard. To provide guidance, the following are acceptable methods to determine percent retained by species for the major gear types:

Catcher/Processor Trawlers: In most instances, this estimate will only be a visual approximation based on the observer's best judgement and observations of what is going on in the factory. For this figure, it is acceptable to make your best guess. In some cases, however, the vessel may have a rigid method for selecting a certain size or sex of fish which is applied consistently to the catch. If that is true, it is acceptable to use the composition sample to determine the weight of fish that would be sorted out by size, sex, or species in the factory. It is also acceptable to just make your best estimate. In making your approximation on a catcher/processor, if any part of a fish is retained then the entire fish is counted as retained. A cursory look at factory production figures, followed up by further investigation, might make you aware that a particular species group is sometimes utilized when you thought it was always discarded.

When making an estimate of the percentage of fish being retained, avoid basing your estimate on relative *numbers* of fish. Remember that this figure is a percentage of *weight*. If small fish are being discarded and the larger ones retained, the weight percentage of retained fish is greater than their percentage by number.

If a c/p vessel puts up product but days later discards it overboard in favor of a more valuable product (high grading), it is not necessary to try to revise earlier figures for percent retained of the discarded product. Just make a note of it in your daily log.

Catcher-only Trawlers: Observers on catcher-only vessels must consider everything that is delivered to the processor as retained, regardless of whether the processor later discards it, or gives it back to the catcher to take back out to sea for discard. With that distinction, the methods are the same as a catcher-processor trawler.

THE PROGRAM TO REDUCE PROHIBITED SPECIES BYCATCH

What It Is: The "Program To Reduce Prohibited Species Bycatch" was designed by the trawl industry and the NMFS to encourage trawl vessels with high bycatch rates of prohibited species to change their fishing strategies to reduce the incidental catch of specific prohibited species. The program which is also known as the Vessel Incentive Program (VIP) establishes bycatch standards for all trawl fisheries in the Bering Sea and the Gulf of Alaska. Under the recommendations of the North Pacific Fishery Management Council, the NMFS enacts catch rate standards by target fisheries for certain prohibited species groups: weight or number of halibut and red king crab per metric ton of allocated catch. Vessels that exceed the set bycatch standards for the target fisheries in which they participate may be subject to penalties for not taking appropriate measures to reduce their bycatch rates.

Why It Is Used: Occasionally a fishery for a target species will be closed to further fishing before the quota is reached for that quarter. The reason for the closing is that a prohibited species "cap" has been reached for that fishery. As an example, say the yellowfin sole quota for an area of the Bering Sea is X metric tons but the maximum weight of halibut allowed to be incidentally caught while fishing for yellowfin sole in that area is H metric tons. If H metric tons of halibut are caught long before X metric tons of yellowfin are caught, the yellowfin sole fishery would close for that area. Many yellowfin would be left in the quota but no trawlers would be allowed to fish for them.

The accusation is that certain vessels have "dirty fishing" practices with high prohibited species bycatch rates and other vessels fish more efficiently or "clean". To close the fishery before the quota is taken "punishes" all vessels equally. The VIP program holds operators of trawl vessels accountable for their bycatch rates and encourages "dirty fishing" vessels to incorporate fishing strategies that reduce the bycatch of the tracked species such as the use of more selective gear, moving to another area or not fishing at night.

How It Is Used: At the end of each week a statistician at the NMFS in Seattle uses the observer's weekly catch message data to calculate the bycatch rates of halibut and red king crab by VIP target fisheries for all trawl vessels in the Bering Sea (BSAI) and Gulf of Alaska (GOA). Standard acceptable bycatch rates for halibut and red king crab are set quarterly for the following VIP Fisheries:

BSAI Midwater Pollock,	BSAI Yellowfin Sole,
GOA Midwater Pollock,	BSAI Other Trawl,
BSAI Bottom Pollock,	GOA Other Trawl.

At end of each fishing month[1], the NMFS determines which vessels, if any, have exceed the bycatch rates. The NMFS regional office in Juneau posts the rates for all trawl vessels on the fisheries Bulletin Board Service. The rates are posted by means of a personal identification number (PIN) which is used to protect the identity of the vessel. In addition, the NMFS in Juneau sends a letter to notify the vessel owners that their vessel has exceeded the bycatch rates. Violations can be issued for each month that the standard was exceeded and penalties of monetary fines, permit sanctions or forfeiture of the vessel and its catch can be levied.

Observer Sampling: Some fisheries have special rules for observer sampling for the incentive program. ***If you are fishing in the Bering Sea and yellowfin sole, rock sole and/or "Other" flatfish report groups*** (excluding arrowtooth flounder and Greenland turbot) ***appear to be the dominant species groups in your catch, you must basket sample for species composition and prohibited species.***

If you are on a vessel in the Bering targeting flatfish you ***must basket sample*** (a weighed sample) for target, bycatch, and prohibited species together. Try to increase your sample size as well. In this fishery, no whole or partial haul sampling is allowed for any species. In other VIP fisheries, all the regular sampling options are available to you. ***All trawler observers must follow the Random Sample Table in choosing hauls to sample*** and you need to document in your logbook exactly which hauls you sampled and your reason for skipping any haul. Please send accurate and timely catch messages to NMFS in Seattle. If for some reason there was no sampling for a week, send us a message about that.

Document thoroughly in your logbook any hindrance to your sampling. Watch for possible pre-sorting of the catch by the crew before you are able to collect samples. If you encounter sampling interference, document time and date, who was involved, what happened, how many animals were pre-sorted, what you did, what they said, etc. for ***each*** incident. Direct quotes are preferable (consult the "If Presorting Occurs" and "Steps To Take If You Suspect A Violation" sections). Presorting before an observer has a chance to sample is a fishery violation and you should speak to the captain about ways you can get unsorted catch to sample with the least hindrance to fishing operations. Continue to sample and try to resolve any problem by speaking to vessel personnel or with the skipper. If problems continue, notify NMFS in Seattle or one of the NMFS field offices immediately, by any means possible. (For contact numbers, refer to 6 - 2.)

Special Note: Vessel personnel may want you to calculate the prohibited species bycatch rates for them. The vessels may obtain the information necessary to calculate their own rates from you, but the vessels are responsible for monitoring their own activities. Because of the legalities involved and lack of detail you are provided with regarding the computation of the rates, observers must not put themselves in the position of calculating rates for the vessel.

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[1]This is not the same as a calendar month. For further information see "The Program To Reduce Prohibited Species Bycatch" section in your regulations section.

Some fleets hire a data coordinator who is stationed on a designated ship or at the company office who calculates the prohibited species bycatch rates for individual vessels. NMFS highly encourages vessels to take the responsibility of monitoring their own activities. We ask that you cooperate by providing the requested data to the vessel personnel, not on demand, but as possible, in a timely manner. ***Remember however, do not calculate rates for the vessel.*** If the vessel personnel have questions about the VIP program, the bycatch rates, or how to calculate their own rates, it is best to refer them to the individuals most informed about their specific questions. You will find those numbers listed on the last page of the fishing regulations section. Since regulations can change after your deployment and we are unable to keep you informed of the changes, we ask that you do not attempt to provide advice to the vessel.

BIOLOGICAL DATA COLLECTED FROM PROHIBITED SPECIES

In addition to the numbers and weight of halibut and herring, and numbers, weight and sex of salmon, Tanner crab, and king crab in your sample, certain additional data are required on these species. The additional data collected will consist of:

1. Length measurements - Measure the fork length of salmon in your sample. Sample halibut at the point of discharge for length and condition. Measure all king and Tanner crab in your samples.

2. Viability - All observers measure and assess condition of halibut from hauls sampled for composition but not necessarily the halibut *in* the sample. Record these data on Form 7US.

3. Scale samples from salmon - Scale samples from each species in your sample are taken to spot check your identifications and for age determination.

4. Presence of eggs on crab - When the king and Tanner crab in your samples are examined for sex, note whether females have eggs under the abdominal flap. Record this on form 7US.

5. Tagged fish and crab - Various tagging studies are in place for these and other species. Be sure the crew knows you are particularly interested in looking at any tagged fish or crab they may see and knowing *which haul they came from!*

Subsampling -- It may be possible to obtain the data outlined above from all of the individuals in the sample for prohibited species. However, if there are too many of a given species group in your composition sample to process in a reasonable length of time, a random representative subsample may be taken. ***If you must subsample, try to collect data from no fewer than 20 halibut, 20 salmon, 20 king crab, and 20 Tanner crab per sample.*** These are guideline numbers for minimum subsamples. Certainly, if you had only 22 Tanner crab, you should collect information from all of them. Alternately, if you are able to take on more work than these minimum guidelines specify, do not collect biological data on more than 100 of any prohibited group. Instead, devote your extra time to larger, or more, species composition samples.

Collecting Data From Salmon and Steelhead

The following information should be collected from the salmon and steelhead obtained in the prohibited species samples:

(a) **Species identification** -- the six species (and their other common names) which may be encountered are: king (chinook), chum (dog), sockeye (red), pink (humpback), coho (silver), or steelhead.

(b) **Sex** -- determine the sex of each salmon; only live salmon that have minimal scale loss should not be sexed, but listed as "unknown" sex. When you're not sure of the sex of a salmon, the sex should be listed as "unknown." If you do not have enough time to sex it, leave the column for sex blank on 3US but this type of entry on 7US will have to have a "U."

(c) **Numbers** of salmon/steelhead--determine numbers by species and sex groups.

(d) **Weight** -- record the individual weights if scale samples are to be taken; if scale samples are not taken of all fish, obtain the total weight by species and sex group for those fish whose scales were not sampled.

(e) **Length** -- the fork length of each salmon found in the sample is recorded to the nearest whole centimeter on Form 7US (Length Frequency of Measured Species). Length measurements are grouped by species and by sex, and are recorded in ascending order.

(f) **Scale samples** -- the purpose of taking scale samples is primarily for confirming the observer's identity of the salmon, and secondly, the scales may be read for age and possibly, stream of origin information. Therefore, observers should take scale samples of the first ten (10) salmon of each species identified during the deployment period (regardless of the number of vessels the observer was on). Then collect scales from ten (10) more salmon of each species *from throughout* the remainder of your contract. Follow the collecting instructions in "Salmon Scale Sampling" in section 4. *Do collect* a scale sample any time you are not sure of the identification and from all tagged salmon. *Do not collect* scales from salmon that are not part of your prohibited species sample unless they were tagged salmon or you have special instructions.

(g) **Check for tagging** -- missing adipose fin, pectoral and or pelvic fins that are clipped, plastic discs attached through the dorsal ridge, clipped maxilla, or brands. Salmon with the adipose fin clipped off may also have been tagged with a tiny coded wire in the snout. Therefore, please cut the snout and collect it as directed in the sections on "Coded Wire Tag Recovery Program" in section 4 or "Tagged Fish" in the appendix.

The observer should seldom have to subsample salmon. If time does not allow the observer to gather all of the above information from each fish, get at least numbers and weights by species from your random sample, (failing this, reduce your sample size!). Then take a random subsample for sexed lengths (and watch for tags). Take scale samples from each species identified, as needed.

Collecting Data From King and Tanner Crab

The following information should be collected from the king crab and Tanner crab obtained in the composition sample for prohibited species:

(a) **Species identification** -- prohibited crab species off Alaska which could be encountered are red, blue, brown, and Lithodes couesi king crab; Chionoecetes bairdi, C. opilio, C. hybrid, C. angulatus, and C. tanneri Tanner crabs.

(b) **Sex**--determine the sex of each crab. When you're not sure of the sex of a crab the sex should be listed as "U" for unknown." If you do not have enough time to sex it, leave the column for sex blank on 3US but this type of entry on 7US will have to have a "U."

(c) **Eggs** -- While determining sex, note whether females have eggs under the abdominal flap. When recording female crab measurements on form 7US, the length data will have to be grouped according to the presence of eggs, Y, N, or U (for Yes, No, or Unknown).

(c) **Numbers** of king/Tanner crab--determine numbers by species and sex groups.

(d) **Weight**--record the total weight by species and sex group.

(e) Check for **Tags**--follow the directions under "Tagged Fish and Crab" in the appendix.

(f) **Measure lengths of king crabs and widths of Tanner crab** according to the instructions in the manual appendix. King and Tanner crab are the only species of crab which should be measured unless your vessel is targeting pollock in the Bering Sea or Gulf of Alaska, using a pelagic trawl, see below. Lengths are recorded by sex on Form 7US.

Observers on Bering Sea Flatfish Vessels

The Alaska Department of Fish and Game manages the king crab resources. Effective management of this resource depends on area-specific bycatch data., For example, fertilized female red king crab abundance is below the threshold needed to conduct the fishery, so more sample data from incidentally caught king crab are imperative to design time/area closures of Bering Sea trawl fisheries that are effective for protecting females. Thus they have requested an increase in the amount of king crab data collected by observers.

If your vessel is in the Bering, targeting on flatfish, make a visual estimate of the number of king crab in *any given haul* (either sampled or unsampled for species composition). If the haul appears to *contain more than 100 king crab*, randomly collect 50-100 king crabs, determine sex and measure their lengths. Record these data on 7US.

It is possible that you will be assigned a special project. This should not be a problem unless you vessel is catching large numbers of king crab. If you are consistently measuring additional crab from outside your sample, and you are unable to keep up with all your assigned duties, follow these steps:

1) Reduce you flatfish target length frequencies to 75 per day.

2) Daily alternate between your special project and taking crab measurements.

3) If you are still unable to keep up with the sampling requirements, notify the Observer Program in Seattle and we will give you further instructions.

Observers on Pelagic Trawl Pollock Vessels:

The pelagic trawl definition includes a performance standard based on the number and size of crab on board at any time. Because the presence of *twenty or more of any species* of crab would indicate non-pelagic fishing, the performance standard includes all crab species. The Alaska Regional Office has requested that observers collect size data on all crab in their samples. Therefore, if your vessel is targeting pollock using a pelagic trawl, record the width (or length for king crab) of *all species of crab* that occur in your composition sample on 7US. For Korean horsehair crab and box crab measure the width at the widest point of the carapace. Crab species other than king or Tanner crab do not have to be sexed and the presence of eggs should be listed as "U."

Collecting Data From Halibut

(Trawler sampling only)

Numbers-- On Form 3US record the number of halibut that occurred in your species composition sample. This is not necessarily the same fish or same number of fish as recorded on 7US (Length Frequency of Measured Species).

Weight -- Individual weights are not necessary, but you must obtain the total weight of halibut that occurred in the composition sample. Halibut too large to be weighed can be just measured and sometimes the length must be visually estimated. Look up lengths of measured or estimated fish in the halibut length-weight table (see 3 - 42 and the Appendix) to obtain corresponding weights. The total weight of halibut on 3US may then include these table weights of measured fish summed with scale weights of the halibut that could be weighed.

Weighing Preferences:

1st -- halibut should be actually weighed,
2nd -- actual measurement and weight from the Length/Weight Table
3rd -- estimated length and weight from the Length/Weight Table
OR
3rd -- sample for average weight and apply to a count of halibut when ones counted are all of a similar size.

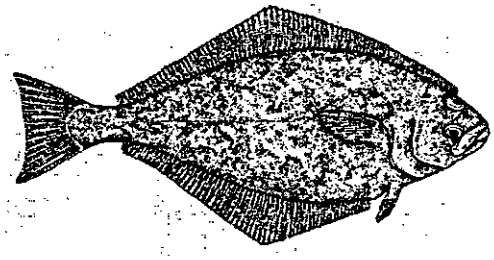
Do not sex halibut, not even the dead ones. On Form 3US, leave the column for sex blank. On Form 7US, record the viability categories in the column for sex.

Length and Viability data must be taken from the same fish. Viability is an appraisal of the condition of halibut - excellent ("E"), poor ("P"), dead ("D"), or unknown ("U") when condition was not appraised. Measure lengths and determine viability only of halibut from hauls sampled for composition.

Do not guess the condition of halibut you do not have in hand and personally examine. Halibut of 50 cm or more are very sturdy fish and one seen "swimming vigorously away" may still have had a substantial injury and should have been listed as in poor condition.

Measure and record fish lengths to the nearest whole centimeter. Do not lay a measuring tape from the deck, at one end, up and over the body and back to the deck. Instead take a straight-line measurement by laying the tape measure on the deck and putting the fish on top of it. Record length frequencies of only actually measured fish by condition category on Form 7US. Do not include any estimates in length frequency data.

Assess halibut condition just before they drop back into the water under normal handling conditions. A typical example would be if you collect and examine halibut where they are normally sorted out from the catch; where you or the crew put them on a discard belt. Even though it may be less than a minute to the discard chute, if the larger, 70 to 90 cm., halibut are not picked up right away by an incline conveyor belt or are battered by the belt, your viability data is biased. In this example, your appraisal of condition must be done after the incline belt rather than at the point of sorting. Halibut length and viability sampling can only be done at the point of discard whether the composition sample is taken there or not.



Halibut measured and examined must be collected randomly or from a systematically collected sample. However, it may or may not be appropriate to measure and examine the halibut collected in your composition sample. Viability and lengths of halibut *may be taken* from randomly selected fish (up to 20) from outside your composition sample as long as they're from a sampled haul or set.

Catcher-only trawler observers sampling at processing plants should definitely record condition of halibut sorted out at the plant. *Longline observers* have specific instructions for viability and length sampling and monitoring for careful release of halibut. They need to refer to the longline section of this manual.

Collect only unbiased data -- Halibut greater than a meter in size are often sorted out on the deck of a trawler because, if dumped below, they're a problem to get out of the tanks. Smaller halibut in the catch are sorted out of the catch later. Unless you can sample the whole haul for halibut, it is not possible to sample from both discharge points in an accurate proportion. If you cannot obtain an unbiased sample, don't collect length or viability data on that haul. In this example, on hauls when no halibut are sorted from the deck, length and viability sampling should be resumed. In your logbook, record circumstances like this that affect your data.

For the catch report -- The frequency of halibut in each of the three condition categories must be summed by region (Bering Sea separate from Gulf of Alaska). Record the summation on the Inseason Halibut Viability form for each week or trip catch report. Include a Viability Form entry in your report even if it's to report zero halibut sampled in a trip or week.

"Definition of Condition" tables -- Trawler, mothership and pot vessel observers use the "Definition of Condition" table on the next page to determine the category. The table for longline observers to use is in the longline section of this manual. Both are also in the appendix.

Halibut L/V Sampling Guidelines:

Measure lengths and determine viability only of halibut from hauls sampled for composition.

Do not guess the condition of halibut you do not have in hand and personally examine.

Assess halibut condition just before they drop back into the water under normal handling conditions.

Halibut measured and examined must be collected randomly or from a systematically random sample of the entire catch.

Definition Of Halibut Condition

For Observers On Trawl and Pot Fishing Vessels

Criteria are listed in priority order.

Excellent: No sign of stress

Fish closes operculum (gill cover) tightly for at least 5-10 seconds.
Muscle tone or physical activity is strong, jaw may be tightly clenched.
Injuries, if any, are minor: hemorrhaging on white side 5-10%; minor fin fraying; superficial nicks or cuts.
Gills are deep red.

Poor: Alive, but showing signs of stress

Moderate injuries maybe present: hemorrhaging on white side approximately 25%; severe fin fraying; slight bleeding from fin edges; moderate abrasions or cuts.
Fish closes operculum weakly and not sustained.
Muscle tone or physical activity is weak: intermittent movement; may respond if stimulated; body appears limp.
Gills are deep to bright red.

Dead: No sign of life or, if alive, likely to die from severe injuries or suffocation

Vital organs may be damaged: body or body cavity may be ripped open; severe skin lacerations; sediment in mouth, hemorrhaging on white side 50% or more.
Fish does not close operculum, jaw may be open.
No sign of muscle tone; physical activity absent or limited to fin ripples or twitches; little, if any, response to stimuli.
Severe bleeding may be occurring.
Gills may be red, pink, or white.

RELATIONSHIP OF HALIBUT LENGTHS TO WEIGHT (LIVE WEIGHT)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
10	.01	55	1.82	100	12.64
11	.01	56	1.93	101	13.05
12	.01	57	2.05	102	13.47
13	.02	58	2.16	103	13.91
14	.02	59	2.29	104	14.35
15	.03	60	2.41	105	14.80
16	.03	61	2.55	106	15.26
17	.04	62	2.69	107	15.73
18	.05	63	2.83	108	16.21
19	.06	64	2.98	109	16.71
20	.07	65	3.13	110	17.21
21	.08	66	3.29	111	17.72
22	.09	67	3.45	112	18.24
23	.11	68	3.62	113	18.77
24	.12	69	3.80	114	19.32
25	.14	70	3.98	115	19.87
26	.16	71	4.17	116	20.44
27	.18	72	4.36	117	21.01
28	.21	73	4.56	118	21.60
29	.23	74	4.76	119	22.20
30	.26	75	4.98	120	22.81
31	.28	76	5.19	121	23.43
32	.32	77	5.42	122	24.07
33	.35	78	5.65	123	24.71
34	.38	79	5.89	124	25.37
35	.42	80	6.13	125	26.04
36	.46	81	6.38	126	26.72
37	.50	82	6.64	127	27.41
38	.55	83	6.91	128	28.12
39	.60	84	7.18	129	28.83
40	.65	85	7.46	130	29.56
41	.72	86	7.75	131	30.31
42	.76	87	8.05	132	31.06
43	.82	88	8.35	133	31.83
44	.88	89	8.66	134	32.61
45	.95	90	8.98	135	33.41
46	1.02	91	9.31	136	34.22
47	1.10	92	9.64	137	35.04
48	1.17	93	9.99	138	35.87
49	1.25	94	10.34	139	36.72
50	1.34	95	10.70	140	37.59
51	1.43	96	11.07	141	38.46
52	1.52	97	11.45	142	39.35
53	1.62	98	11.83	143	40.26
54	1.72	99	12.23	144	41.18
				145	42.11

RELATIONSHIP OF HALIBUT LENGTHS TO WEIGHT (LIVE WEIGHTS)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
146	43.06	188	97.39	230	187.75
147	44.02	189	99.11	231	190.40
148	45.00	190	101.10	232	193.09
149	45.99	191	102.83	233	195.80
150	47.00	192	104.58	234	198.53
151	48.02	193	106.36	235	201.29
152	49.06	194	108.16	236	204.08
153	50.12	195	109.97	237	206.90
154	51.18	196	111.81	238	209.74
155	52.27	197	113.67	239	212.61
156	53.37	198	116.00	240	215.50
157	54.49	199	117.45	241	218.43
158	55.62	200	119.37	242	221.38
159	56.77	201	121.32	243	224.35
160	57.93	202	123.28	244	227.36
161	59.11	203	125.27	245	230.39
162	60.31	204	127.28	246	233.45
163	61.53	205	129.32	247	236.54
164	62.76	206	131.37	248	239.66
165	64.01	207	133.45	249	242.80
166	65.27	208	135.55	250	245.98
167	66.55	209	137.67		
168	67.83	210	139.82		
169	69.17	211	141.99		
170	70.51	212	144.18		
171	71.86	213	146.39		
172	73.23	214	148.63		
173	74.62	215	150.89		
174	76.02	216	153.18		
175	77.45	217	155.49		
176	78.89	218	157.82		
177	80.35	219	160.18		
178	81.83	220	162.56		
179	83.33	221	164.97		
180	84.85	222	167.40		
181	86.39	223	169.85		
182	87.94	224	172.33		
183	89.52	225	174.84		
184	91.11	226	177.37		
185	92.73	227	179.93		
186	94.36	228	182.51		
187	96.01	229	185.11		

SUMMARY OF SAMPLING DUTIES FOR PROHIBITED SPECIES

SALMON

INSIDE SAMPLE
Check for tags or fin clips; No adipose? = take snout.
I.D., weigh and sex --- 3US
Measure --- 7US
Take scale samples (until 20/spp. collected) --- 9US

OUTSIDE SAMPLE
Can collect scales for i.d. confirmation only --- 9US
Check for tags. If present, take info.
Use for special project?

HALIBUT

INSIDE SAMPLE
I.D., weigh if possible, do not sex --- 3US
Measure, check viability at point of discard --- 7US
Check for plastic tags --- Tagged Fish Form

OUTSIDE SAMPLE
Can measure and check viability (random collection, only from haul sampled for composition) --- 7US
Check for tags on any fish

KING AND TANNER CRAB

INSIDE SAMPLE
I.D., weigh and sex --- 3US
Measure, check females for eggs --- 7US
If vessel is targeting pelagic pollock in BSAI or GOA, measure all spp. of crab in sample --- 7US

OUTSIDE SAMPLE
BSAI flatfish target - watch for hauls with > 100 king crab. If so, collect 50 - 100, measure, sex, look for eggs --- 7US

HERRING

INSIDE SAMPLE
I.D. and weigh, no sex ---3US

OUTSIDE SAMPLE
No sampling

SPECIES IDENTIFICATION

All commercially important fish and crabs must be identified to species. In the Catch Message section of this manual, under "Report Groups" for the Bering Sea and Gulf of Alaska, all the allocated categories, (those other than NON), can be considered commercially important and should be identified to species with four exceptions from the "Other Fish" category. From the Other Fish category, only sharks, eulachon and capelin need to be identified to species. All prohibited fish and crabs must be identified to species. It is more important that observers spend their time working on proper identification of species of commercial interest, such as flatfish and rockfish, than to spend time on fish that no one targets on, such as eelpouts or sculpins.

To verify identifications, **each observer is required to fill out species description forms** for the first sighting during a contract of any fish, whether keyed out to species or just to family. There are separate forms for rockfish, flatfish and other, or miscellaneous species. These forms will be kept on file and ***for subsequent cruises, prior observers will only be required to fill out species i.d. forms for:***

flatfish - descriptions may be brief if the observer already has a form on file for that species
all rockfish species, for each contract worked and
any species or family for which they do not have a form on file.

On species composition forms, do not use categories such as "flatfish unidentified" or "rockfish unidentified" unless the fish has been mangled to the point that that is all that **can** be determined. If you have been unable to identify, for example, two species of rockfish, keep the data for the two species separate by labeling them "rockfish A" and "rockfish B" and carefully fill out a species description form in complete detail (and collect a specimen to bring back if possible). If you are able to determine their identity later (perhaps with a staff member's help during debriefing) then substitute the species name and code in place of "rockfish A" and "rockfish B" on your forms. If you do not get a positive ID on them later, then you must group them under "rockfish unidentified" on your forms, and combine their numbers and weights. Remember, on Form 3US a species code may only be listed once for each haul (except those whose listings are by sex).

Most of the species of the non-allocated report group (except for the prohibited species) have been listed simply by family in the Species Code List on the following pages. Example families are: eelpouts, poachers, greenlings, lumpsuckers, pricklebacks and rattails. (Note: sculpins have been grouped into four genera. If you are not sure which genus a sculpin belongs to or you do not have time to key it out, then use the "sculpin - unident." code.) If you **have** the interest or knowledge **and** the time, and you would like the information on these non-target fish listed by species in your data, fill out a species description form. When your identification is verified by a staff member, they will give you the appropriate species code.

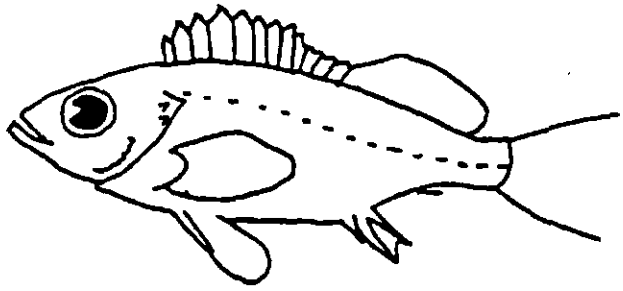
ROCKFISH SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____
Was an example of this species brought back? Yes No
(Note: If this fish represents a range or depth extension or a record in size, bring it back for species verification.)

Remember to start by checking the rockfish section of the "Species Identification Manual" to determine whether it is of the genus Sebastes, Sebastolobus, or Adelosebastes.

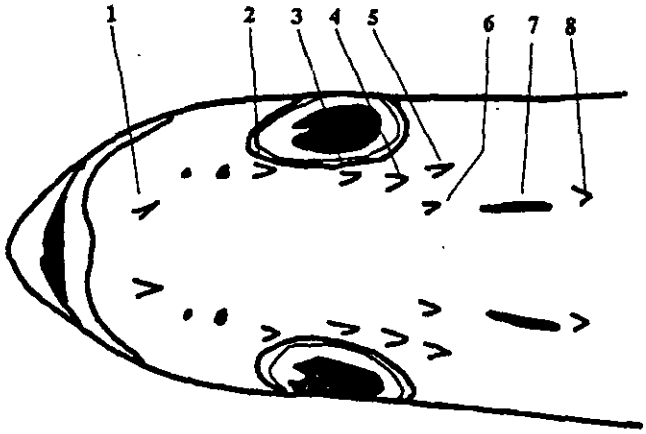
What color category of Hitz's would you place it in? _____

Please sketch any pattern, stripes, freckles, bars, light or dark areas etc. Draw the shape of the anal fin and include any symphyseal knob. Study your specimen closely.



Circle the pairs of head spines your specimen has on the diagram below. Remember that all members of a species do not have exactly the same spine distribution that is depicted in Hitz. Also, remember that some spines are very difficult to find.

Strength of Head Spines - Circle: WEAK or STRONG



Which fish in Eschmeyer looks the most like your fish?

Plate number: ____ Common name: _____

Scientific name: _____

Examine the fish and record the following meristic characters: (Note: There is often a fair amount of variability in a fish, even between counts on different sides of the same fish. Therefore, counts on both sides might help.)

Gill rakers--total: _____
Gill rakers--upper arm: _____
Gill rakers--lower arm: _____

Peritoneum Color: _____

Are the second anal fin spine and third anal fin spine equal in length? Yes No

If not, which is larger? Second spine Third spine

(Note: If you are not absolutely sure of your identification, bring a specimen back or at least take a photograph of it.)

Comments and Additional Notes:

_____

_____

_____

_____

_____

_____

_____

_____

_____

FLATFISH SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____

Was an example of this species brought back? Yes No
(Note: If this fish represents a range or depth extension, or a record in size, bring it back for species verification.)

Is the flatfish right eyed or left eyed? _____

Note: Right-eyed fish belong to the family Pleuronectidae and left-eyed fish belong the family Bothidae. However, remember that not all Pleuronectidae have their eyes on the right side, unusual individuals may have their eyes on the left.

Please answer the following questions: (Hint - check the illustrations on the first page of the key to make sure you are taking measurements in the same way that the key asks you to.)

What is the general tail shape?

Does the fish have an accessory dorsal branch (ADB) of the lateral line?
___ Yes (If so, remember to sketch it in on the illustration on the back.)
___ No

Does the eye protrude over the profile of the head such that its edge can be seen from the blind side?
_ Yes __ No

Relative to the lower eye, the maxillary ends:
__ forward of orbit
__ below anterior part of orbit
__ below pupil of eye
__ below posterior part of orbit
__ below posterior margin of orbit or beyond

What is the preoperculum shape?
__ rounded __ angled

Anal spine present?
____Yes No____

What is the shape of the lateral line over the pectoral fin?
__ flat __ arched
__ curved __ highly arched

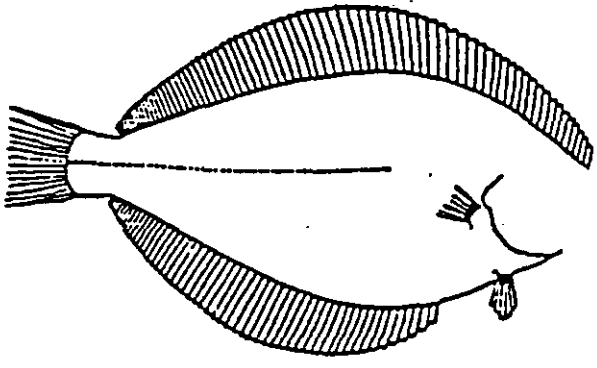
What is the shape of the posterior margin of the pectoral fin (on the eyed side)?
__ rounded
__ angular
__ pointed or extended (i.e. upper rays longer than lower rays)

Please make the following counts:
Gill rakers on the 1st arch:
total: _____
upper arm: _____
lower arm: _____

Gill rakers on the 2nd arch:
upper arm: _____

Finish the sketch below as best you can. Make sure to draw in the important features of the flatfish. Include the following in your drawing and/or comments:

- general head shape
- size, shape, and symmetry of mouth
- shape of the end of the tail
- lateral line (include any arch and ADB)
- shape of preoperculum
- size and shape of pectoral fin
- placement of eyes
- coloration (eyed and blind side)
- coloration patterns



Comments:_____

_____

_____

MISC. SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____

Was an example of this species brought back? Yes No
(Note: If this animal represents a range or depth extension or a record in size, bring it back for species verification.)

This form is to be filled out for the first sighting of all fish (except rockfish and flatfish which have their own description forms) and invertebrates keyed out to family or to species. For fish, include counts of all fin rays, standard body measurements, (fork length, head length, snout length, and caudal peduncle length) and any other pertinent measurements.

Examine the fish and record the following meristic characters: (Note: There is variability in fish of the same species, and even between counts on different sides of the same fish. Therefore, counts on both sides might help.)

Dorsal fin spines:_____ _____ _____
Dorsal fin rays:_____ _____ _____
Anal fin rays:_____ _____
Anal fin spines_____ _____
Pectoral fin rays:_____
Pelvic fin spines:_____
Pelvic fin rays:_____

Gill rakers--upper arm:_____
Gill rakers--lower arm:_____
Gill rakers total:_____

List below, the features that led you to your family, genus or species conclusion. Be detailed in your description and on the back of this form, make a sketch showing the main features.
If you are not absolutely sure of your identification, bring a specimen back or at least take a photograph of it.

Comments: _____

_____

_____

_____

Draw Specimen on Reverse Side

SPECIES CODE LIST

CODE	COMMON NAME	SCIENTIFIC NAME
106	ALASKA PLAICE	PLEURONECTES QUADRITUBERCULATUS
450	ALLIGATORFISH, (POACHER) - UNIDENT.	AGONIDAE
610	ANCHOVY, NORTHERN	ENGRAULIS MORDAX
55	ANEMONE, SEA - UNIDENT.	ACTINIARIA
620	ARGENTINE - UNIDENT.	ARGENTINIDAE
43	ASCIDIANS, SEA SQUIRT, TUNICATE	UROCHORDATA
204	ATKA MACKEREL	PLEUROGRAMMUS MONOPTERYGIUS
48	BARNACLES	CIRRIPEDIA
795	BARRACUDA, PACIFIC (CALIFORNIA)	SPHYRAENA ARGENTEA
770	BARRACUDINA - UNIDENT.	PARALEPIDIDAE
622	BARRELEYE or SPOOKFISH - UNIDENT.	OPISTHOPROCTIDAE
289	BIGSCALE, (MELAMPHID) - UNIDENT.	MELAMPHAEIDAE
	BIRDS - Refer to listing for this group following the fish codes	
618	BLACKSMELT - UNIDENT.	BATHYLAGIDAE
260	BLENNY - UNIDENT.	PHOLIDAE, STICHAEIDAE
302	BOCACCIO	SEBASTES PAUCISPINIS
27	BRACHIOPOD, LAMPSHELL	BRACHYOPODA
54	BRISTLEWORM, LEECH, POLYCHAETES	ANNELIDA
32	BRYOZOANS	
604	CAPELIN	MALLOTUS VILLOSUS
44	CHITON - UNIDENT.	AMPHINEURA
199	CHUB MACKEREL	SCOMBER JAPONICUS
29	CLAMS MUSSELS OYSTERS SCALLOPS	PELECYPODA
211	COD, ARCTIC (RACE)	BOREOGADUS SAIDA
203	COD, BLACK (SABLEFISH)	ANOPLOPOMA FIMBRIA
202	COD, PACIFIC	GADUS MACROCEPHALUS
208	COD, SAFFRON	ELEGINUS GRACILIS
214	CODLING - UNIDENT.	MORIDAE
32	CORALS	
1	CRAB - FAMILY, GENUS UNKNOWN	
6	CRAB, BLUE KING	PARALITHODES PLATYPUS
11	CRAB, BOX	LOPHOLITHODES FORAMINATUS
8	CRAB, BROWN KING	LITHODES AEQUISPINA
49	CRAB, CANCER	CANCER OREGONENSIS
16	CRAB, COUESI KING	LITHODES COUESI
39	CRAB, DECORATOR	OREGONIA GRACILIS
12	CRAB, DUNGENESS	CANCER MAGISTER
15	CRAB, HERMIT - UNIDENT.	PAGURIDAE
2	CRAB, KING CRAB - UNIDENT.	LITHODES & PARALITHODES
7	CRAB, KOREAN HORSEHAIR	ERIMACRUS ISENBECKII
37	CRAB, LYRE -- ROUNDED SPINED	HYAS COARCTATUS
9	CRAB, LYRE -- SHARP SPINED	HYAS LYRATUS

840	CRAB, LYRE - UNIDENT.	HYAS
17	CRAB, PARALOMIS MULTISPINA	PARALOMIS MULTISPINA
38	CRAB, PARALOMIS VERILLI	PARALOMIS VERILLI
74	CRAB, PEA	PINNIXA OCCIDENTALIS
13	CRAB, RED KING	PARALITHODES CAMTSCHATICUS
31	CRAB, SCALED	PLACETRON WOSNESSENSKII
19	CRAB, TANNER, ANGULATUS	CHIONOECETES ANGULATUS
4	CRAB, TANNER, BAIRDI	CHIONOECETES BAIRDI
5	CRAB, TANNER, OPILIO	CHIONOECETES OPILIO
47	CRAB, TANNER, BAIRDI/OPILIO HYBRID	CHIONOECETES HYBRID
18	CRAB, TANNER, TANNERI	CHIONOECETES TANNERI
3	CRAB, TANNER - UNIDENT.	CHIONOECETES SP.
23	CRAB, TELMESSUS	TELMESSUS CHEIRGONUS
53	CRINOIDS - UNIDENT.	CRINOIDEA
248	CUSK-EEL - UNIDENT.	OPHIDIIDAE
660	CUTLASSFISH - UNIDENT.	TRICHIURIDAE
144	DAB, LONGHEAD (SANDDAB)	LIMANDA PROBOSCIDEA
679	DAGGERTOOTH	ANOTOPTERUS PHARAO
899	DECOMPOSED FISH	
799	DRAGONFISH - UNIDENT.	MELANOSTOMIIDAE
690	DREAMER - UNIDENT.	ONEIRODIDAE
250	EELPOUT - UNIDENT.	ZOARCIDAE
91	EGG CASE, SKATE - UNIDENT.	
34	EGGS, SNAIL	GASTROPODA
601	EULACHON, (CANDLEFISH)	THALEICHTHYS PACIFICUS
901	FISH - UNIDENT.	OSTEICHTHYES
100	FLATFISH - UNIDENT.	
210	FLATNOSE, PACIFIC (CODLING)	ANTIMORA MICROLEPIS
146	FLOUNDER, ARCTIC	LIOPSETTA GLACIALIS
141	FLOUNDER, ARROWTOOTH	ATHERESTHES STOMIAS
145	FLOUNDER, BERING	HIPPOGLOSSOIDES ROBUSTUS
149	FLOUNDER, KAM/ ARROW - UNIDENT.	
147	FLOUNDER, KAMCHATKA	ATHERESTHES EVERMANNI
142	FLOUNDER, STARRY	PLATICHTHYS STELLATUS
660	FROSTFISH, (CUTLASSFISH)-UNIDENT.	TRICHIURIDAE
390	GREENLING - UNIDENT.	HEXAGRAMMIDAE
80	GRENADIER, (RATTAIL) - UNIDENT.	MACROURIDAE
430	GUNNEL - UNIDENT.	PHOLIDAE
77	HAGFISH - UNIDENT.	MYXINIDAE
660	HAIRTAILS, (CUTLASSFISH)-UNIDENT.	TRICHIURIDAE
206	HAKE, PACIFIC	MERLUCCIUS PRODUCTUS
102	HALIBUT, GREENLAND (TURBOT)	REINHARDTIUS HIPPOGLOSSOIDES
101	HALIBUT, PACIFIC	HIPPOGLOSSUS STENOLEPIS
767	HATCHETFISH - UNIDENT.	STERNOPTYCHIDAE
611	HERRING, PACIFIC	CLUPEA HARENGUS PALLASI
902	INVERTEBRATE - UNIDENT.	

418	IRISH LORD - UNIDENT.	HEMILEPIDOTUS, SP.
33	ISOPOD	ISOPODA
207	JACK MACKEREL	TRACHURUS SYMMETRICUS
35	JELLYFISH - UNIDENT.	SCYPHOZOA
2	KING CRAB - UNIDENT.	LITHODES AND PARALITHODES SP.
608	KING-OF-THE-SALMON, (RIBBONFISH)	TRACHIPTERUS ALTIVELIS
700	LAMPFISH - UNIDENT.	MYCTOPHIDAE
75	LAMPREY - UNIDENT.	PETROMYZONTIDAE
785	LANCETFISH, LONGNOSE	ALEPISAURUS FEROX
700	LANTERNFISH - UNIDENT.	MYCTOPHIDAE
54	LEECH, BRISTLEWORM, POLYCHAETES	ANNELIDA
45	LIMPET - UNIDENT.	
603	LINGCOD	OPHIODON ELONGATUS
14	LITHODID - UNIDENT. (RACE)	LITHODID CRAB UNIDENT.
809	LOOSEJAW, SHINING	ARISTOSTOMIAS SCINTILLANS
525	LUMPSUCKER - UNIDENT.	CYCLOPTERIDAE
204	MACKEREL, ATKA	PLEUROGRAMMUS MONOPTERYGIUS
199	MACKEREL, CHUB (PACIFIC)	SCOMBER JAPONICUS
207	MACKEREL, JACK	TRACHURUS SYMMETRICUS
774	MANEFISH	CARISTIUS MACROPUS
903	MARINE MAMMAL (OR PARTS OF) UNIDENT.	
776	MEDUSAFISH	ICICHTHYS LOCKINGTONI
289	MELAMPHID - UNIDENT.	MELAMPHAEIDAE
710	MIDSHIPMAN, PLAINFIN	PORICHTHYS NOTATUS
900	MISC. - UNIDENT.	(ROCKS, MUD, GARBAGE, ETC)
29	MUSSELS, CLAMS, OYSTERS, SCALLOPS	PELECYPODA
25	NUDIBRANCH	NUDIBRANCHIATA
715	OARFISH	REGALECUS GLESNE
810	OCEAN SUNFISH	MOLA
60	OCTOPUS - UNIDENT.	OCTOPODA
61	OCTOPUS, PELAGIC	VAMPYROMORPHA
297	OPAH	LAMPRIS GUTTATUS (L. REGIOUS)
295	OREO, OXEYE	ALLOCYTTUS FOLLETTI
29	OYSTERS, CLAMS, MUSSELS, SCALLOPS	PELECYPODA
301	PACIFIC OCEAN PERCH	SEBASTES ALUTUS
762	PAPERBONES, SCALEY (WEARYFISH) - UNIDENT.	NOTOSUDIDAE
681	PEARLEYES - UNIDENT.	SCOPELARCHIDAE
450	POACHER - UNIDENT.	AGONIDAE
201	POLLOCK, WALLEYE	THERAGRA CHALCOGRAMMA
54	POLYCHAETE, BRISTLEWORM, LEECH	ANNELIDA
765	POMFRET - UNIDENT.	BRAMIDAE
790	POMPANO, PACIFIC	PEPRILUS SIMILLIMUS
750	PRICKLEBACK - UNIDENT.	STICHAEIDAE
205	PROWFISH	ZAPRORA SILENUS
280	RAGFISH	ICOSTEUS AENIGMATICUS
99	RATFISH, SPOTTED	HYDROLAGUS COLLIEI

80	RATTAIL, (GRENADIER) - UNIDENT.	MACROURIDAE
90	RAY, (SKATE) - UNIDENT.	RAJIFORMES
563	RIBBONFISH - UNIDENT.	TRACHIPTERIDAE
300	ROCKFISH - UNIDENT.	SCORPAENIDAE
353	ALEUTIAN SCORPIONFISH	ADELOSEBASTES LATENS
334	ROCKFISH, AURORA	SEBASTES AURORA
337	ROCKFISH, BANK	SEBASTES RUFUS
306	ROCKFISH, BLACK	SEBASTES MELANOPS
319	ROCKFISH, BLACKGILL	SEBASTES MELANOSTOMUS
316	ROCKFISH, BLUE	SEBASTES MYSTINUS
302	ROCKFISH, BOCACCIO	SEBASTES PAUCISPINIS
351	ROCKFISH, BROAD BANDED THORNYHEAD	SEBASTES MACROCHIR
332	ROCKFISH, BROWN	SEBASTES AURICULATUS
314	ROCKFISH, CANARY	SEBASTES PINNIGER
325	ROCKFISH, CHILIPEPPER	SEBASTES GOODEI
327	ROCKFISH, COPPER	SEBASTES CAURINUS
311	ROCKFISH, DARK BLOTCHED	SEBASTES CRAMERI
330	ROCKFISH, DUSKY	SEBASTES CILIATUS
339	ROCKFISH, GREENSPOTTED	SEBASTES CHLOROSTICTUS
313	ROCKFISH, GREENSTRIPED	SEBASTES ELONGATUS
323	ROCKFISH, HARLEQUIN	SEBASTES VARIEGATUS
350	ROCKFISH, IDIOT FISH	SEBASTOLOBUS ALASCANUS
352	ROCKFISH, LONGSPINE THORNYHEAD	SEBASTOLOBUS ALTIVELIS
303	ROCKFISH, NORTHERN	SEBASTES POLYSPINIS
301	ROCKFISH, PACIFIC OCEAN PERCH	SEBASTES ALUTUS
335	ROCKFISH, PYGMY	SEBASTES WILSONI
343	ROCKFISH, QUILLBACK	SEBASTES MALIGER
322	ROCKFISH, RASPHEAD	SEBASTES RUBERRIMUS
308	ROCKFISH, RED BANDED	SEBASTES BABCOCKI
324	ROCKFISH, REDSTRIPE	SEBASTES PRORIGER
309	ROCKFISH, ROSETHORN	SEBASTES HELVOMACULATUS
312	ROCKFISH, ROSY	SEBASTES ROSACEUS
307	ROCKFISH, ROUGHEYE	SEBASTES ALEUTIANUS
304	ROCKFISH, SHARPCHIN	SEBASTES ZACENTRUS
318	ROCKFISH, SHORTBELLY	SEBASTES JORDANI
326	ROCKFISH, SHORTRAKER	SEBASTES BOREALIS
354	ROCKFISH, SHORTRAKER/ROUGHEYE	S. BOREALIS & ALEUTIANUS
350	ROCKFISH, SHORTSPINE THORNYHEAD	SEBASTOLOBUS ALASCANUS
310	ROCKFISH, SILVERGRAY	SEBASTES BREVISPINIS
315	ROCKFISH, SPLITNOSE	SEBASTES DIPLOPROA
328	ROCKFISH, STRIPETAIL	SEBASTES SAXICOLA
349	ROCKFISH, THORNYHEAD UNIDENT.	S. ALASCANUS & ALTIVELIS
329	ROCKFISH, TIGER	SEBASTES NIGROCINCTUS
331	ROCKFISH, VERMILION	SEBASTES MINIATUS
305	ROCKFISH, WIDOW	SEBASTES ENTOMELAS
322	ROCKFISH, YELLOWEYE	SEBASTES RUBERRIMUS

320	ROCKFISH, YELLOWMOUTH	SEBASTES REEDI
321	ROCKFISH, YELLOWTAIL	SEBASTES FLAVIDUS
240	RONQUIL - UNIDENT.	BATHYMASTERIDAE
200	ROUNDFISH - UNIDENT.	
203	SABLEFISH, (BLACK COD)	ANOPLOPOMA FIMBRIA
220	SALMON - UNIDENT.	ONCORHYNCHUS, SP.
221	SALMON, CHUM (DOG)	ONCORHYNCHUS KETA
222	SALMON, KING (CHINOOK)	ONCORHYNCHUS TSHAWYTSCHA
225	SALMON, PINK (HUMPBACK)	ONCORHYNCHUS GORBUSCHA
224	SALMON, RED (SOCKEYE)	ONCORHYNCHUS NERKA
223	SALMON, SILVER (COHO)	ONCORHYNCHUS KISUTCH
40	SAND DOLLARS	ECHINOIDEA
670	SAND LANCE, PACIFIC	AMMODYTES HEXAPTERUS
136	SANDDAB - UNIDENT.	BOTHIDAE
144	SANDDAB, LONGHEAD	LIMANDA PROBOSCIDEA
137	SANDDAB, PACIFIC	CITHARICHTHYS SORDIDUS
239	SANDFISH	TRICHODON
614	SARDINE, PACIFIC	SARDINOPS SAGAX CAERULENS
607	SAURY, PACIFIC	COLOLABIS SAIRA
660	SCABBARDFISH,(CUTLASSFISH)-UNIDENT.	TRICHIURIDAE
29	SCALLOPS, CLAMS, MUSSELS, OYSTERS	PELECYPODA
400	SCULPIN - UNIDENT.	COTTIDAE
431	SCULPIN, GYMNOCANTHUS - UNIDENT.	GYMNOCANTHUS, SP.
418	SCULPIN, IRISH LORD - UNIDENT.	HEMILEPIDOTUS, SP.
440	SCULPIN, MYOXOCEPHALUS SP.	MYOXOCEPHALUS SP.
433	SCULPIN, TRIGLOPS - UNIDENT.	TRIGLOPS SP.

Note: Many other genera and species of sculpins are present. Group these others under sculpin unidentified.

55	SEA ANEMONE - UNIDENT.	ACTINIARIA
41	SEA CUCUMBER - UNIDENT.	HOLOTHURIOIDEA
689	SEA DEVIL - UNIDENT.	CERATIIDAE
54	SEA MOUSE, BRISTLEWORM, LEECH	ANNELIDA
43	SEA ONIONS - UNIDENT.	UROCHORDATA
58	SEA PEN, SEA WHIP - UNIDENT.	PENNATULA
43	SEA POTATO - UNIDENT.	UROCHORDATA
25	SEA SLUG, - UNIDENT.	NUDIBRANCHIATA
56	SEA SPIDER - UNIDENT.	PYCNOGANIDA
43	SEA SQUIRTS, ONIONS, POTATOES, TUNICATES	UROCHORDATA
40	SEA URCHINS	ECHINOIDEA
58	SEA WHIP, SEA PEN - UNIDENT.	PENNATULA
54	SEA WORMS (POLYCHAETES)	ANNELIDA
550	SEABASS - UNIDENT.	SCIAENIDAE
	SEABIRDS - Refer to listing for this group following the fish codes	
242	SEARCHER	BATHYMASTER SIGNATUS
900	SEAWEED	MISC. ITEMS
606	SHAD, AMERICAN	ALOSA SAPIDISSIMA

750	SHANNY, (PRICKLEBACK) - UNIDENT.	STICHAEIDAE
65	SHARK - UNIDENT.	SQUALIFORMES
69	SHARK, BLUE	PRIONACE GLAUCA
68	SHARK, BROWN CAT	APRISTURUS BRUNNEUS
62	SHARK, PACIFIC SLEEPER	SOMNIOSUS PACIFICUS
67	SHARK, SALMON	LAMNA DITROPIS
78	SHARK, SIXGILL	HEXANCHUS GRISEUS
64	SHARK, SOUPFIN	GALEORHINUS ZYOPTERUS
66	SHARK, SPINY DOGFISH	SQUALUS ACANTHIAS
63	SHARK, THRESHER	ALOPIAS VULPINUS
70	SHRIMP - UNIDENT.	
90	SKATE - UNIDENT.	RAJIFORMES
212	SKILFISH	ERILEPIS ZONIFER
625	SLICKHEAD, THREADFIN	TALISMANIA BIFURCATA
602	SMELT - UNIDENT.	OSMERIDAE
604	SMELT, CAPELIN	MALLOTUS VILLOSUS
601	SMELT, EULACHON (CANDLEFISH)	THALEICHTHYS PACIFICUS
619	SMOOTHTONGUE, NORTHERN	LEUROGLOSSUS STILBIUS SCHMIDTI
30	SNAIL - UNIDENT.	GASTROPODA
34	SNAIL, EGGS	GASTROPODA
36	SNAIL, SHELL, EMPTY	
500	SNAILFISH - UNIDENT.	LIPARIDIDAE
559	SNIPE EEL - UNIDENT.	NEMICHTHYIDAE
109	SOLE, BUTTER	ISOPSETTA ISOLEPIS
118	SOLE, C-O	PLEURONICHTHYS COENOSUS
117	SOLE, CURLFIN	PLEURONICHTHYS DECURRENS
110	SOLE, DEEPSEA	EMBASSICHTHYS BATHYBIUS
107	SOLE, DOVER	MICROSTOMUS PACIFICUS
108	SOLE, ENGLISH	PAROPHRYS VETULUS
103	SOLE, FLATHEAD	HIPPOGLOSSOIDES ELASSODON
116	SOLE, HYBRID	INOPSETTA ISCHYRA
108	SOLE, LEMON	PAROPHRYS VETULUS
112	SOLE, PETRALE	EOPSETTA JORDANI
105	SOLE, REX	GLYPTOCEPHALUS ZACHIRUS
104	SOLE, ROCK SOLE UNIDENT.	
120	SOLE, NORTHERN ROCK SOLE	
121	SOLE, SOUTHERN ROCK SOLE	LEPIDOPSETTA BILINEATA
114	SOLE, ROUGHSCALE	CLIDODERMA ASPERRIMUM
115	SOLE, SAND	PSETTICHTHYS MELANOSTICTUS
111	SOLE, SLENDER	LYOPSETTA EXILIS
140	SOLE, YELLOWFIN	LIMANDA ASPERA
26	SPONGE - UNIDENT.	PORIFERA
622	SPOOKFISH - UNIDENT.	OPISTHOPROCTIDAE
270	SQUARETAIL, SMALLEYE	TETRAGONURUS CUVIERI
50	SQUID - UNIDENT.	DECAPODA
51	SQUID, GIANT	MOROTEUTHIS ROBUSTA

20	STARFISH - UNIDENT.	ASTEROIDEA
21	STARFISH, BASKET	GORGONOCEPHALUS
22	STARFISH, BRITTLE	OPHIUROIDEA
24	STARFISH, SUNSTAR	SOLASTER SP.
226	STEELHEAD	SALMO GAIRDNERI
230	STURGEON - UNIDENT.	ACIPENSERIDAE
3	TANNER CRAB - UNIDENT.	CHIONOECETES SP.
209	TOMCOD, PACIFIC	MICROGADUS PROXIMUS
113	TONGUEFISH, CALIFORNIA	SYMPHURUS ATRICAUDA
227	TROUT, CUTTHROAT (SEA RUN)	SALMO CLARKI
807	TUBESHOULDER - UNIDENT.	SEARSIIDAE
43	TUNICATES, ASCIDIANS, SEA SQUIRTS	UROCHORDATA
102	TURBOT, GREENLAND (HALIBUT)	REINHARDTIUS HIPPOGLOSSOIDES
143	TURBOT/ KAM/ ARROW - UNIDENT.	
805	VIPERFISH - UNIDENT.	CHAULIODONTIDAE
757	WARBONNET, DECORATED	CHIROLOPHIS DECORATUS
899	WASTE FISH	
762	WEARYFISH, (PAPERBONES) - UNIDENT.	NOTOSUDIDAE
779	WOLFFISH, WOLF-EEL - UNIDENT.	ANARHICHADIDAE
780	WOLF-EEL	ANARRHICHTHYS OCELLATUS
781	WOLFFISH, BERING	ANARHICHAS ORIENTALIS
760	WRYMOUTH, GIANT	DELOLEPIS GIGANTEA
783	WRYMOUTH, DWARF	LYCONECTES ALEUTENSIS
999	Z SUMMATION LINE	CODE FOR FORM 3US ONLY

SEABIRDS - CODE LIST

852	ALBATROSS, BLACK-FOOTED	DIOMEDEA NIGRIPES
851	ALBATROSS, LAYSAN	DIOMEDEA IMMUTABILIS
850	ALBATROSS, SHORT-TAILED *	DIOMEDEA ALBATRUS
849	ALBATROSS - UNIDENT	DIOMEDEIDAE SPP.
883	ALCID - UNIDENT.	ALCIDAE SPP.
893	AUKLET/MURRELET - UNIDENT	AUKLET/MURRELET SPP.
895	AUKLET, RHINOCEROUS	CERORHINCA MONCERATA
998	BIRD - UNIDENT.	AVES
861	CORMORANT - UNIDENT.	PHALACROCORACIDAE SPP.
866	EIDER, COMMON	SOMATERIA MOLLISSIMA
863	EIDER, KING	SOMATERIA SPECTABILIS
864	EIDER, SPECTACLED **	SOMATERIA FISCHERI
865	EIDER, STELLER'S **	POLYSTICTA STELLERI
854	FULMAR, NORTHERN	FULMARUS GLACIALIS
846	GREBE - UNIDENT.	PODICIPEDIDAE
884	GUILLEMOT - UNIDENT.	CEPPHUS SPP.
878	GULL, GLAUCUS	LARUS HYUPERBOREUS

879	GULL, GLAUCUS-WINGED	LARUS GLAUCESCENS
877	GULL, HERRING	LARUS ARGENTATUS
874	GULL - UNIDENT.	LARINAE SPP.
871	JAEGER/SKUA - UNIDENT.	STERCORARIIDAE SPP.
876	KITTIWAKE, BLACK-LEGGED *	RISSA TRIDACTYLA
875	KITTIWAKE, RED-LEGGED *	RISSA BREVIROSTRIS
898	LAND BIRD - UNIDENT.	
844	LOON - UNIDENT.	GAVIIDAE
889	MURRE, COMMON	URIA AALGE
888	MURRE, THICK-BILLED	URIA LOMVIA
887	MURRE - UNIDENT.	URIA SPP.
893	MURRELET/AUKLET - UNIDENT.	MURRELET/AUKLET SPP.
896	MURRELET, KITTLITZ'S	BRACHYRAMPHUS BREVIROSTRIS
894	MURRELET, MARBLED	BRACHYRAMPHUS MARMORATUS
854	NORTHERN FULMAR	FULMARUS GLACIALIS
853	PETREL/SHEARWATER - UNIDENT.	PROCELLARIIDAE
858	PETREL, STORM - UNIDENT.	HYDROBATIDAE
868	PHALAROPE - UNIDENT.	PHALAROPODIDAE SPP.
891	PUFFIN, HORNED	FRATERCULA CORNICULATA
892	PUFFIN, TUFTED	FRATERCULA CIRRHATA
890	PUFFIN - UNIDENT.	FRATERCULA SPP.
897	SEABIRD - UNIDENT.	
855	SHEARWATER, DARK UNIDENT.	PUFFINUS SPP.
853	SHEARWATER/PETREL - UNIDENT.	PROCELLARIIDAE SPP.
857	SHEARWATER, SHORT-TAILED	PUFFINUS TENUIROSTRIS
856	SHEARWATER, SOOTY	PUFFINUS GRISEUS
867	SHOREBIRD - UNIDENT.	CHARADRIIFORMES SPP.
871	SKUA/JAEGER - UNIDENT.	STERCORARIIDAE
858	STORM-PETREL - UNIDENT.	HYDROBATIDAE
880	TERN - UNIDENT.	STERNINAE SPP.
848	TUBENOSES - UNIDENT.	PROCELLARIIFORMES
862	WATERFOWL - UNIDENT.	ANSERIFORMES

Seabirds - Please also note occurances in Observer Logbook, Seabird Sightings section.. * Note in log whether: adult (A), sub-adult (S), immature (I), or unknown (U). ** Note in log whether: male (M), female (F), or unknown (U). For information on this, see bird key in Species I.D. Manual.

Cruise	Vessel Code	Year	Month	Day
4011	A110	97	09	01

FORM 7US-LENGTH FREQUENCY OF MEASURED SPECIES
(includes halibut, salmon, and crab measurments)

SIZE GROUPS: Fish by 1cm. Crabs by 5mm

M = male
F = female
U = unknown sex

Species name	Species code	Set/haul no.	Sex	Eggs?	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.
Halibut	101	48	P		120	58	1	60	1										
Halibut	101	48	D		47	46	1												
Bairdi Tanner	4	49	M		301	48	2	53	1	58	3	63	1	68	4				
↓	4	↓	F	N	329	43	1	53	2	63	1	78	3	83	2				
Bairdi T.	4		F	Y	237	68	1	73	1	93	1								
Opilio Tanner	5		M		247	73	1	83	1	88	1								
Opilio	5		F	N	79	78	1												
Halibut	101		E		471	42	1	50	1	53	1	54	2	57	1	60	1	147	1
↓	101	↓	P		161	50	2	52	1	55	1								
Halibut	101	49	D		49	48	1												
Chum Salmon	221	50	M		50	49	1												
Pollock	201	50	M		327	41	1	42	1	43	3	44	2	45	2	46	5	47	5
	↓	50	M		270	48	3	49	5	51	3	52	3	54	2				
		50	F		320	32	1	44	1	45	1	46	2	47	2	48	1	49	1
		50	F		222	50	1	51	2	52	1	64	1						
		51	M		343	41	2	42	4	44	4	45	2	46	6	47	6	48	6
		51	M		415	49	6	50	2	53	6	54	6	57	2	60	4	64	2
↓	↓	51	F		379	46	8	47	2	48	8	49	2	50	4	51	4	52	8
Pollock	201	51	F		168	53	2	54	2	55	2								

LENGTH FREQUENCIES

FORM 7US--LENGTH FREQUENCY OF MEASURED SPECIES

Form 7US is used for recording the lengths of prohibited species from your samples and the lengths of your sampling species. **Caution: On this form record only lengths which you actually measured, not estimated lengths.**

1. Fill in the haul or set date. **Plant observers:** write the name of the catcher boat whose fish you're sampling at the top of each form. Plant observers use the date of delivery, not necessarily the date the fish was measured.

2. Under species name, record the specific common name and the related species code from the same code list as used for Form 3US.

3. All data must be grouped by haul (or set) and the hauls must be listed in sequential order. More than one haul can be recorded per page as long as the hauls all ended on the date written at the top of the form. Start each day's measurements on a new side of the two sided form. Please use both sides of the form.

4. **Catcher boat observers**: The data must be in consecutive haul number order. Lengths of the target species must be measured at sea but when prohibited species are to be sorted and measured at the plant, leave several lines empty to fill in later with lengths of the prohibited species. On 7US the haul number and lengths of prohibited fish and crab measured at the plant should match the 3US haul number where those individuals are listed.

5. Record lengths of sampling species, salmon, and crab by sex; coded "M" for male or "F" for female. If sex is not determined or the immaturity of fish makes sex identification uncertain, enter "U" for unknown.

6. **Do not sex halibut**, not even the dead ones. Instead, record the viability categories "E," "P," or "D" in the column for sex. On longline vessels, when condition was not appraised but halibut were measured (not estimated), record these lengths opposite a "U" in the "sex" column. On longline vessels viability may be recorded for halibut not measured. Simply record "0" as the first size group for the appropriate condition code and enter the frequency.

7. **Eggs?** All observers should check all measured female king, Tanner, and in the whiting fishery, Dungeness, crab for the presence or absence of eggs. Crab eggs are carried by females under the abdominal flap. On lines of entry for female crab,enter either: "Y" for yes, eggs were present, "N" for no, eggs were not present, or "U" for unknown/unidentified--eggs were not checked for. The column must have an entry if crab measurements are recorded.

8. In the **"keypunch check"** columns, simply add all of the numbers in the row (size group and frequencies together) and enter the sum. Be sure to check your work by adding it again to verify your sum. The editing program will also sum the numbers in the line and compare it with your sum. This is our means of checking for correct keypunching of the data.

9. **Size groups** are the length measurements; rounded to the nearest whole centimeter for fish and in 5 millimeter increments for crab (1-5 mm = 3; 6-0 mm = 8). Record the size groupings in the shaded columns in ascending order.

10. **Frequency** is the number observed in each size group. **Include a size group only if there is a frequency of one or more**. Record sequential data horizontally across the form. **List lengths from the smallest to the largest within a haul/species/sex group.**

11. Start a new row each time there is a change in sex or when there are more than seven size categories in a group. Skip a line when there is a change in haul number or species unless it means going to a new page.

12. Leading zeros should appear in the month, and day only, as needed. No leading zeros should be written in species code, haul number, size, or frequency columns. To indicate the repetition of a number or letter, such as species code, haul, or sex, draw brackets and arrows as shown in the example form. Do not use ditto marks in key punch columns.

LENGTH FREQUENCIES OF PROHIBITED SPECIES

All trawler observers should take sexed length frequencies of all salmon, king and Tanner crab and lengths of halibut found in the prohibited species sample if it is possible to do so. Fish and crab must be actually measured for length and must be from the whole haul or from a random or systematically random sample. Measuring the ones in your composition sample usually ensures they were collected properly.

Measuring salmon from outside of your prohibited species composition sample is not necessary or desirable unless you need their scales to confirm species identification or have been given a special project on salmon. If you have length data from salmon outside your composition sample, note the collection method in your daily log and alert your debriefing interviewer to all instances of these data. Halibut measurements, on the other hand, may be taken from fish outside your sample. Lengths and viability of halibut are normally sampled at the same time. It may be inappropriate to use halibut in your sample if that means determining their condition at a point sooner than where they normally go over the side. *Halibut length and viability data may be taken from fish outside of the composition sample but must be from a haul sampled for composition.*

Measure only the king and Tanner crab in the composition sample with two exceptions. 1) Measure *all species* of crab in your sample when in the pelagic pollock fishery. And 2) when targeting flatfish in the BSAI watch for hauls with more than 100 king crab. In this case, take a random sample of 50 - 100 king crab. Measure, sex them, and look for presence of eggs. Refer to "Biological Data Collected from Prohibited Species" in section 3.

If whole haul sampling for composition, it may seem obvious that the number of prohibited species on Form 7US must be equal to or less than the corresponding fish and crab on Form 3US. Yet this is an easy mistake for trawl catcher boat observers to make. The reason is because of

proportioning plant sample data. See item 4 in the instructions for Form 7US above. Cross-check your forms!

If there are too many salmon, crab or halibut to work on in a reasonable length of time, sub-sample. For sub-sampling, take length and associated data from up to twenty crab, halibut, or salmon per haul. Taking length data from prohibited species is a higher priority than length frequency measurements of the target or other sampling species.

Record length frequencies by species, and by sex (except halibut). Do not use species group codes such as the general code 220 for "salmon unidentified." Cut open salmon to determine their sex unless they are vigorous *and* have minimal (less than 10%) scale loss. For help, see "Sexing Fish" in the Appendix. **Do not sex halibut**, instead determine their viability condition (if appropriate according to sampling instructions) and record their lengths by condition category in ascending order. If viability was not determined but length measurements were taken, or vice versa, see item 6 in the Form 7US instructions above. The previous section, "Biological Data Collected from Prohibited Species," includes instructions for sub-sampling and a full listing of the data to gather for each prohibited species group. Detailed instructions on taking scale samples for salmon follow in the section on scale sampling and Form 9US.

LENGTH FREQUENCY SAMPLING

The length and age data from observer samples will be used to determine the relative abundance of each year-class of target and selected bycatch species. Length frequency data provide information on abundance of fish of each size category, while otoliths and/or scales are read to determine the corresponding age. The age/length relationship of a species may change from year to year and may be quite different for each sex of a species.

All observers are asked to take length frequencies of *a single* target or sampling species. This request for data applies to catcher boat observers as well as processing plant observers--one does not substitute for the other. ***The fish to be measured may be collected during or after composition sampling or from an unsampled haul or set,*** as long as they are systematically or randomly collected. The species to be sampled for length frequency measurements is normally the target species of the vessel. *Select only one species to sample* if there are multiple targets. ***A large quantity of data from one species is more useful than fewer measurements from several species.*** You may have to take lengths from the target and an assigned sampling species when given a special project. Your special project may or may not be connected to your length frequency sample. If assigned, read special project instructions carefully to determine if the data are correlated. The relation of otolith and scale collections to length data is discussed on 4 - 17.

If your vessel switches target species, either continue to measure the initial target species or make one change to the new target. Do not take small samples (only a couple days of data) from multiple species! Try to stay with the same species for all length data taken on one boat. You may choose a new sampling species for length frequencies when you begin work aboard a different boat. If your composition sample does not contain enough fish for a good length frequency sample, gather some from outside the composition sample or from another, un-sampled haul or set. Collect all, or

every third, sample species fish passing by you over a period of time, or use some other method to collect an unbiased sample from a larger portion of the catch.

Regardless of a special project assignment, all observers should measure approximately 150 lengths from the one sampling species each day. Taking 150 length measurements each day may be too difficult if the fish are large and hard to handle, or if sampling conditions are poor. In this case do as many length measurements as possible, up to 150 per day. Inform your debriefing interviewer about situations which affected your ability to sample.

Preferably, lengths should be taken from **several** hauls or sets per day to ensure that measurements are representative and to spread out your work. However, each day's length measurements may all be taken during one sample period and *it is preferred but not necessary* that the fish are from a catch also sampled for composition. Fish measured for length frequency may be taken from a haul or set not sampled for composition. Length data must be identified with a specific haul. Catcher vessel observers must measure fish at sea rather than at the processing plant to collect data by haul.

Length frequencies are taken from fish that were collected in a random, non-size selective manner *usually* during your species composition sampling. If you wanted to sample approximately 50 fish for length frequencies and the sample you set aside only has 46 fish, don't collect another four fish. It is too easy to bias your sample by "picking" them out in an inappropriate manner. Sex and group the fish into baskets by sex (for method, refer to "Sexing Fish" in the Appendix). If you are unable to sex some fish (usually the small ones), separate them into a third group to measure. Their lengths will also need to be recorded and their sex written in as "U" (unidentified).

When fishing for Pacific cod, the fish are usually bled or headed and gutted by the crew. If the fish are frozen or iced whole, and with some methods of bleeding, the observer cannot sex fish without damaging significant amounts of product. It is permissible to take un-sexed lengths when necessary. However, unsexed lengths are of limited utility.

If the fish are being headed and gutted, try working with the crew, by taking the length measurement first then examining the viscera visible when the fish is gutted by a processor. Another alternative is to ask the crew to show you how to make the pectoral cut. In general, make a diagonal dorsoventral cut from behind the head to behind the pectoral fin, then angle the knife forward to the isthmus. Make the same cut on the other side. Another method is to just make a ventral cut from the pectoral fin anteriorly to the isthmus and back to the other pectoral fin. Then you can reach in and pull out the gonad or peer into the cavity to see the gonad and determine the sex. Pass the fish on the crew to finish processing. Make sure that your procedure is acceptable to the crew or factory boss. If this method works but is very time consuming, subsample the measured fish for sexing and take un-sexed length measurements of the rest.

To set up a plastic strip on a measuring board, record on it the haul number, date, and species. Keep length frequency data for each tow separate. Record data from different hauls on different plastic strips. The plastic measuring strip is a long, narrow piece of white plastic divided into one centimeter spacings. The strip can be attached by thumbtacking it to a wood board . When using the aluminum board provided by the program, secure the plastic strip in place by putting a thumbtack

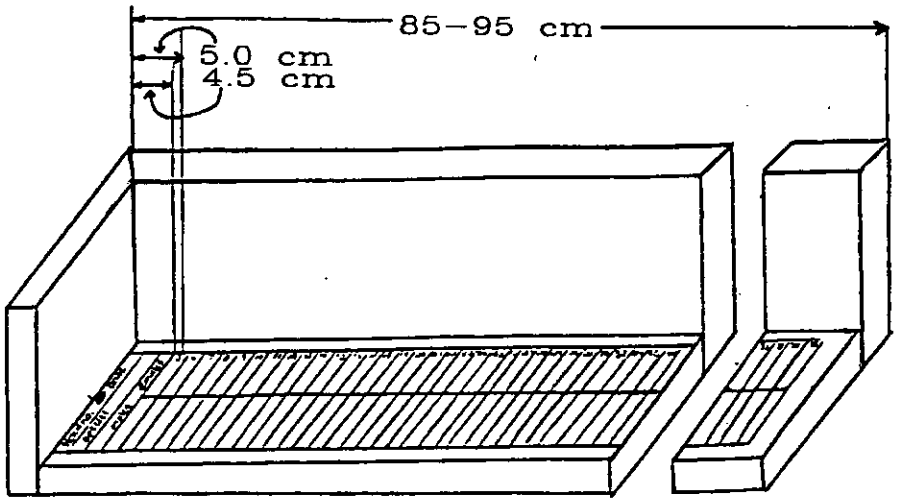
through the hole drilled in the aluminum and piercing the plastic. Then put the thumbtack or a straightened paperclip through the pierced hole from the top. A little fish slime and water will also help "glue" the strip in place. However, be careful to check the position of the strip in relation to the upright end of the measuring board that the snout is pushed up against. For species of fish whose length range is less than 75 cm, the strip must be positioned on the measuring board so that the line for the first space is at 4.5 cm from the upright end. The **center** of the 5 cm **space** should be exactly 5.0 cm from the upright end.

Mark each tenth centimeter strip unit to read 10, 20, 30, etc. For species whose length commonly exceeds 75 cm, the measuring strip may be offset as shown in Figure 2 below. To increase the length of a strip by ten centimeters, for instance, offset the strip so that the line for the first space is at 14.5 cm from the end board and the center of the first centimeter space is at 15 cm. Then the tenth centimeter units of the strip should be renumbered accordingly. Check the placement of your measuring strip in relation to the upright end before (and during?) each sampling session.

If you have baskets of fish you have sexed first, note that one side or half of the measuring strip is designated for tallying males, and the other half for females. Make sure you are recording their lengths on the appropriate half of the strip. Position each fish on the measuring strip with jaws closed, snout against the end, dorsal surface away from you, ventral towards you and the **body flat and straight.** Spread the caudal fin with the back of your hand to help see the tips of the rays in the middle of the caudal fin. Fork length measurements should always be taken, even if the tails are ragged and the exact location of the fork has to be estimated. This is often the case when measuring hake. Measurement of round-tailed species (most flatfish) is also taken from the snout to the midpoint of the caudal fin margin and is still referred to as "fork length." (See "Length Measurements for Various Species" in the Appendix.)

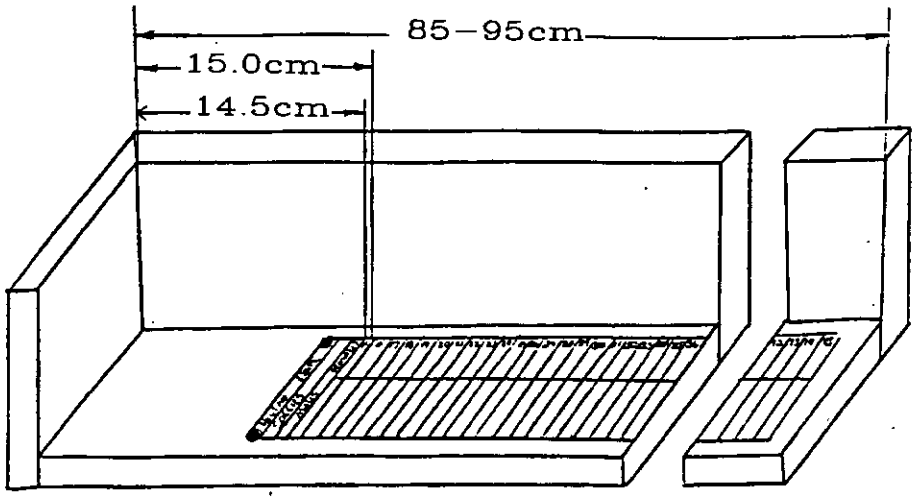
With a pencil, place a stroke on the appropriate half of the plastic strip in the centimeter space where the fork or midpoint of the tail falls. If the fork or midpoint of the tail lies on a line, reposition the fish and check it again. If it's still on the line, record the length in the smaller (shorter), adjacent centimeter length space. After recording a measurement on the strip, some fish may be set aside for otolith and/or scale samples. (Refer to "Age Structure Sampling" in section seven of this manual.)

When starting to measure another basket of sexed fish, verify their sex and make sure you are recording their lengths on the appropriate half of the strip. At the end of sampling, the number of pencil strokes per sex, per centimeter length spacing will give the size group's frequency by sex.



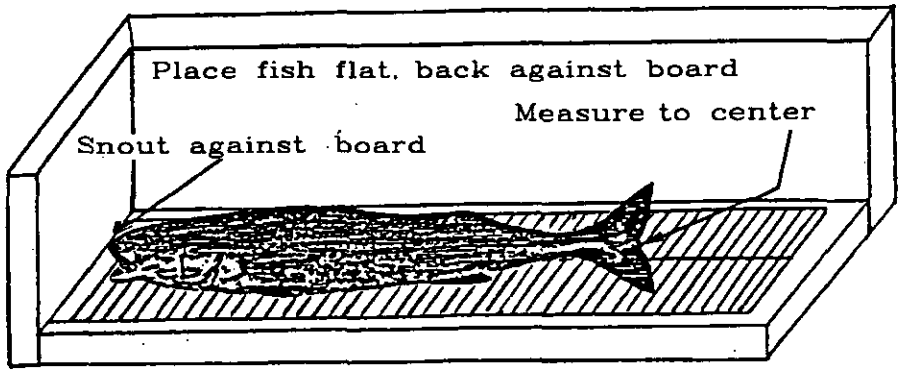
Measuring strip set for most fish species.

Figure 1



Strip offset to measure larger fish.

Figure 2



Measurement of a roundfish on measuring board.

Figure 3

SPECIAL PROJECTS, SAMPLING SPECIES, AND LENGTH FREQUENCIES

Many observers will be assigned a special project. Some observers will be asked to collect age structures from the target species or from a particular species. Other observers may be assigned the collection of stomach samples, maturity data, or other projects.

Your special project may or may not be connected to your length frequency sample. Read your project instructions carefully to determine if the data are correlated. If your special project assignment is the collection of age structures, then the species that you choose (or are assigned) will be the same species that you take lengths from on board that vessel. The fish you collect age structures from are a subset of (i.e. taken from) the fish measured for length frequency. If you are assigned to collect age structures from an unspecified group of species, such as flatfish or rockfish, then choose one species from the assigned group which occurs most abundantly in the catch. This will make it easier for you to get approximately 150 randomly collected fish for length measurements each day. If your assigned project is linked to length data and you cannot collect more than 20 fish in a day of the species assigned for your project, it is expected that you can still take approximately 150 lengths of the target species each day. If that is not possible, just inform your debriefer as to the situation.

When assigned a random stratified age structure collection, try to stay with the same sampling species and complete your collection on one vessel or plant. Age structure collections are "by vessel" and so should be completed on one boat. If this isn't possible because of a fishery closure or a change in assignments, you may have to choose a new sampling species. (For more information, refer to Age Structure Sampling in section 7.)

AREA 521

FORM 9US - BIOLOGICAL SAMPLING FORM

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23
		94	09	17	KING SALMON	222	2	2

Total no. of specimens ____

Catalogue date ____

	Set/haul number	Specimen number	Sex	Length (cm)	Weight (kg)	Form 7	Maturity stage	Notes	Age	REMARKS
	25 26 27	28 29 30	31	32 33 34	35 36 37 38 39	41	42 43	44 45	47 48 49	
1	103	4	M	56	2.00	Y				
2		5	M	58	3.10					
3		6	M	55	3.10					
* 4		7	M	67	4.40					
5		8	F	68	3.00					
6		9	F	67	3.10					
7	103	10	F	67	3.20	Y				
8					.					
9					.					*Specimen #7: tissue collected.
10					.					
11					.					
12					.					
13					.					
14					.					
15					.					
16					.					
17					.					
18					.					
19					.					
20					.					
21					.					
22					.					
23					.					
24					.					
25					.					
26					.					
27					.					
28					.					
29					.					
30					.					
31					.					
32					.					
33					.					
34					.					
35					.					
36					.					
37					.					

SALMON SCALE SAMPLING FOR ALL OBSERVERS

FORM 9US INSTRUCTIONS

Form 9US is used for various studies to record the biological information of individual fish. The fish represented on the form are not necessarily from a random or systematic sample. The sampling system is a variable that must be defined on each page. This form will most often be used in recording the data for fish whose age structures (scales, otoliths, or fin rays) are collected for future age determination. It is the data record that must accompany salmon scale envelopes and is the form used for gonad maturity sampling.

1. Form 9US data sheets are filed separately by species and vessel. **Keep separate groups of pages for each species.** You cannot record coho salmon on the reverse side of a chinook salmon sheet, for instance. Start with page 1 for each new species.

2. At the top, fill in the three-digit NMFS area corresponding to the hauls or sets recorded on the page. To determine the area, plot the latitude and longitude from the 2US or 1US form on the maps in the catch message section of this manual. Check positions and areas for each haul on 9US if your vessel is near a boundary line or moves a lot. If your vessel changes areas between sampled hauls/sets on one day, you will need to use a different page (or side of the page) for each area even though the date and species is the same.

3. **Plant observers:** Please write the name of the catcher boat that delivered the sampled fish on the top of each Form 9US.

4. Fill in the cruise number and vessel code (when known), date, species common name, and the corresponding species code. Start each day's measurements (or subarea if it changes during the day) on a new side.

5. Leading zeros should appear in the month and day only (columns 12 and 14) as needed.

6. Record the specimen type that is being collected:

1--otoliths	6--scales and fin rays
2--scales	7--otoliths, scales, and fin rays
3--fin rays	8--maturity only
4--otoliths and scales	9--maturity and age structures
5--otoliths and fin rays	

7. Record the sampling system that was used: (You will be told which sampling system to use before you go out.)

   1--stratified random--This is the most common system for the special project assignment of collecting age structures. The fish are obtained from your length frequency samples

and a tally sheet is used to ensure that age structures are obtained from no more than 5 fish per cm and sex group.

2--random--In this system, although the fish may be from your length frequency sample, no stratification is made by size and sex. Salmon scale collection is an example of this sampling system because scales are taken from all of the salmon in your composition sample. If a species is too numerous, a random subsample (such as every third fish) is also coded 2, specifying a random sampling system.

3--systematic--Fish are chosen from the length frequency sample in a random fashion (as in 2 above), but the haul/set to be sampled is selected in a "systematic" fashion. For example, the haul closest to the cumulative 200, 400, 600 metric ton catch may be chosen to be sampled.

8. **Leave "Total no. of specimens" and "Catalogue date" blank.** This information will be filled in by the age readers processing your collection.

9. On trawlers record the haul number in columns 25-27; on longline or pot vessels record the set number in those columns. Note that data from the same species but from several hauls or sets can be recorded per sheet as long as the hauls correspond to the date and NMFS area written on the top of the page. Go to a new side of the form for a new date or area, and **go to a different set of Form 9's for a different species.**

10. The specimen number is the identifying number on the otolith vial, scale envelope, or other container with the specimen. There should not be any duplicate specimen numbers within a species. The specimen numbers should be listed in sequence. (We want to avoid having specimen containers filled at random.) Salmon scale samples are numbered sequentially by species and the data are recorded on separate sets of Form 9US by species.

11. If you board another ship before completing a collection, you can continue with the same sequence of specimen numbers, but keep separate sets of form 9US for the two different vessels.

12. It is best if the specimen data are grouped by sex on the form. Record the sex of the fish using "M", "F", and "U" notation (M = male; F = female; U = unidentified).

13. **Decimal Places:** Record the length of the fish to the nearest whole centimeter. The weight must be filled out to two decimal places. Add trailing zeros where necessary.

14. If you recorded the length of the fish on the Form 7US (which should almost always be the case unless you picked this particular fish from someplace other than your length frequency sample), record a "Y" for "Yes" in column 41. Otherwise, write "N".

15. If you are requested to record maturity stage, record this in columns 42-43. An appropriate maturity scale for the species would need to be provided to you.

16. The columns to the right of maturity stage (columns 44 on) are for the age readers to complete. If your project specifically directs you to write something, or if you note something extraordinary about an individual fish, put an asterisk beside the line and footnote your remarks below the last line of entry on the page, under the "Remarks" section. (Age readers need to record their notes in the "Remarks" section beside each line of entry.)

17. As with other forms, you will be recording your name and the ship name at the top of each set of forms. For the Form 9US you should do this at the top of the first sheet for each species.

SALMON SCALE SAMPLING

For certain species of fish, the scale is the preferred structure for determining age; for others, otoliths are used. Scale samples should be taken from salmon in your prohibited species sample up to a maximum of twenty per species, per contract, unless give special instructions otherwise. (See instructions for subsampling salmon under Biological Data Collected from Prohibited Species.) Do not collect scales from salmon that are not part of your samples for prohibited species unless they are tagged salmon.

As there is a high chance of obtaining regenerated scales from salmon, try to pluck samples from both sides of the fish to increase the chance of getting readable scales. A minimum of five, good, readable scales from each fish must be collected. Place salmon scale samples in small paper envelopes. Try to smear or spread-out the scales inside the envelope so that they will not clump together. Then, fill in the requested information in the spaces provided on the outside of the envelope. If you should run out of envelopes, make some with paper and tape. Number the scale samples sequentially, within each species group. Record their data on Form 9US on separate groups of pages, by species. Each cruise should start with salmon scale number one for each species of salmon.

Directions for collecting scales:

1. Rinse the fish off and/or lightly wipe the area to be sampled with a wet sponge, paper towel, or cloth. This is to minimize contamination of the sample with scales of other fish and to remove slime which can cause scales to rot.

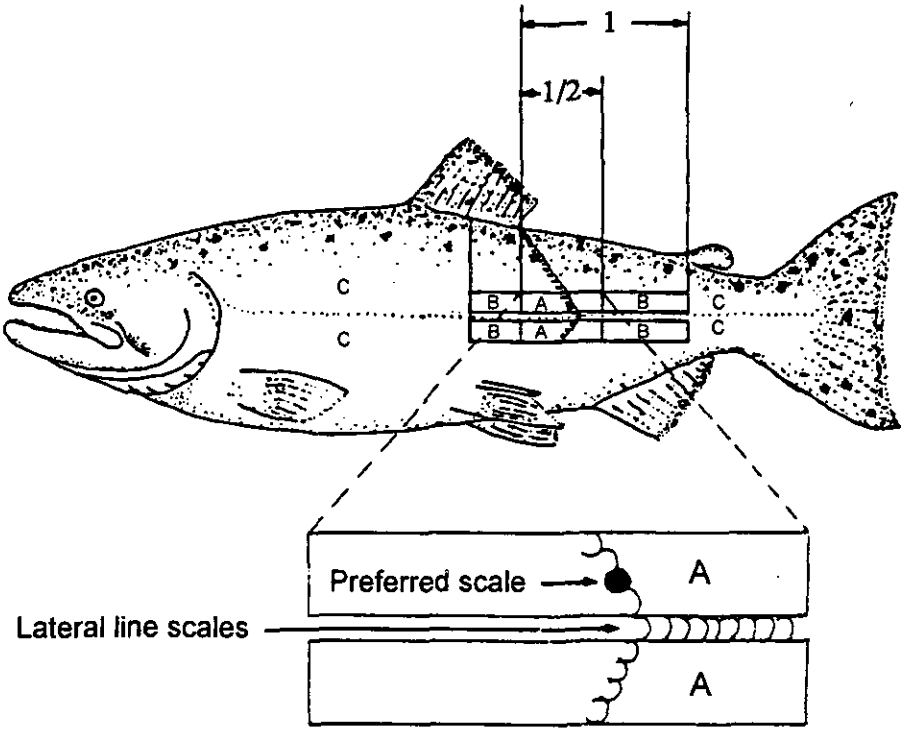
2. Examine the fish and select zone A, B, or other. Record the zone on the envelope. Whenever possible, scales should be taken from zone A, zone B is next in preference for aging. Refer to the figure below. Species identification however, can be determined from scales collected in zones A, B, or C, or from underneath the pectoral fin. Sometimes with trawl caught fish the only body location that has scales is under the pectoral fin. In this circumstance, collect scales that are closer to the posterior tip of the fin if there is a choice.

3. Pluck salmon scales out with forceps so as to minimize the amount of accompanying mucus. Do not collect lateral line scales as those scales are unreadable.

4. Wipe off, inside the envelope or vial, 15 to 20 scales that adhere to the instrument. Collect a minimum of five scales. Ensure that samples are clearly labeled and all pertinent information is recorded on the plastic sheets, if necessary.

5. Remove excess scales from the instrument before sampling the next fish.

It is recognized that strict adherence to the methods will sometimes be impossible or impractical. Keep a record of the deviations from instructions so that the effect can be evaluated.



SALMON - Follow the diagonal scale row from the posterior insertion of the dorsal fin to the lateral line of either side. Two scale rows above the lateral line(on the diagonal) is the preferred scale.

CODED WIRE TAG RECOVERY

Some agencies tag salmon by inserting a coded wire tag (CWT) into the snout of fingerlings. The wire is etched with a binary code and is about three millimeters in length. Wire-tagged salmon are marked by clipping off their adipose fins. If you find a salmon missing an adipose fin (on the scale envelope, Missing Adipose "Y"), check for other fin clips, tags, or a maxilla clipped and if found, describe this on the tag recovery information slip. Sandwich sized plastic bags with plastic information slips and wire ties in them are in a roll in your issued gear. Collect a scale sample, record species, haul number, sex, length, weight, and if you have access to a gram scale (which might be available from a factory manager or quality control person), weigh the gonads. The plastic tag should be filled out in pencil and the scale sample number written on the top margin. Remove the upper portion of the snout by cutting down about one centimeter behind the eye and cutting back from the maxilla. A diagram on the back of the recovery information tag shows where to cut.

When you get back to your quarters, complete the plastic recovery information slip with your name, vessel name, date and haul location, attach the completed data tag to the snout, and put it in one of the provided plastic bags. Several handfuls of table or rock salt is needed for preservation. Ask a factory manager or cook for salt and add it to the bag. After a few days, drain off any accumulated liquid and re-salt the snout. Repeat the draining and re-salting as needed. If salt is not available, freeze the snout and ask your debriefer for salt when you come in. Please do not dehydrate snouts by drying them in air. This makes it nearly impossible to dissect out the wire tag.

The data corresponding to each tag recovered is crucial. As these snouts and data are sent to a different laboratory in Juneau for processing, information such as latitude and longitude must accompany the specimen. **For adipose clipped salmon found at processing plants, the NMFS area where the catcher boat was fishing will suffice for latitude and longitude.** Please check the recovery information slip to see that all the blanks are filled in and are legible. Entries such as your initials or first name only instead of your last name will require research and editing. As a biologist, you must understand how vital it is to handle data from rare occurrences (tag recoveries) with care. Thank you!

MARINE MAMMALS

FORM 10US - MARINE MAMMAL INTERACTION AND SPECIMEN DATA

The Form 10US has two parts. The 10A side is filled out by all vessel observers for any marine mammal interaction or catch (whole or parts of). Record all incidents whether they occurred in monitored hauls or not. Interactions include catch, entanglement or attempts to deter marine mammals. Which catches (randomly selected) were monitored for marine mammal interactions is recorded on the 1US and 2US forms.

The 10B, back side of the form, is for recording any specimen data taken from incidents detailed on the 10A. Specimen information might include sex, and/or length, if photos were taken and if teeth were collected. If none of the above were taken, no entries on 10B are needed. Conversely, if more than one animal was caught, you may have two or more records on 10B for one incident on 10A.

At sea, ask the captain and crew to call you to the deck if any marine mammal is caught while you are aboard, regardless of whether you are sampling fish below deck, sleeping, or whatever. Then, during fishing on trawlers or on processors receiving unsorted codends, decide in advance whether or not you are going to monitor the catch for marine mammals. Observers must watch the retrieval and dumping of nets that they plan to sample for species composition to watch for presorting, so it's usually possible to watch for marine mammal catch or interactions at the same time. Some trawlers will only empty a couple net sections at a time while sorting takes place below the trawl deck. In these cases, when the observer is sampling for fish composition, they need to be in two places at once. The only solution is to watch the first part of the net being dumped. Ask to be notified of any unusual occurrences and insist on no presorting of catch. Then go below to work and, as frequently as possible, go topside to spot check the dumping operation. Therefore, usually hauls the observer samples for groundfish are also monitored for marine mammal interactions.

In addition, some observers will estimate the haul size for every codend that is brought on board to reliably estimate total catch weight. In most cases the observer could also take a few extra minutes to watch the retrieval and dumping and accomplish two tasks at once. Marine mammals, such as sea lions, tend to congregate around codends being brought in, so watch for any signs of deterrence at that time (such as the use of "seal bombs"). Deterrence might also be used if the codend is brought up to make a turn, or while the codend is being set. You will not be expected to watch for signs of deterrence at every possible time it might be used if you have never seen or heard anything which makes you suspect that deterrence is ever used.

On longline and pot vessels it is less likely that marine mammals will become entangled or caught in the gear, but it does happen, and the use of deterrence to protect the catch is *most* likely to occur on a longline vessel. Steller sea lions, killer whales and even sperm whales have been known to feed on longline catches during retrieval. Instances of predation by killer whales as well as any individual identification notes and photos are of particular interest. For this particular situation, please code it on the 10A but detail the circumstances on the marine mammal sighting form, 11US.

Fishermen employ several strategies to prevent feeding on the catch, one of which is deterrence. Record details of the use of deterrence in the remarks on 10A--what form of deterrence was used, how effective it was, and whether the marine mammals appeared to be injured by it. Again, if the code is for feeding and deterrence and if the mammals are killer whales, refer your remarks to Form 11US and record your observations there.

Form 10AUS Marine Mammal Interaction Data

1. Enter Cruise no., vessel code, and last two digits of the year in the heading. Start a new sheet for each vessel you work aboard.

3. Record the date with leading zeros where appropriate. Enter the haul, delivery, or set number for each catch in which there was a marine mammal interaction. (See Interaction Codes below.)

4. **Species Name** - Write the common name of the marine mammal species involved. *If you are not sure of an identification, use a broader classification*, such as unidentified pinniped or unidentified dolphin/porpoise. If more than one species of marine mammal was involved in an interaction, repeat the date and haul number in the next box down the page and enter the second species on its own line.

5. **Species code** - Record the two letter code corresponding to the species name. The mammal code list follows the example 10US form in this section.

6. **Number of individuals** - Enter the number of individuals involved in the incident described by the interaction code. If the same mammal was involved in more than one interaction, just enter the mammal once and assign it the interaction code with the most serious consequences for the mammal. If there were several animals of the same species involved in different interactions, record each interaction on a separate line.

7. **Did you observe mammal?** - Record "Y" here if you actually saw the animal, and "N" if you did not.

8. **Condition code** - use one of the following for each line of entry. Code the outcome condition. If a live animal was lethally removed, code it as a carcass, not a live animal.

    1 -- Carcass
    2 -- Bones other than the skull
    3 -- Live animal
    4 -- Skull
    5 -- Skull and bones
    6 -- Tusk/teeth only (no skull)
    7 -- Baleen only

9. **Interaction code** - Choose one of the codes below. An entry is required in this field. A bone for example should have an interaction code of 6. Refer to "Definitions" for these codes and then read what is needed for your "Remarks."

If a mammal was involved in more than one interaction, just enter it once and assign it the interaction code with the most serious consequences for the mammal. For example, an animal that was earlier caught and released injured, might be found freshly dead in the next haul. If you were sure it was the same animal, the interaction code would be 4 -- freshly dead. In this case, you would need to include in remarks how you identified it as the same animal.

1 - Deterred, condition unknown

2 - Released/escaped uninjured

3 - Released/escaped injured

4 - Freshly Dead

5 - Unknown condition

6 - Previously dead

7 - Lethal removal (not entangled)

8 - Lethal removal (entangled)

9 - Deterred and released /escaped uninjured

10 - Deterred and released /escaped injured

11 - Deterred and lethal removal (not entangled)

12 - Deterred and lethal removal (entangled)

13 - Hit propeller and died

14 - Mammal boarded vessel on own volition and escaped uninjured.

15 - Mammal boarded vessel on own volition and escaped injured.

16 - Feeding (on catch not yet landed)

17 - Deterred and feeding

Definitions --

Deterred: Animals are subjected to deliberate actions intended to frighten or harm them in order to limit, discourage, or avoid interaction with fishing gear. The animal may be in direct contact with the gear or in very close proximity. Such actions are authorized activities. Common examples of deterrence include yelling at the animal, banging pots and pans or other objects, throwing seal bombs or other objects, and shooting at or near the animal.

NOTE: Steller sea lions have additional protection under the endangered species act. Discharging a firearm within 100 yards of a stellar sea lion is a violation of federal law, even if the intent is a warning shot to frighten the sea lion away. Record violations in your logbook.

Activities not included in this definition of deterrence are feeding animals, inadvertent propeller strikes, unauthorized harassment, or changes in fishing strategy (e.g., longliners suspending retrieval to avoid depredation by killer whales).

Harassed animals are those that are subjected to deliberate actions intended to frighten or harm them when they are not in direct contact or within the immediate proximity of fishing gear. The same activities that are authorized as deterrence, above, become unauthorized, illegal acts of harassment when they are performed other than for protection of catch or gear. **Instances of harassment should be recorded on 11US, documented in your logbook and reported to your debriefer. Harassment is not coded on the 10US form.**

Released or Escaped Alive (not injured): those animals that are entrapped, but are released alive or escaped with no apparent injury (no bleeding, swam or dove strongly within a few seconds) and no fishing gear was attached to the animal.

Released or Escaped Alive (injured): Those animals that are entrapped, but are released alive or escape with apparent injury (bleeding, obvious trauma, unusually sluggish movement upon release) and/or with fishing gear attached to the animal.

Freshly Dead: Animals killed by entanglement or entrapment during that particular haul or set. The animal was not decomposed and did not show evidence of death by something other than the fishing gear. Examples not considered fresh kills include animals with obvious gunshot wounds, animals skinned or with snouts removed, etc. Although some marine mammals have their own strong odors, freshly dead animals should not have a putrid, rotten smell. Freely flowing blood or other body fluids and bright red blood or meat generally indicate a fresh kill. Freshly dead animals can be warm or cold, depending on the length of the tow or set and the time of death. Rigor mortis is not a good indicator, as the period of time an animal is in rigor can vary greatly depending on physical condition and the environment.

Unknown Condition: Those animals that are entangled or entrapped, but are lost or discarded before the observer is able to judge the animals' condition.

Previously Dead: Animals dead before contacting the fishing gear. There may be a putrid, rotten smell, bloating, discoloration of meat, or loss of skin/fur. Decomposed flesh with bones is also considered Previously Dead. Bones with no flesh should be recorded on the 10B only, and not on the 10A. *Animals killed prior to contact with the fishing gear, but not obviously decayed, also are classified as Previously Dead.* Look for a cause of death that indicates that the animal was not killed in the present haul or set (e.g., a decapitated walrus, skinned seal, gunshot wounds). If you think you have seen the animal before, record it again but indicate why you think it is the same animal.

Lethal Removal (not entangled): Animals killed to prevent serious damage to or loss of gear, catch, or human life. The death of these animals is not caused by contact with the fishing gear. Examples include shooting or clubbing an animal to prevent it from damaging gear, feeding on the catch or to remove it from the vessel. An animal lethally removed as a result of a fatal deterrence need only be recorded as lethally removed, not also as deterred, but the remarks should clearly reflect the sequence of events.

Lethal Removal (entangled): An animal that is killed (e.g. shot or clubbed) to prevent serious damage or loss of gear, catch or human life, and is in direct contact with fishing gear.

Feeding: is when a marine mammal is seen pulling fish from a net or off the hook of a longline. (Also termed "predation.") On a longliner, you might see sea lions or fur seals taking catch right alongside the rail. If killer whales are feeding though, often they won't come near the boat. Watch killer whale's behavior closely to see if they are actually diving down to the line. Seeing mammals around the ship and having empty hooks coming up is not necessarily observing predation. Having just fish heads or lips left on the line *is proof* of "feeding." Also look for fish that have been

bitten or raked by teeth. Note though, that when mammals feed on discard it is not considered feeding predation *or* intentional feeding by humans.

When humans offer, give, or attempt to give food or non-food items to marine mammals in the wild, it is a violation. Observers must document intentional feeding of marine mammals by humans as an observed violation in their observer logbook and bring it up with your debriefer. Do not record instances of human deliberately feeding mammals on the 10US form. Intentional feeding of marine mammals by humans does not include the routine discard of bycatch or waste during fishing or processing operations.

10. **Remarks** -- This is the most important part of recording the interaction. If you did not observe the animal, briefly explain why not, and where you got your information. If you did see the animal, please use this section to explain the details requested below. If you were on a longline or pot vessel, did this interaction occur within the percentage of the set you monitored for marine mammals?

Species identifications: Record as much detail as you can. Was there fur? Note the shapes and size of dorsal fins, flukes and flippers. What type of coloration pattern was on the fins and body? Did it have external ears? Did it have baleen or tusks? What was the shape and size of the head and snout? List all of the characteristics you used to identify the animal to a particular species.

Condition of the animal:
Skull and/or Bones: Describe the number, size, type, and condition of the bones. What was done with them?

Deterrence/Harassment: Identify the species. What method of deterrence was used? How effective was the deterrence? Was the animal injured as a result of the deterrence? Where was the animal in relation to the vessel and the gear? Who deterred the animal? Why was the animal deterred?

Released or Escaped Alive (injured and uninjured): Identify the species. What part of the gear was the animal in? At what point during the fishing was the animal picked up? How was the animal released? What was the animal's condition upon release? Describe all injuries or symptoms of injuries.

Unknown Condition: Identify the species. Describe any known details about the animal. What circumstances prevented you from making a good judgement of the animal's condition?

Freshly Dead: Identify the species. Could you determine the cause of death? How did you determine the animal was a fresh kill? Where was the animal found? What condition was it in? What type of wounds were present?

Previously Dead: Identify the species or species group as best as possible. Describe the state of decomposition, if present. Could you determine a cause of death?

Lethal Removals: Identify the species. Fully describe the events surrounding the kill. What methods were used to kill the animal?

Hit propeller and died: Identify the species. How was this incident noticed? Describe what was seen. Are you certain the animal was dead or dying?

Mammal boarded vessel on own volition and escaped injured or uninjured: Identify the species. How and why did the animal board the vessel? How did the animal exit the vessel? Was any deterrence used to get the animal to leave? Describe its effectiveness. If injured, how did it occur? Describe the injuries.

Feeding: Identify the species. If the animals are killer whales, please put a reference in "Remarks" to Form 11US and make your comments on that form. Did you witness the animals in the act? Describe what you saw. Did you notice a preferred prey? If on a longliner, what percentage of the prey species was taken from the catch? Describe any change in fishing strategy used for avoiding predation and its effectiveness.

Form 10BUS Marine Mammal Specimen Data

This form only needs to be filled out for the collection of canine teeth, sex and/or length data, or for photos taken of interactions or catch. Do not collect any animal parts other than canine teeth (or snout) of fur seals or Steller sea lions that are dead in the catch. Do not take any animal parts from walrus. If you encounter special circumstances which you believe warrant collecting other specimens, you must contact the NMFS Observer Program office in Seattle to obtain special permission.

Any entry on 10BUS should correspond to an entry on 10AUS. Fill out one Form 10B record (there are four records per page) for each animal from which measurements or specimens were taken.

1. Enter cruise no., vessel code, and the last two digits of the year. The date, haul or set number, marine mammal species code, and interaction code should correspond to an entry on the 10AUS, the front side of the form.

2. Sex - Record the sex of the animals. Entries are M, F, or U. Code "U" if the sex is unknown.

3. Assign specimen numbers sequentially starting with "1."

4. Lengths, curvilinear and/or standard - Record the animal's length (in cm) in the appropriate field. For instructions on measuring, refer to the page following marine mammal species codes, titled "Length Measurements of Seals and Sea Lions."

5. Tooth collected (Y/N)? - Record "Y" if you collected a tooth; otherwise record "N". If you did not take a tooth or the snout of a dead Steller sea lion or northern fur seal, please indicate why in the Remarks section.

6. Photo taken (Y/N)? - Record "Y" if you took photographs; otherwise, record "N."

7. Remarks - Describe how the sex was determined. Document any uncertainties you may have concerning the data. If a tooth or snout was collected, describe it and your method of storage. Any comments not directly related to the specimen data, such as cooperation or hindrance by crew, should be recorded in your logbook.

Cruise #	Vessel code	Year
4011	A110	97

Form 10AUS - Marine Mammal Interaction Data

Describe features used in identification; circumstance and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code
09	01	49	Steller sea lion	EJ	1	Y	1	4

Remarks: (see manual for list of required information)

Sea lion was found as haul was dumped. It was not decomposed and only 2 wounds were near mouth. Animal was over 2 meters long, light brown color, large foreflippers, external ears.

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Note: A single example is shown above, this form cannot be compared with CMB example data.

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Cruise #	Vessel code	Year
4011	A110	97

Form 10BUS - Marine Mammal Specimen Data

Data describing indiviual specimens; sexing criteria, methods of measurement, types and extent of injuries; etc..

Date Month	Date Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?
09	01	49	EJ	4	M	1		260	Y	N

Remarks : (see manual for list of required information)

See remarks on 10A. Sexing was pretty clear using diagram in Spp id Manual. Animal was too large to move for straight line measure. Borrowed a hacksaw and took off the whole end of the snout for the teeth and froze it.

Date Month	Date Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Date Month	Date Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Date onth	Date Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

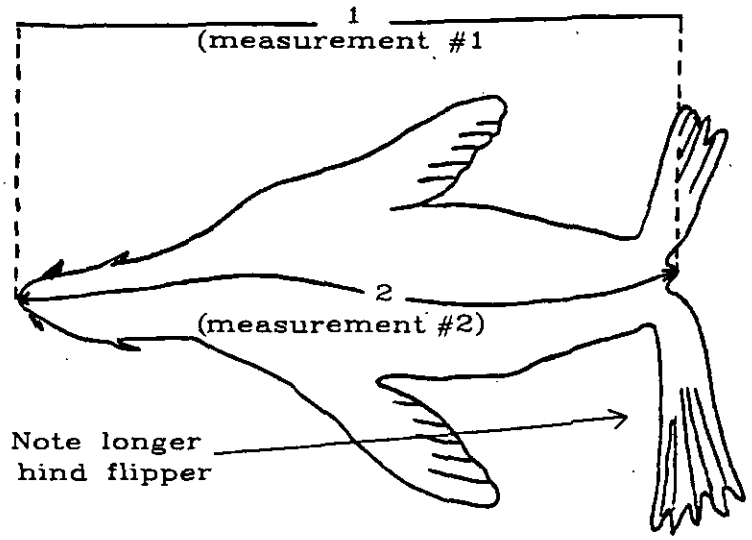
Common and Scientific Names and Species Codes for Marine Mammals

Code	Common Name	Scientific Name (NE indicates no equivalent)
NU	None	
CU	Northern fur seal	Callorhinus ursinus
EJ	Northern (Steller) sea lion	Eumetopias jubatus
ZC	California sea lion	Zalophus californianus
UO	Unidentified otariid (fur seals and sea lions with visible ears)	
OR	Walrus	Odobenus rosmarus
PV	Harbor seal	Phoca vitulina
PL	Spotted seal; larga seal	Phoca largha
PH	Ringed seal	Phoca hispida
PF	Ribbon seal	Phoca fasciata
EB	Bearded seal	Erignathus barbatus
MA	Northern elephant seal	Mirounga angustirostris
US	Unidentified phocid (hair or true seals without visible, external ears)	
UP	Unidentified pinniped (the order which includes both otariids and phocids)	
EL	Sea otter	Enhydra lutris
PD	Dall's porpoise	Phocoenoides dalli: dalli type
PT	Dall's porpoise	Phocoenoides dalli: truei type
PB	Dall's porpoise	Phocoenoides dalli: black type
PX	Dall's porpoise	Phocoenoides dalli: type unknown
PP	Harbor porpoise	Phocoena phocoena
DD	Common dolphin	Delphinus delphis
LO	Pacific whiteside dolphin	Lagenorhynchus obliquidens
LB	Northern right whale dolphin	Lissodelphis borealis
SC	Striped dolphin	Stenella coeruleoalba
TT	Bottlenose dolphin	Tursiops truncatus
SB	Rough toothed dolphin	Steno bredanensis
GG	Risso's dolphin	Grampus griseus
SL	Spinner dolphin	Stenella longirostris
SA	Spotted dolphin (Central Pacific)	Stenella attenuata
SG	Spotted dolphin (Eastern Pacific)	Stenella attenuata
LH	Frasier's dolphin	Lagenodelphis hosei
UD	Unidentified dolphin/porpoise	NE
GM	Shortfin pilot whale	Globicelphala macrorhynchus
FA	Pygmy killer whale	Feresa attenuata
PC	False killer whale	Pseudorca crassidens
OO	Killer whale	Orcinus orca
DL	Belukha; beluga	Delphinapterus leucas

(List continues on the next page)

Code	Common Name	Scientific Name (NE indicates no equivalent)
PM	Sperm whale	Physeter macrocephalus
BE	Baird's beaked whale	Berardius bairdii
ZX	Goosebeak whale	Ziphius cavirostris
MS	Bering Sea beaked whale	Mesoplodon stejnegeri
ER	Gray whale	Eschrichtius robustus
MN	Humpback whale	Megaptera novaeangliae
BA	Minke whale	Balaenoptera acutorostrata
BX	Bryde whale	Balaenoptera edeni
BB	Sei whale	Balaenoptera borealis
BP	Fin whale	Balaenoptera physalus
BL	Blue whale	Balaenoptera musculus
BG	Black right whale	Balaena glacialis
BM	Bowhead whale	Balaena mysticetus
MM	Narwhal	Monodon monoceros
UX	Unidentified small whale	NE
UZ	Unidentified large whale	NE
UW	Unidentified whale	NE
UC	Unidentified cetacean: whale or porpoise or dolphin, definitely not a pinniped (Form 10AUS only)	NE
ZZ	Unidentified marine mammal	NE
UM	Polar bear	Ursus maritimus

Length Measurements of Seals and Sea Lions

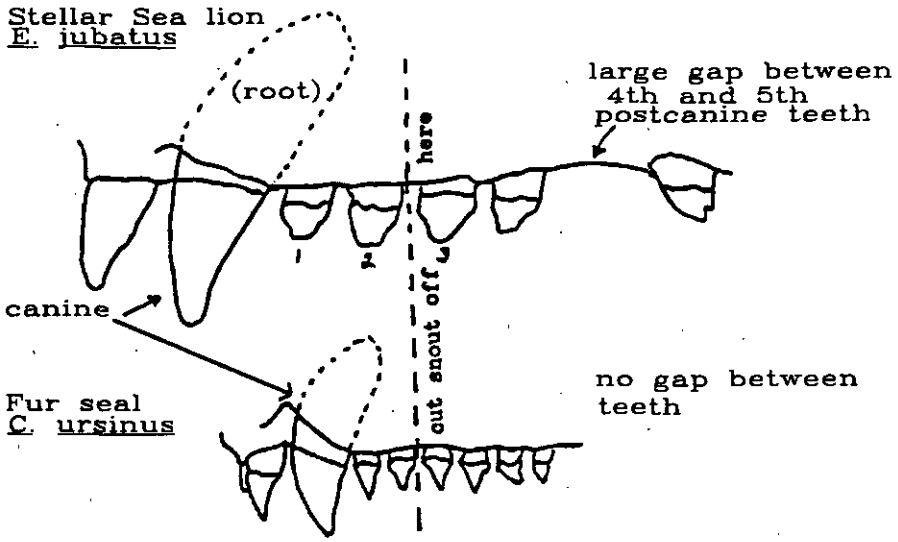


Upper half of the diagram is a Stellar Sea Lion, the lower half a Northern Fur Seal.

Standard Length (measurement #1) is the straight-line distance from the snout to the tip of the tail flesh on the unskinned body, belly up, ideally with the head and vertebral column on a straight line. If rigor has set in, then this measurement probably cannot be taken and measurement #2 should be taken.

Curvilinear Length (measurement #2) is taken when the seal cannot be stretched belly up, as when rigor sets in, or is too heavy to be moved. It is the shortest surface distance from the tip of the tail flesh along the back, belly, or side. Record the type of measurement taken. Seals and Sea Lions are usually measured with a flexible tape.

Collection of Sea Lion and Fur Seal Teeth



Outline of sea lion and fur seal teeth.

The procedure in collecting a tooth from a seal or a sea lion is as follows:

1. The end of the upper snout must be cut off without damaging the root of the canine tooth. To insure that the entire canine root is collected, the snout should be cut off between the 2nd and 3rd post canine teeth (see figure above). It may be helpful to skin the upper snout in order to better see where to make the cut

2. Methods of preservation:
   a. It is probably easiest to triple-bag the specimen and either freeze or salt the snout to preserve it until it can be brought in to the Seattle office. The Marine Mammal Lab will extract the teeth for study.

   b. Alternatively, you may be able to arrange to boil the snout (suggest: outside, on a hot plate, in a non-food pot) until no more flesh remains on the jaws. The jaws can then be stored dry until they're turned in and the teeth will be safely extracted by the Marine Mammal Lab for study.

   c. Or, boil the snout until the tooth can be easily pulled and removed. Do not forcibly twist the tooth when removing; twisting will break the tooth.

3. Do not preserve the snout in formaldehyde.

FORM 11US - MARINE MAMMAL SIGHTING FORM

This form will help us determine the distribution and behaviors of marine mammals. Data from these forms are integrated into the National Marine Mammal Laboratory's Platforms of Opportunity database, which has information on marine mammals from throughout the North Pacific.

Marine mammal sighting data are valuable, whether or not you were deliberately looking for mammals. Thus, if a crew member points out a mammal to you, or if you merely glance up from your work and see a mammal, write it down, and record the information on the form.

We are interested in every species of marine mammal that you encounter and will provide an identification guide to assist you in making identifications. If you are unable to positively identify an animal, then please indicate so on the form. Records of unidentified marine mammals tend to lend credence to those records that include identification. Please give us a complete description with comprehensive notes and sketches as necessary, to fully describe any species you encounter for the first time each cruise. Records of species which are not fully documented and have not been previously encountered will be difficult to verify.

For the more commonly seen species (e.g., Dall's porpoise), you do not need to give detailed descriptions of subsequent sightings within one contract. However, if the sighting involves unusual behaviors or documents a fishery interaction or warrants some extra description (e.g., mating humpback whales), please write it up fully.

NOTE: DO NOT FILL IN SHADED BOXES.

1. OBSERVER: Write your name here.

2: VESSEL: Write the vessel name here.

3. DATE: Enter year (e.g., 95), month and day, in that order.

4. TIME: Time of sighting is logged when the animal is first seen. Use the military time system and Alaska local time (ALT). If you know the Greenwich Mean Time offset, put it in boxes 11 - 13.

5. LATITUDE: Record the latitude to tenths of minutes, if possible. The name of the general locality is optional.

6. LONGITUDE: Record longitude to tenths of minutes, if possible. Place E or W in box 30, depending on which side of the 180th meridian the sighting occurs.

7. SIGHTING CONDITIONS: Give a qualitative evaluation of the overall sighting conditions. Excellent: Unlimited visibility, flat seas. Good: Sighting conditions affected somewhat by glare, sea state or weather. Fair: Sighting conditions affected by a combination of problems, e.g, heavy seas or poor weather. Poor: Severely limited visibility due to high seas or poor weather.

8. BEAUFORT: Use the scale of sea and wind conditions (listed on the back of the form) to choose the Beaufort scale number that best describes the conditions during your sighting. (Note: Although the Beaufort scale actually goes up through 10 - storm, 11 - violent storm, and 12 - hurricane, these codes are not appropriate for sightings.)

9. SURFACE WATER TEMPERATURE: Record the temperature in degrees Centigrade rounded off to the nearest whole degree. If below freezing, place a "-" in box 28. If above freezing, place "+" in box 28. The surface water temperature can be obtained by the ship's engineer from the engine inlet thermometer. The conversion from Fahrenheit to Centigrade is: C° = 5/9(F° - 32).

10. SPECIES: Write in either the common or scientific name of the marine mammal. Make sure you indicate your level of confidence in your species identification in the boxes to the right of the species section. Please give a very detailed description of the characteristics you observed. It is very important that you list all of the characteristics that led you to an identification of the marine mammal. See below for a list of important things to make notes on. If more than one species are sighted at the same time, note the association (if any) in the comments section and make sure you fill out a separate sighting form for each species. If you cannot determine a species, enter as "unident. large whale", "unident. porpoise", etc. ***Remember that an erroneous identification is worse than none at all.***

11. SIGHTING CUE: Note what first attracted your attention to the presence of the marine mammal. What was the first thing you saw when you spotted the mammal? Examples are: blows, splashes, the animal's body, roostertail splashes, flukes or fins, or the presence of birds above.

12. CLOSEST APPROACH: Note distance in meters of the closest approach of the marine mammal. If you need a "Table of Equivalents" for converting units, refer to the Appendix.

13. NUMBER SIGHTED: Give a best estimate of number of individual animals here. If unable to count all the animals with certainty, estimate the number seen in terms of a range (e.g., Best estimate: 15, Minimum present: 12, Maximum present: 20). For Dall's porpoise, note if you see more rooster tails than the actual number of animals that come to the boat.

14. CRUISE NUMBER AND VESSEL CODE: At the bottom of the page, enter the cruise number and vessel code.

NARRATIVE AND SKETCHES: These sections are very important parts of the observation. ***Remember, if you identify the animal, say how you did it.*** Everything that you observed about the animal and used to identify it should be entered. Be liberal with sketches! We always appreciate them.

Important things to look for and make notes on when attempting to make an identification are:

> ***Shape and size of dorsal fin and its position on the body***. If possible, also note size and shape of tail and flippers.
>
> ***Length***. Size is difficult to estimate at sea, so if it is convenient, compare unfamiliar animals with a species with which you are familiar. For example--"about size of female Steller sea lion" or "slightly smaller than adult male killer whale."
>
> ***General shape of body***, slender or robust?
>
> ***Shape and size of snout***: Is it long or short? Estimate length in inches. Is there a definite break between snout and forehead? Is the forehead markedly bulbous?
>
> ***Color pattern on fins and body?*** (stripes, spots, patches, mottling).
>
> ***Shape, location, and direction of blow:*** Is it single or double? Where is blowhole located on head? Does it lean forward or go straight up?
>
> ***Scars and scratch marks?***

Check off the ***Body Length Estimate***, and circle any ***Behaviors Seen*** or ***Fishing Interactions***. Note here if you've taken any ***Photos or Video*** that may be helpful for species identification or photo-identification for species including killer whales, humpback whales, or blue whales. On the back of the form are profiles of back, blow and heads of many marine mammals. Circle those which most closely resemble what you observed.

Be generous with your narrative of animal's behavior. If there are several animals, are they in a tight school, a loose school, or scattered either singly or in small groups? Describe their diving behavior. How many times do they blow when they come to the surface? Do they raise their tail flukes when they dive after their last blow? How long do they stay down between each series of blows? Do they jump (breach) clear of the water? If so, do they jump in a smooth arc or do they sometimes belly-flop, somersault, or spin? Were the marine mammals attracted to the ship by the net retrieval? Were they feeding off discarded fish and fish parts?

Last but not least, this form has been recently redesigned. Please write in comments and suggestions for ways to improve the form in future revisions.

Form 11US

MARINE MAMMAL SIGHTING

NOAA/NMFS/AFSC/NMML
Platforms of Opportunity
7600 Sand Point Way NE
Seattle, WA 98115

Observer(s) Gentle Giant Vessel Big Blue

date: 97 05 21 (yy mm dd)

local time (24 hr. clock): 13:00 +/- GMT: +/-

latitude: 56° 24.3' N N/S

general location (optional)

longitude: 167° 10.7' W E/W

sighting conditions: ☐ xint ☒ good ☐ fair ☐ poor Beaufort: 2 +/- water temp.: +05.0 °C

species (common and/or scientific name): Fin Whale

confidence: ☐ sure ☒ likely ☐ unsure

sighting cue: Saw blows about 200m off port

closest approach: 100 meters

number sighted (best): 8

number (minimum): 5

number (maximum): 10

observer

vessel

platform | vis | species code | sighting cue

conf. | length | photos

behaviors

interactions | multi

Narrative

Make identifications only on specific features seen. Mention them here. Include body features, markings and coloration, associated organisms, elaborate on behaviors, etc. The most valuable sightings contain a good amount of detailed information.

Blows were followed by very falcate dorsal fin. Animals got closer to vessel; slender bodies, dark in color, lighter on dorsal part of head. Final id based on jaw color pattern: right side almost white (at least visible part). No flukes seen. Similar to sei whale description but much bigger & sei whales not likely north of Aleutians.

Body Length Estimate

- ☐ < 3 m (< 10')
- ☐ 3–8 m (10–25')
- ☐ 8–16 m (25–50')
- ☒ 16–26 m (50–80')
- ☐ >26 m (>80')

(circle as appropriate)

Behaviors Seen

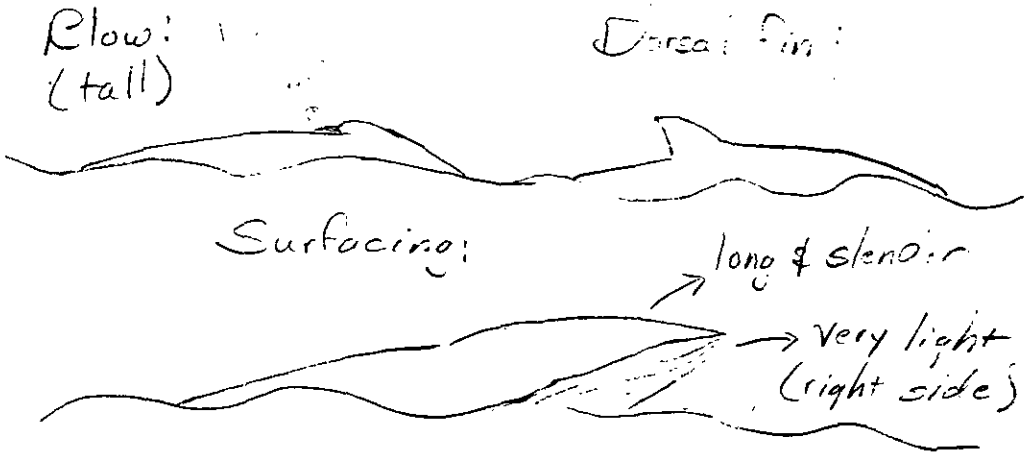
bowriding (small cetaceans)
stern/wake riding
galloping ("porpoising")
jumping
(slow rolling)
roostertailing
milling

spyhopping (large cetaceans)
(blow visible)
breaching
pec (flipper) slapping
lobtailing
tail raised on dive
tail throws
lateral lunge feeding
vertical lunging
group lunging
flukes up on dive

rafting (pinnipeds)
resting (jughandle)
running ("porpoising")
inverted slaps
leaving haulout
vocalizing

Sketches

When possible, make a sketch noting pigmentation, anatomical features, scarring, posture, anatomical anomalies, group positioning, etc.



Fishing Interactions

feeding on discards
feeding from gear
swimming near gear None
contact with vessel
contact with gear
trailing gear

Photos/Video (optional)

☒ photographs
☐ video

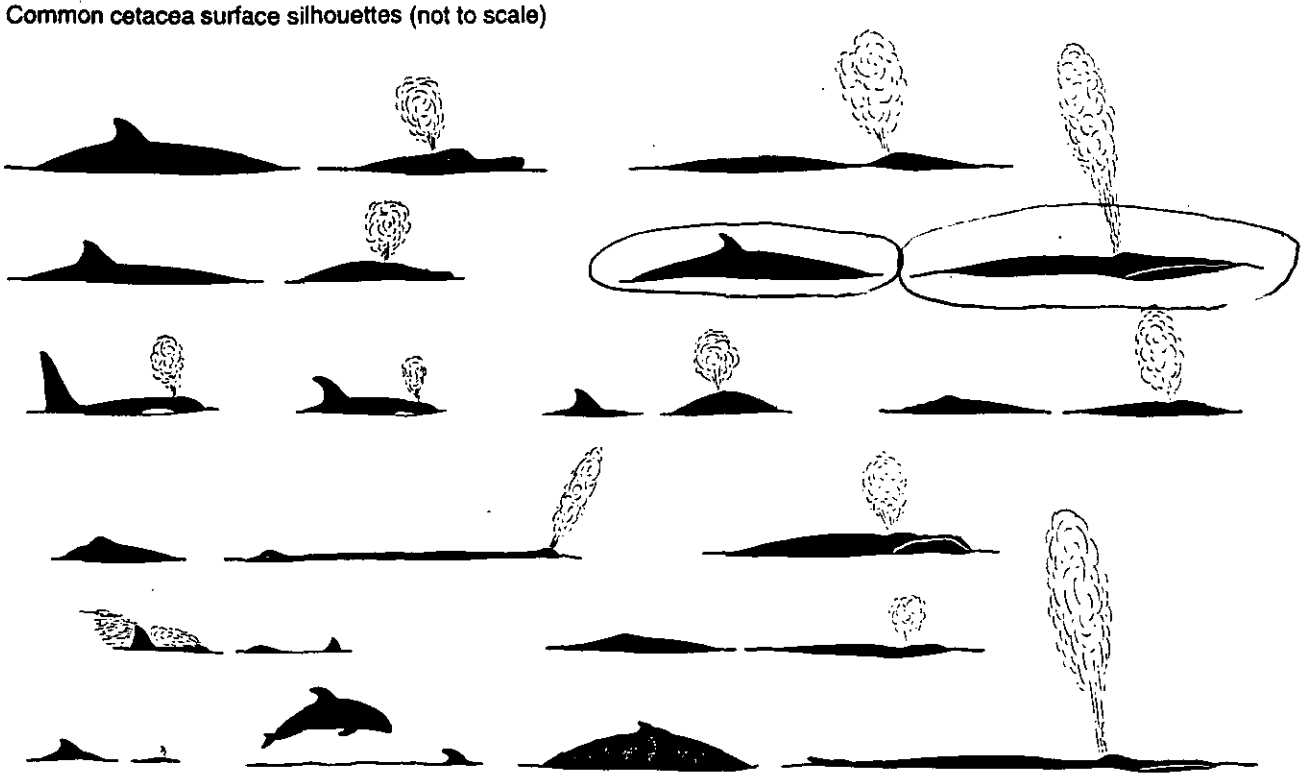
roll/tape #

frame(s) unsure

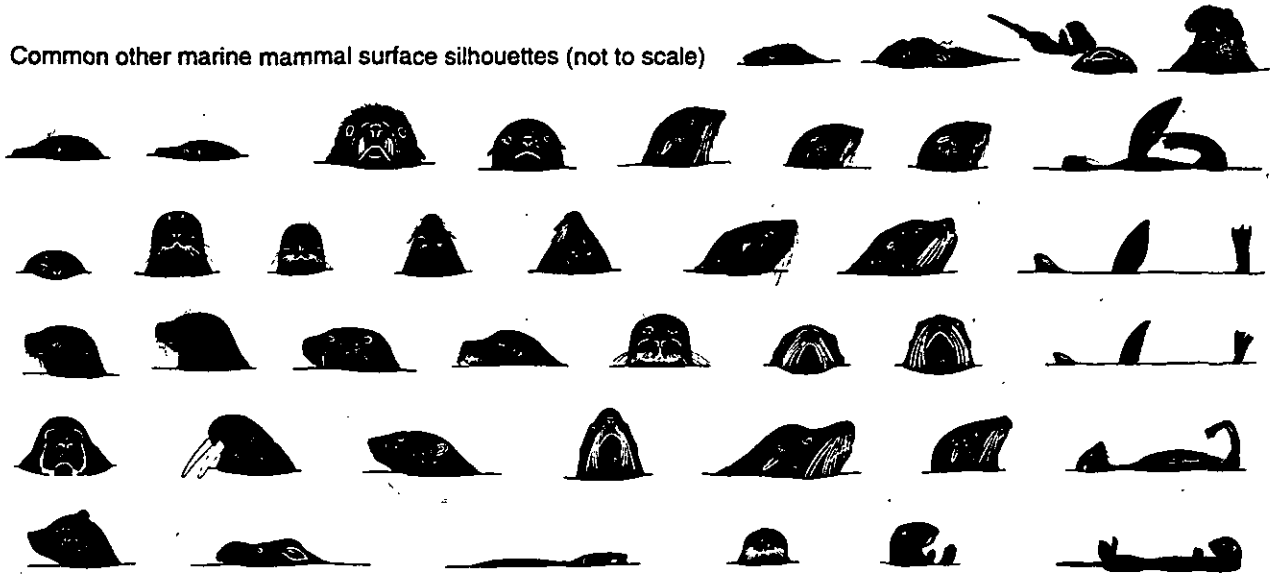
☐ Check here if there was more than one species of marine mammal present at this sighting. Please fill out a form for each species.

cruise number and vessel code: 38 01 A 999

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification.

BEAUFORT SCALE (Sea Condition)		***wind***	***wave height***	
0	glassy, calm	0 , 1 kts	calm	
1	light ripple	1 < 4 kts	light air	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

BIRDS

INTRODUCTION

The National Marine Fisheries Service, U.S. Fish & Wildlife Service (FWS), and the National Biological Survey (NBS) are cooperating to obtain accurate information on the mortality of birds related to trawl, longline, and pot vessels fishing groundfish in the U.S. Exclusive Economic Zone (EEZ) of the Gulf of Alaska and Bering Sea. Bird monitoring activities began in 1990 and were expanded during the 1993 season. The major change was to ask observers to provide detailed information on the identity of incidentally caught birds. Of special concern are a small number of species whose populations are currently at very low levels or declining.

Observers are not expected to have to devote much time to duties pertaining to birds. Birds will rarely be encountered during species composition sampling because incidental take is low. Low take rates do not, of course, diminish the importance of collecting accurate and reliable information. In addition to recording incidental take, some very valuable information can be collected by observers aboard fishing vessels, such as documentation of sightings of endangered species or recovering leg bands from birds incidentally taken during fishing operations. Again, these will be rare events and most observers will not encounter such opportunities.

INCIDENTAL TAKE

Millions of birds, including some eighty-plus species, occur over waters of the EEZ in Alaska. The presence of "free" food in the form of offal and bait attract many birds to fishing operations. In the process of feeding, birds sometimes come into contact with fishing gear and are accidentally killed. For example, most birds taken during longline operations are attracted to the baited hooks when the gear is being set. These birds become hooked at the surface, and are then dragged underwater where they drown. The probability of a bird being caught is a function of many interrelated factors including: type of fishing operation and gear used; length of time fishing gear is in the water; behavior of the bird (feeding and foraging techniques); water and weather conditions (e.g., sea state); size of the bird; availability of food (including bait and offal); and physical condition of the bird (molt, migration, health). Almost any species which occurs in these waters is susceptible to interactions with fishing gear, although a few species are especially vulnerable.

In 1990-1992, observers recorded the number and total weight of birds in their sample. All birds were recorded as "unidentified bird". These data indicate the take rate of birds during commercial fishing operations has been relatively low. For example, in 1990 the number of operations with birds ranged from 0% of (groundfish) pot sets and bottom trawl hauls to 5% of longline sets. However, with these data it was not possible to determine which species or species groups were involved. Anecdotal information and data collected by observers during 1993-1994 indicate that the species most likely to be trapped by longline gear in Alaskan waters are: black-footed and Laysan albatrosses; northern fulmars; black-legged kittiwakes; and glaucous-winged and herring gulls. Trawl gear tends to capture short-tailed and sooty shearwaters and glaucous-winged

and herring gulls, as well as some alcids. Common and thick-billed murres, and marbled and Kittlitz's murrelets are the species most likely to be taken in gillnets and pots.

SPECIMEN IDENTIFICATION AND CODES

Identification of bird species found in the marine environment of the Gulf of Alaska and Bering Sea is a difficult task. Some closely related species are virtually indistinguishable. Most field guides are written to identify birds on the wing, not dead (and often in poor condition) in the hand. When a specimen is wet many of the plumage characteristics used in guides are no longer evident. To assess bird mortality associated with commercial fishing operations, however, specimens need to at least be categorized by species group such as murre, gull, shearwater, etc. For those species which are more "sensitive" (endangered, threatened, depleted) identification to species is the goal.

Codes have been established (see the species code list at the end of this topic) to record specimens to selected species groups. Some of these represent very broad categories, and a few, such as those relating to "sensitive" species, are quite narrow. Note also that in some cases the age or sex of a specimen can be easily determined, and a species code can be accompanied by a code for sex (M = male, F = female, U = unknown) or age (I = immature, J = juvenile, A = adult).

SPECIES COMPOSITION SAMPLING

All birds included in your sample should be examined to determine (1) which of the broad species groups the specimen(s) belongs to, and (2) whether or not it is one of the sensitive species, or species easily identifiable, as noted in your Species ID Manual. Use the appropriate code level, that is, the taxonomic grouping closest to the species group that you feel confident of and be sure to list the characters that you used to make the identification in the seabird section of your logbook. All birds of the same species group in your sample should then be weighed. The code, weight, and number of birds should be entered onto your Form 3US - Species Composition, just as you would enter any fish species. Note that for a few species you can also record sex or age in column 19. Please refer to the instructions to observers on use of the Form 3US.

OTHER MORTALITY FACTORS

Another source of incidental mortality results from birds flying into vessels. Incidents range from the occasional bird found on deck, known as a single "strike", to massive flocks flying into vessels, often referred to as "bird storms". A number of factors may contribute to birds accidentally flying into the vessel, including inclement weather, the species involved, vessels running or working at night and using bright lights (which may serve as an attractant, and/or cause disorientation), and locality. Whatever the cause, mortality due to collisions with vessels may actually be higher than that from gear interactions. There are several objectives in gathering data on bird strikes. The immediate goals are to define:

1. Species involved.
2. Magnitude of mortality.
3. Frequency of occurrence and locale.
4. Causes and contributing factors.

These data will enable scientists to (1) determine the extent of the problem, (2) in conjunction with incidental take data, allow an assessment of total mortality, by species group, and (3) potentially provide information leading to methods in reducing mortality due to collisions with vessels. Effective management requires accurate and complete baseline data.

When you observe cases where birds fly into, or strike, the vessel, record the incident and associated data on the bird strike table in your logbook section on birds. Specific instructions are included with the table. In general, to fulfill the objectives outlined above you should record:

1. Species identification: Use the materials provided in your identification manual to record the species or species group(s) involved. Provide verification by listing the characters used to make the identification in the comments section of the table.

2. Magnitude: Record the number of individuals involved, and the percent mortality. Note if you counted them directly or estimated the numbers. If an estimate was used, note how this estimate was made. If two or more species are involved, counts or estimates by species group should be provided.

3. Circumstances: A variety of factors may contribute to these instances. Record the vessel type (trawler, longline, or pot), size, and activity (running, fishing, etc.); date, time, and duration of event; vessel location; if at night were vessel lights on, how many lights, and relative brightness (illuminating the deck or just running lights); sea and weather conditions (clear, fog, or rain; wind speed and direction); and, if possible, bird behavior before and during the event.

OTHER ITEMS OF CONCERN

Banded Birds: The U.S. Fish and Wildlife Service maintains a database on all banded birds. Recoveries of these bands provide valuable data such as distribution, movements, survival rates, and age. Please use your observer logbook to record information on banded birds. If a banded bird is recovered alive, handle with care, record as much information as possible taking care not to harm the bird (i.e., band number, band type, and condition of bird), do not remove the leg-band, and release the bird. If the bird is recovered dead, record all pertinent data and ask for permission from the vessel personnel for freezer space in order to return the specimen to Seattle. If permission is given, notify an observer office that you are returning with a bird specimen so we can arrange a permit for you. Double-bag the bird, include a tag with collection data and freeze it.

Tag Information: Species, sex and age (if appropriate), date, sea surface temperature, location (latitude and longitude) collected, collector's (your) name, vessel name, cause and circumstance of death.

If you cannot keep the specimen, please remove and save the legband. It is important to turn in the legband, especially ones that are worn and the numbers faded, so that the number can be verified. Please do not let the fishermen keep the legband, although if they provide an address the band can be returned or a certificate sent. Record in your logbook the same information that is on the specimen tag, as requested above. Also in your log record the legband information (band number, type, and location on the bird), and if the specimen was saved. Frozen specimens sometimes are lost in transit or accidentally discarded, so it is important that this information be duplicated in your logbook.

To assist with observations of banded birds, colored plastic bands and nasal markers are sometimes used, either singly or in combination with other bands, colored or numbered. These bands may be placed on the bird in a certain sequence to identify sex, year, colony, or other information. If a banded bird is recovered, note the type and color of all bands, the location (right, left, or both legs), and if several bands are on one leg note the sequence, i.e. blue plastic band upper, silver numbered band lower. Color bands and nasal markers may be numbered differently from other bands; all numbers are important. Additionally, the FWS is conducting radiotelemetry work on spectacled eiders. If a dead eider is recovered, please be sure to check for and save the radio harness.

Sightings of Sensitive Species: In the course of fulfilling your duties you will see many birds gathered around the vessel. Observers are not required to conduct bird sighting surveys. Most species you will encounter, such as northern fulmar or glaucous gull, are quite numerous, especially around fishing vessels where they feed on offal as the catch is processed. It is unnecessary, and would be overly burdensome, for observers to record sightings of these species. There are, however, six species of special concern that may occur in marine areas used by commercial fishing fleets. These species are the short-tailed albatross, red-legged kittiwake, marbled murrelet, Kittlitz's murrelet, spectacled eider, and Steller's eider. Under the Endangered Species Act (ESA), a species or population can be listed as endangered or threatened. Further, a species or population can be a candidate for listing. Candidates are species that have declined or may be threatened, but either they have not yet been formally listed (category 1) or data are incomplete for determining whether listing under the ESA is appropriate (category 2). Candidate species are not protected under the ESA, but they are "sensitive" species for which distribution and mortality information are needed.

Observers can serve a very valuable role by providing information whenever one of these species is sighted. Materials are provided in your species identification manual to enable accurate species identifications. Some species exhibit characters which are diagnostic, enabling accurate identifications even from a distance. Note, however, that marbled and Kittlitz's murrelets are extremely difficult to differentiate.

Use the section on birds in your observer logbook to record sightings of these species. You should note the species, what characters you observed to indicate the species, numbers of birds, associations with other species, associations with vessel or gear, date, location, weather, sea surface temperature (SST), whether or not photographs were taken (note frame and roll number), and when possible the age or sex of those birds observed.

SUMMARY OF OBSERVER DUTIES REGARDING BIRDS

1. During sampling: Record the number and weight of the bird as part of your sample. Determine which species group the bird belongs to, and use the appropriate code. Use the most definitive (closest to species) taxonomic grouping you feel comfortable with.

2. Other than sampling:
   A. Birds striking the vessel - (1) record your estimate of total numbers and how you made this estimate, (2) identify the species involved, list the identification characteristics used and note if photographs were taken, and (3) record the associated environmental conditions and vessel activity during the occurrence. A table is provided in the seabird section of your logbook to record this information.

   B. Banded Seabirds - whether in your sample or from a bird striking the vessel, record all pertinent data and save the specimen when possible.

   C. Sightings - record sightings of any of the "sensitive" species as noted above.

   D. Seabird Daily Notes - use the seabird section provided in your observer logbook to record notes associated with birds.

SPECIES CODE LIST - BIRDS
(In Taxonomic Order)

Species Code	Species Group	Scientific Name
844	Loon unidentified	Gaviidae
846	Grebe unidentified	Podicipedidae
848	Tubenoses unidentified	Procellariiformes
849	Albatross unidentified	Diomedeidae
850	Short-tailed albatross*	Diomedea albatrus
851	Laysan albatross	Diomedea immutabilis
852	Black-footed albatross	Diomedea nigripes
853	Shearwater/petrel unidentified	Procellariidae
854	Northern Fulmar	Fulmarus glacialis
855	Dark Shearwater unidentified	Puffinus sp. (sooty and short-tailed)
856	Sooty Shearwater	Puffinus griseus
857	Short-tailed Shearwater	Puffinus tenuirostris
858	Storm-petrel unidentified	Hydrobatidae
861	Cormorant unidentified	Phalacrocoracidae
862	Waterfowl unidentified	Anatidae

Species Code	Species Group	Scientific Name
863	King Eider	Somateria spectabilis
864	Spectacled eider**	Somateria fischeri
865	Steller's eider**	Polysticta stelleri
866	Common Eider	Somateria mollissima
867	Shorebird unidentified	Scolopacidae
868	Phalarope unidentified	Phalaropus sp.
871	Jaeger/skua unidentified	Stercorarius sp.
874	Gull unidentified	Larinae
875	Red-legged kittiwake*	Rissa brevirostris
876	Black-legged kittiwake*	Rissa tridactyla
877	Herring Gull	Larus argentatus
878	Glaucous Gull	Larus hyperboreus
879	Glaucous-winged Gull	Larus glaucescens
880	Tern unidentified	Sterninae
883	Alcid unidentified	Alcidae
884	Guillemot unidentified	Cepphus sp.
887	Murre unidentified	Uria sp.
888	Thick-billed Murre	Uria lomvia
889	Common Murre	Uria aalge
890	Puffin unidentified	Fratercula sp.
891	Horned Puffin	Fratercula corniculata
892	Tufted Puffin	Fratercula cirrhata
893	Auklet/murrelet unidentified	Auklet/murrelet sp
894	Marbled murrelet	Brachyramphus marmoratus
895	Rhinocerous Auklet	Cerorhinca monocerata
896	Kittlitz's murrelet,	Brachyramphus brevirostris
897	Seabird unidentified	
898	Land bird unidentified	

* Record also as adult = A, sub-adult = S, immature = I, or unknown = U.

** Record also as male = M, female = F, or unknown = U.

Note: For a listing of birds species codes in alphabetic order, refer to the listing following the fish codes at the beginning of this section.

OBSERVING ON LONGLINE AND POT FISHING VESSELS

Catcher or C/P? -- Longline and pot boats may be the "catcher only" type that ice and deliver their fish to a shoreside plant or to another ship for processing, or they may be catcher/processors. "Heading and gutting, **without freezing or additional preparation,** is not considered to be processing for purposes of reporting to NMFS. If your operation only heads, guts, or ices fish, or cools fish in a recirculation seawater system, NMFS does not consider your operation to be processing." If your vessel is not "processing," follow the report week instructions (in the catch message section) for catcher boats, i.e. all hauls are attributed to the week end date in which the **delivery** of catch is completed.

Longline Gear -- Longliners catch fish using a line with baited hooks attached to it. Hooks are each attached to the longline by a length of line called "gangen." NMFS refers to longline gear as "hook & line" and defines it as, "A stationary, buoyed, and anchored line with hooks attached, or the taking of fish by means of such a device." The "long line" may be made up of sections of line called "skates" which, when on board, may be coiled into tubs or onto a skate bottom (a white fabric square with lines on the corners to tie it into a bundle), or the line may be wound onto an empty net reel. On vessels equipped with an auto-baiter system, coils of the line are hung on a rod, suspended by the hooks and gangen, much like coat hangers on a closet dowel. The length of line on one rod may be referred to as a "magazine." During retrieval of the line, the end of one skate, magazine, or half magazine and the start of the next may be flagged by a line marker, knot, or a weight attached to the line. The number of hooks per section of line is fairly uniform. Rather than count every hook sampled, observers use these line markers to count the number of sections, and thence, the number of hooks sampled.

A longline is put out to fish or "set" from the stern of the vessel. Each end of the longline is anchored and marked with buoys. The set is then left to soak for a couple hours while the fishermen go to set or retrieve another line. Later the vessel returns and starts retrieval of the line over a roller onto the weather deck or into a cutout in the starboard side of the vessel called the "pit." On a longliner, the fish are removed from the hooks one at a time as line is retrieved and are immediately processed or put into the hold or tanks. Longline fishing is labor-intensive but it produces a very high quality product. There are typically three sets made and retrieved each day, and the target groundfish species are Pacific cod or sometimes, Greenland turbot. Halibut and sablefish (also called black cod) are fished with longline gear by those who have Individual Fishing Quota (IFQ) allocation. Longline vessel operators who do not have IFQ will release halibut off the line as a prohibited species. The techniques for releasing halibut off the line are specified by regulation and observers are asked to monitor their compliance with careful release while sampling.

Longline Halibut/Sablefish IFQs -- This program for halibut and sablefish longline fisheries began in March, 1995. The implementation of this program culminates more than 5 years of discussion, debate, and analysis by the North Pacific Fishery Management Council (NPFMC) and the NMFS. Though still a subject of debate, IFQs for halibut and sablefish are now law.

IFQs are another way to manage a fishery in that they give individuals a set portion of quota rather than have them compete in an open access environment. Similar IFQ systems have been

implemented in one form or another in several other fisheries in this country and worldwide. In the case of North Pacific halibut and sablefish fisheries, individuals are allocated a portion of the halibut or sablefish quota within a framework of areas. Within these area allocations, fishermen can take their quota at any time halibut or sablefish fishing is open.

Because fishermen are allocated a percentage of the quota rather than an absolute amount of fish, the stocks should be protected over time. If the stocks go up, everyone gets more fish. If the stocks go down, everyone gets less. The catch quotas are set annually. The allocation of any individual fisherman is based on their past performance in these fisheries over a series of qualifying years. Fishermen may have quota for one of either of these species or both.

Observers may be deployed on vessels retaining sablefish, halibut, or both under the IFQ program. As an observer, you will not be able to tell from any record you have access to if the vessel actually has an IFQ. The mechanisms for tracking IFQ are independent of observer generated data. If you are on a longline vessel retaining halibut or sablefish you can assume they have quota share for the fish. It is the owner/operator's responsibility to ensure they have quota.

Do not attempt to give advice on the IFQ regulations. All questions from the vessel regarding IFQ should be directed to the Restricted Access Management Division (RAM) at the NMFS Alaska Regional Office in Juneau at 907-586-7202. At this time, the Observer Program is not taking an active role in monitoring for compliance with the IFQ regulations because the catch monitoring system is independent of observer data. However, if you do see obvious problems note them in your log and bring them to the attention of NMFS in debriefing.

Pot Fishing Gear – There are various types of pots used by pot fishing vessels. Most vessels use king crab pots which are adapted for targeting on Pacific cod and excluding halibut. The big king crab pots are made up of a rectangular metal frame to which panels of webbing are tied; the frame sizes vary but typically measure about 7 x 7 x 3 feet. Pots weigh about 700 pounds apiece. Funnel-shaped webbing in the side panels guide the fish into the pot through openings fitted with "triggers" which function as valves to let cod in and prevent them from swimming back out. Containers of bait are attached inside each pot to attract fish. Usually a buoy line and marker float is attached to each pot and the pots are each set out and retrieved individually, that is, they are not strung together by a surface or ground line. In any case, NMFS defines a set as: a string of pots (or hook and line gear) or a group of pots that are deployed in a similar location with a similar soak time.

Regarding the configuration of the gear, NMFS regulations state, "Pots used to fish for groundfish must be equipped with a biodegradable panel at least 18 inches in length that is parallel to and within 6 inches of, the bottom of the pot, and which is sewn up with untreated cotton thread no larger than #30. Each pot used to fish for groundfish must be equipped with rigid tunnel openings that are no wider than 9 inches and no higher than 9 inches, or soft tunnel openings with dimensions that are no wider than 9 inches. Pot and line means a stationary, buoyed line with a single pot attached, or the taking of fish by means of such a device. Pot and longline means a stationary, buoyed, and anchored line with two or more pots attached, or the taking of fish by means of such a device.

In retrieval, the buoy line is snagged, and the line hauler winch brings the pot to the railing. The pot is swung onto the "launcher", a platform attached to the rail. In heavy weather, a pot may swing wide before it can be set onto the launcher. Pots weigh hundreds of pounds and swinging and shifting pots, colliding with crewmen, have resulted in broken bones and backs. Observers must develop an awareness of this danger potential and stay well clear of pots being retrieved. When the pot is landed on the platform, a side panel of the pot is opened and the inboard side of the launching platform is lowered to tip the pot and allow the contents to spill into a waiting tote container. The pot is then re-baited, closed, and then the launching platform is tilted up to slide the heavy pot overboard. As the pot quickly sinks, loops of buoy line whip overboard. Loops of buoy line have lassoed crewmen and dragged them overboard and down before rescuers could grab them. Obviously observers should also stand well clear of the pots and buoy line during launching.

CATCH RATE ESTIMATES

Longline and pot catches are logged by set, and all sets are attributed to the date that the retrieval of that set was completed. Just as on the 2US form for trawlers, the only time a noon position is recorded on the Catch Summary Form 1US is on a non-fishing day. (Refer to the example Form 1US which follows.) The skipper's catch weight estimates are always based on deck tallies (counts) and/or production data. There are no deck or bin estimates of catch volume or weight. ***The skipper's catch estimates do not usually include bycatch or, if they do, it is a rough estimate.*** On longline vessels, losses of fish which drop off the line are considered part of the total catch but are not usually included in the skipper's catch estimate. Therefore, on longline and pot fishing vessels, observers are to use their own catch estimates for the "Official" Total Catch.

For Sampled Sets: On some boats, observers may be able to sample whole sets. In that case, use the observer's sample weight (at the top of the species weight column on 3US) as Official Total Catch. When sampling less than the whole set, Observer's Total Catch estimate is based on sample weight, extrapolated to the whole set using the following proportion.

$$\frac{\text{Weight sampled}}{\text{Hooks or pots sampled}} = \frac{\text{Estimated total catch wt.}}{\text{Total hooks or pots retrieved}}$$

The total catch weight, extrapolated from sample data, is used as the Observer's Total Catch estimate. If a set is not sampled, there is no Observer's Estimate. Total catch weight, extrapolated from sample data, is the Official Total Catch weight as well. For a set not sampled, do not use the skipper's (vessel) estimate or an adjusted vessel estimate. Use an average weight-per-hook value from sampled sets applied to the number of hooks in the unsampled set as explained below.

For Unsampled Sets: To calculate the OTC of a set not sampled, the observer should apply a summed ratio from sampled sets similar in catch composition to the number of hooks or pots in each unsampled set. Catch composition, and therefore weight, will vary with depths, times of day and areas fished. Use your judgement to apply ratios from sample data to "like" sets.

$$\frac{\Sigma \text{ sample wt. of sampled sets}}{\Sigma \text{ sampled hooks or pots in sampled sets}} = \frac{\text{Total catch wt. of an unsampled set}}{\text{No. of hooks or pots in an unsampled set}}$$

Verifying Hooks or Pots Per Set: An important variable in the equations for the official and observer's catch estimates are the number of hooks or pots retrieved per set, so observers need to periodically verify their number. This is much easier for observers on pot fishing vessels than for longline observers who must verify total hook count. During a trip, as snarled gear is cut out and sections of line or pots are lost, the number of hooks per skate will change and the number of skates or units of gear may be less. This depends on the availability of new gear aboard and how meticulously the crew repairs the gear. Check the number of hooks or pots per set more often if you note gear lost, skates cut, or the crew not replacing hooks lost. **Do not worry about subtracting hook loss from your estimate of total hooks set unless whole skates or units of gear are lost.** Some methods for longline observers to obtain accurate hook counts follow:

1. If your vessel has automatic baiters there are probably hook counters built into the machines. This may provide an accurate count of the number of hooks set if the counter is working properly. Verify hooks counted by the machine against your own tally of some of the skates when not sampling. If a substantial number of hooks is subsequently lost, the loss estimate should be subtracted from the machine tally.

2. Once a week or more often, take sample hook counts on five to eight skates or tubs or on one or two magazines. The number of units of gear per set should also be spot checked.

3. During retrieval, given that the rate of retrieval is constant, if you track the retrieval time per skate or tub, you might notice which units of line are shorter or longer than average and if you mark those units, later you could count hooks on those units of line and adjust the total hook count.

4. If your vessel makes very long sets of a hundred or more skates, even verifying the total number of skates can be difficult. Total number of skates can be checked by: overall timing of the setting of the line with a calculation of the average number of seconds to set one skate or a conversion of miles of gear set to number of skates using the video course plotter and the average length per skate.

An Alternative For OTC - The preferred method given above uses the total hook count in the set to extrapolate a total catch weight. *If you do not have a good estimate of the total hooks* retrieved for the set due to an unusual event such as a major snarl, or the line was cut and a lot of a set was lost, you might use the following equation(s). *Use this method only if* (1) you are not confident of the hook count in the set, (2) you are able to get an accurate weight for the retained fish in the set and, (3) you are able to determine the retained fish weight in your sample. Document your reasons and calculations fully in your log.

$$\frac{\text{Total sample weight}}{\text{Weight of retained fish in sample}} = \frac{\text{Total catch weight}}{\text{Wt. of retained fish in set}}$$

Retained fish in the sample will be the total sample weight minus the weight of bycatch, dropoffs, and rejected target fish. Check with the processing crew for target fish that are rejected and thrown back. You need to recognize which ones in your sample won't be retained. Suspect that fish may be thrown out if you see sand fleas present.

Wt. of retained fish in set: It isn't sufficient to simply adjust the skipper's catch weight estimation without verification. How accurate were the counts of target fish or pans of product? Did you ever verify the count? If the fish count was multiplied by an average weight, what was it and how did it compare with your average weight data from the same time period?

On a freezer boat, were pans of product ever weighed to verify average pan weight? If a product recovery rate was used what was it and where did that figure come from? Did you sample to verify the product recovery rate? (For information, refer to "Product Recovery Rate Sampling" in the appendix.)

For unsampled sets, you could use:

$$\frac{\Sigma \text{ Sample weights of like sets}}{\Sigma \text{ Retained fish wt. in samples}} = \frac{\text{OTC of an Unsampled set}}{\text{Rnd wt. of ret. fish in unsamp. set}}$$

Notice the use of original sample data in the formula above as opposed to using extrapolated total catch estimates.

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Observer Name: Olivia Observer

Vessel Name: F/V Swell

Page 1 of _____ for transmission

Page 1 of _____ for vessel

Plant/Processor name	Location	Processing code #
Akutan Fish Co. (for pot boat example)	Akutan Is	F0040

Cruise number	Vessel code	Year
4822	A413	97

721
ORC

Sets sampled for composition	Date: Month	Date: Day	Set #	%Monitored for marine mammals	Gear type	Gear performance	Vessel type	Location code	End position of set: Latitude (N)	E or W	End position of set: Longitude (100)	Soak time hrs	Soak time min	Avg. bottom depth	M or F	# of skates or # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	Vessel's Total Catch Estimate in metric tons	Processor code	CDQ/IFQ number
	10	21	0					N	5530	W	6845	No Fishing - rough weather								.	.	.		
																				.	.	.		
✓	10	22	7	50	8	1	1	R	5534	W	6842	10	45	325	F	10	300	140	1400	2.80	2.80	2.00		
✓	10	22	8	60	8	1	1	R	5542		6842	12	10	285		10			1400	1.95	1.95	1.00		
✓	10	22	9	70	8	1	1	R	5528		6821	12	20	165		10			1400	3.64	3.64	2.00		
																				.	.	.		
	10	23	10	0	8	1	1	R	5456		6711	11	50	186		10			1400	2.80	.	2.20		
✓	10	23	11	80	8	1	1	R	5524	W	6802	13	20	127	F	12	300	140	1680	3.40	3.40	2.80		
																					.	.		
									↑ LONGLINE VESSEL DATA ↑							↓ POT VESSEL DATA ↓					.	.		
																					.	.		
																					.	.		
																				.	.	.		
✓	12	10	57	65	6	1	3	R	5436	W	6710	12	40	124	F	20				5.10	5.10	4.80	F0040	
✓	12	10	58	60	6	1	3	R	5418	W	6520	06	35	130	F	20				4.80	4.80	4.10	F0040	
																				.	.	.		
	12	11										Delivery to Akutan Fish Co.								.	.	.		
																				.	.	.		
✓	12	12	59	75	6	1	3	R	5418	W	6520	16	30	126	F	20				3.62	3.62	3.20	F0040	
✓	12	12	60	70	6	1	3	R	5417	W	6542	17	10	134	F	30				4.23	4.23	3.80	F0040	
																				.	.	.		

Revised 1/1/97

FORM 1US CATCH SUMMARY FOR LONGLINE AND POT VESSELS

This form is used to collect the fishing effort and total catch data for either longline or pot/trap vessels. Most of the form is filled out by observers for either of these gear types, but there is a part of the form that is specific for each gear type. Points to note :

1. **An entry must be made for every set and every day of your assignment to that vessel.** Start your entries with the day you put your gear aboard and end them on the day you disembark with all your gear. Each delivery or day in port must be noted on a line of 1US. Use one line to note a delivery even if there are also sets retrieved on that day. Any notes or comments other than for deliveries or non-fishing days should be placed in a part of the form that is not keypunched.

2. **Heading:** The identifying cruise number and vessel code will be given to you prior to deployment, in training or briefing. Each vessel you are on will have a different vessel code. Keep data for each vessel separate. For "Year" enter only the last two digits, such as "97."

3. **Plant/Processor box:** This box is for catcher-only longliners that deliver to processors. Each processor delivered to should be listed one time in this box. Include the processor's location and processor code as indicated. Keep this list together on only the first page or two of a set of 1US forms.

4. Place a check mark in the far left column to indicate which longline or pot sets you sampled for composition. Enter leading zeros in dates as needed. Skip a line between each day's entries.

5. For each fax transmission of 1US data forms to NMFS, you will need to enter an ORC (Observer Routing Code) number in the box above the date and set number columns. There should be only one ORC number per transmission so the same number should be used on a second page of 1US when appropriate. The ORC is a three-digit security code entry which will be explained to you in training.

6. A given set number should be used only once - no duplicates. The set numbers must be in numerical sequence, ascending order. All sets must be recorded. A set number must be assigned to every set. Use set number "0" when the vessel was at sea but did not finish retrieving any set in the day. Also record the noon position and note the circumstances on the same line.

7. **% Monitored for Marine Mammals:** As the catch of longline and pot vessels is brought aboard over a period of hours, the observer may not be on deck to observe all of the retrieval for catch or deterrence of marine mammals. Observers on longline and pot vessels must roughly estimate the percent of the retrieval monitored, to the nearest whole percent. (Rounding to the nearest ten percent is most common.) An entry is required for every set. If

the set was not monitored, enter "0." If the whole set was monitored, enter "100." **Do not write "%"** as a label for your number in this column.

8. Enter the gear type:
   6 - pot or trap vessel
   8 - *longline vessel*

9. Enter the gear performance code:
   1 - no problem
   5 - problem in retrieving gear - (gear tangled, etc), requires note in margin
   6 - problem - longline cut, skates or pots lost, trawl net or codend lost
   7 - considerable predation of catch by sea lions
   8 - considerable predation of catch by killer whales

10. **Vessel type:**
   1 - *Catcher/processor (c/p). This vessel caught and processed its own catch on this set/tow.* Catch is stored in a *freezer hold* aboard.

   3 - Catcher-only vessel. This vessel caught its own fish and retained it for delivery to a processor (shore-based or "floater"). On board, the catch is kept on ice or in RSW (refrigerated seawater) tanks, not frozen.

   5 - Bait: The catch from this set/tow was sold over-the-side to other fishing vessels who will utilize the fish for bait.

11. **Location code:** Enter "R" if the position in the next column is where the last of the set was retrieved or "N" if it is a noon position on a non-fishing day at sea.

12. **Noon Positions:** Only if no set retrieval is completed on a given day at sea (due to bad weather, transfer of cargo, traveling, etc.), enter the noon position of the vessel and enter 0 in the set number column. To the right of the position column comment on the reason there were no set retrievals. All days at sea must be accounted for with set information or in this manner. Do not enter a noon position when your vessel is in port, just enter the date and note "Delivery."

13. **The location** entered should be the latitude and longitude of the ship at the time the last of the set was retrieved. This position determines the statistical area of the set. Make sure that all positions are reasonable, i.e. 58°63′ does not exist; double check positions that indicate long distances traveled, if you have not been aware of any. The first digit of longitude (1) is understood, so record only the following digits. Each longline set or set of pots must have a position. On days in which no retrieval of a set is completed, record noon position in these columns.

14. **Soak time** of the set is the time interval from the time the first hook enters the water until the last hook is brought in. If bad weather or killer whales prevent the crew from bringing in any of the line for a period of time, subtract the time spent waiting from the total elapsed time.

The elapsed time should be entered in hours (on the left) and minutes (on the right). Use leading zeros as necessary. For example, a soak time of 38 hours and 5 minutes would be entered as 38|05.

15. **A set is assigned to a day** according to the time the retrieval of the set is completed, which is not necessarily the same day that the set was begun to be laid or the day that you sample. Sets whose retrieval is completed before 0000 hours are attributed to the previous day, and sets whose retrieval is completed on or after 0000 hours are assigned to the next day.

16. **Depth:** No decimal entries are accepted in this field. The average bottom depth can be recorded in either fathoms (most likely) or meters, depending on what units the depth recording instrument is set at. Make sure that you indicate the units (fathoms or meters) with an "F" or an "M" in the next column for every depth that you record.

Longline vessels only:

17. *On 1US the term "skates" can be adapted to whatever units of longline gear your vessel uses.* Other terms for units of gear in use may be: magazines, half magazines, racks, tubs, or coils. Enter numbers for whatever units of gear are used on your vessel.

Number of skates in the set must be filled in and must be a whole number, no decimals. It should represent the number of units of longline gear that are *retrieved* from the set, not necessarily the number that are set. If whole skates are lost, list that set with a gear performance code 6 on the 1US, then the number of skates and the total hooks in the set should be adjusted. Note the event in your logbook.

Skate length should represent the length of groundline that the average skate (or other unit of gear) consists of. The length **should be recorded in fathoms, not feet or meters,** so convert the length to the proper units if necessary (see Table of Equivalents in the Appendix). If the set consists of skates of different lengths, record the mean length (proportional average).

Number of hooks per skate: No decimals will be accepted in this field. The field may be left blank if the total hook count is more accurate than the calculation of skates times hooks per skate. Sometimes a longline consists of alternating skates with different numbers of hooks. Find out what the pattern is and note this in your logbook.

Total number of hooks: This number may be an actual count or it may be the result of multiplying the "# of skates" by the "# of hooks per skate". If Total hooks is an actual count, leave the "# of hooks per skate" blank to defeat the computer program check on this number.

Do not subtract (or extrapolate and subtract) individual hook loss. Even the occasional snarl of line does not need to be estimated for loss of fishing effort unless whole skates (or units of gear) are involved. Hooks that are set without bait still catch fish.

Pot/trap vessels only:

18. Record the number of pot/traps *retrieved* per set or string. If pots are lost, then this will not be the same number as was set. If possible, keep track of the number of pots that are lost and

include that on the 1US, in your daily log and final report. Do not include catch estimations of this lost gear in the total catch estimation.

If pots are attached to a groundline which connects them together in a string, record the total length of the groundline of the set in the column labeled (in part) "pot set length," otherwise leave this column blank. This length should be recorded in fathoms, not feet or meters, so convert the length to the proper units if necessary (see Table of Equivalents in Appendix).

All longline and pot vessel observers:

19. **Official total catch** in metric tons (OTC): This is the best estimate of total catch in your judgement. It should include all landed fish plus fish which are brought up but drop off or are knocked off before being landed. Use the figure in this column in your weekly catch messages. This figure must always be filled in (recorded to two decimal places). Give a complete description in your report of how these figures were obtained.

20. **Observer's estimate:** record your estimate of the sets you sample. This will be an extrapolation of your sample data for the skates/pots that you sampled to the total number of skates/pots in the set. (See the preceding Catch Rate Estimates section for a detailed description of the extrapolation.) Record to two decimal places.

21. **Vessel's total catch estimate:** This is the estimate that is entered for the set/group of pots by the officers in the vessel's logbook. There should be a vessel's estimate for every set/pot group unless one was not recorded. Make an effort to ask the skipper for his estimate if you have to leave before it is recorded in the vessel log. Record the weight estimate to two decimal places.

22. **Processor Code** *(and the list of processors at the top of the form) is entered only by observers on catcher vessels* to identify the processor delivered to. Observers on c/p vessels should not make any entries in this column or box. Catcher vessel observers need to look up the name of the processing plant listed alphabetically at the end of section two. Write the name of each processor delivered to, its location, and the corresponding code only once in the box. Make this list at the top of only the first page or two of catcher vessel 1US forms. Catcher vessel observers must then record the appropriate processor code for every set entered on 1US.

23. **CDQ/IFQ number** (Community Development Quota/ Individual Fishing Quota):
If your vessel is attributing any part of their catch to an Individual Fishing Quota enter "IFQ" in this column.

    Observers on vessels participating in CDQ must identify which tows are to be attributed to CDQ quota by entering the appropriate CDQ number. Refer to the vessel log. The number they record has the format "CDQ" then the year such as, "97" and then two digits, for example, CDQ9753. On 1US, the observer should just enter "C" and the last two digits (example, C53). The list of CDQ partnerships, their numbers and associated vessels are in the section on CDQ in manual section 7.

SPECIES COMPOSITION SAMPLING ON LONGLINERS

When To Sample and How Much - Most longline sets are two to five miles in length and vessels will lay out two to five sets per day and retrieve two to five sets per day, alternating between setting and hauling. Some vessels make sets 25 or more miles in length and will only set one line and retrieve one line in a day. On longline (and pot boats) observers do not use the random sample table. Instead, they just sample most of the sets. That is, if there are one or two set retrievals, sample at least one and usually both sets. If there are three sets, sample at least two, three if you can. If there are four or more sets, reduce your sample size per set if necessary and sample three to four sets per day.

On longliners, the catch comes up one fish at a time and the fish are usually processed as they come aboard. Observers frequently notice "patchiness" of catch and composition on a longline set. For example, longliners may set their line at an angle on a slope. From the deep water, sablefish, shortspine thornyheads, and grenadiers are commonly caught. Shallow water sets yield more Pacific cod, arrowtooth flounder and halibut. The change in species composition across a set should be considered in choosing a sampling strategy.

Longline observers should do their tally sampling in several sample periods; spaced at intervals throughout the retrieval of a set. The overall composition sample size should be 33% to 50% or more of the total hooks in the set. Some observers are able to sample whole sets routinely on certain vessels, saving them OTC extrapolations. Sample size is measured on these vessels by the number of hooks or pots sampled. Increasing the frequency of sampling is more important than increasing the sample size. If you only sample from one part of the retrieval then you need to have a larger sample. Start with the guideline of sampling one third or more of each set sampled. A later section titled "Obtaining Unbiased Samples" provides more sampling specifics.

Longliner Sampling Duties

1. During Tally Sampling Periods for Composition:
    a. Determine the number of hooks sampled
    b. Tally the dominant species
    c. Collect bycatch
    d. Record information on drop-offs
    e. Estimate the length of tallied halibut
    f. Observe method(s) of releasing halibut
    g. Marine mammals
        i. Watch for interaction with, or catch of, marine mammals--10US
        ii. Marine mammal sightings--11US
            (1) Watch for predation (or evidence of) on catch.
            (2) Take photos of killer whales, if possible, for individual identification.

2. Outside of Tally Sampling Periods:
    a. Sort, count, and weigh bycatch

b. Collect sample of tallied species for average weight
    i. Take length frequencies from one target species.
c. Halibut - only from sets sampled from composition:
    i. Viability
        (1) IFQ -- sample only halibut that would be released.
        (2) Non-IFQ -- take systematic sample of halibut bycatch.
        (3) Assess condition according to definitions specifically for longline vessels.
    ii. Length Frequency Measurements
        (1) IFQ -- measure halibut lengths if a systematic sample can be taken from all halibut catch, regardless of size. If not, do not measure halibut.
        (2) Non-IFQ -- measure the halibut collected for condition assessment.

Tally Sampling

Sampling involves tallying predominant fish, estimating halibut lengths, counting and weighing the landed bycatch and obtaining accurate average weights for the tallied species. Use a single sample size for all species. No matter whether you sample a portion or the entire set, the sample type listed on the 3US form should be "L" for longline and "T" for pot vessels. There is no separate coding for whole or partial sampling. All items caught during the sample period, even if they can be seen dropping off during retrieval, are to be included in the sample data, including invertebrates and garbage. Birds are of particular import and must be included as part of the sample.

Find a place on the vessel where you can see all organisms exiting the water on the line (usually right at the rail), yet is safe from longline hooks and gaffs. Set up your scale near where the fish are landed for you or near the processing line. If there is a pit on the vessel where gear is retrieved, observers have found it convenient to make their tallies *from the deck immediately above* the longline pit, since it is less dangerous yet they were able to obtain a good view of the fish coming up on the line. Be aware that the back-up gaffer has a long gaff pole and can jab you in the face with it when he pulls in a fish if you're not careful. Wherever you choose to stand, make sure that from your vantage point you can watch the crew bringing aboard all of the requested bycatch. The rollerman will have to allow the bycatch he normally knocks off the line to be landed. Set up a place for him to toss landed bycatch, maybe the bin below the crucifier or your baskets on deck. Obviously, this method requires a good deal of cooperation and understanding on the part of the crew. Work with them to achieve the best methods.

Keep track of how many hooks, skates, magazines, or other units of gear you have sampled since this number is a measure of your sample size and, unless you sampled the whole set, is used to calculate your observer total catch estimate and the OTC. Start and stop all sampling at skate ends if you are going to use hooks/skate x skates sampled = hooks sampled. It should be easy to determine where the skates are tied together. Another method of obtaining the number of hooks sampled is to use one of your thumb counters to tally all of the empty hooks during your sample period. Then, empty hooks + the number of organisms caught = the number of hooks sampled. Note that all hooks retrieved while tallying, empty or with fish, are counted for the total number of hooks sampled.

Tally sampling is the most practical method for observers on longliners. Determine which species dominate the catch at a given time--it may be sablefish, Pacific cod, or grenadiers. Tally the

number of these fish using a thumb counter or a stroke-tally on a plastic sheet. As you gain in proficiency, it may be possible to tally three or more species at once. The tallied species should not be collected during your sampling period. Before, between, and/or after sampling periods, collect a subsample of these to determine their average weight. Have the rollerman bring in the other, non-tallied species during each sampling period for counting and weighing later.

Drop-Off Fish Identification - On the plastic deck form, record species that drop off the line before the roller and are missed by the gaffer. Write down their identification, number, and if unusual, estimate their weight. Keep a tally of target drop-offs to calculate the percent retained (by weight) that is entered on the CMA form.

To help in identifying fish that drop off the line before being landed, study the fish brought aboard. Familiarize yourself with the most visible characteristics that you might be able to note before the fish falls into the water. If you know that a drop-off fish was either an arrowtooth or a Kamchatka flounder, a shortraker or a rougheye rockfish, or a shortspine or longspine thornyhead, these *group* codes are available in the species code list specifically for longline observers. It is expected that some fish of each species in these multiple species groups would also be listed separately--coming from bycatch landed during your tally sample. Other fish that drop off the line before you are able to identify their species should be listed as "flatfish unidentified" or "rockfish unidentified" with the appropriate codes on the 3US. For weights of drop-offs, use the average weight of the species you believe it might have been. On 3US, do not extrapolate percentages of identified species to unidentified fish which dropped off.

On the catch messages however, you will have to allocate the unidentified drop-off fish to a report group. Since there is no report group for unidentified fish, during sampling, determine to which species group the drop-off fish most likely belongs. If you have no clue as to its identity, consult the species weights on your plastic sheet or 3US form and assume the unidentified fish has the identity of the flatfish or rockfish species with the highest percentage by weight in the sample. On the catch message, list its weight with that species report group.

Obtaining Weight of Tallied Halibut - Halibut will usually be released from the line and not landed unless the vessel is retaining halibut under Individual Fishing Quota (IFQ). When halibut are being landed for retention during a sample period, the options, in order of preference, are to weigh them, or measure them, estimate their length, or use an average weight. When halibut are not being retained during a tally sample, watch the method used to release them (see following section on careful release monitoring) and estimate their length. Later refer to the Length/Weight Table in the appendix to obtain the weight of each halibut. (For when there are lots of halibut, use of an average weight is explained below.)

One way to improve on estimates of halibut length is to measure and mark the side of the ship near where the halibut will hang briefly before falling back into the sea. Some observers have marked a long gaff pole as a ruler to hold out from the rail. Others have hung a measured line, knotted every 10 centimeters, against the side of the boat. Strive to insure your length estimates are not guesses but reliable data since fisheries are being closed based on halibut bycatch weight!

Record the length estimates on your plastic sheet during sampling. One to five lengths and corresponding weights from the table should be recorded on the worksheet portion of the 3US form. When there are more than five halibut record lengths, table weights, and the weight sum in your logbook calculation pages. Double check your work! The weight sum is then recorded on the 3US line for halibut in the sample. Remember that the estimated length data are never recorded on Form 7US.

Sometimes small to medium size halibut are a prevalent bycatch item when targeting Pacific cod. Then, estimating the length of each one is not practical. An alternative is to count the halibut during your sample period. *An average weight can be applied to the number of halibut tallied in your composition sample if tallied halibut are the same size range as ones landed for lengths and viability, and twenty or more can be weighed.* If the halibut caught during tally sampling are of all sizes, you might use a combination of making length estimates of large halibut (and get weight from the length/weight table) and counting the number of the small to medium sized halibut most successfully landed for length, weight and viability sampling (then multiply their number by average weight). **Never** obtain an average weight by averaging individual lengths and looking up that single length on the table--the length/weight relationship is not linear!

To summarize -- When tally sampling <u>everything</u> you can see coming up on the line is accounted for -- either tallied on a thumb counter, written down on your deck sheet, or collected. Note how many units of gear (skates, magazines or hooks) were retrieved during the sampling period on your plastic deck sheet. At the end of a sampling period, an observer should have:

- ➤the number of skates or hooks sampled
- ➤a total count of the dominant species including drop-offs from the line
- ➤drop-offs of non-tallied species, noted on the plastic sheet
- ➤halibut lengths written on the plastic sheet
- ➤bycatch collected in baskets to sort, count and weigh.

Obtaining Unbiased Samples - To sample a set without bias, sample some skates or pots near the beginning, middle, and end of the set. That way, most depths and species composition differences will be accounted for in your samples. Sampling in this manner is physically easier for the observer. In longline sampling, you are able to tally one to three of the predominant species while having other bycatch brought aboard during the sampled skates. Before your hands get too stiff with the cold and after having tallied a few skates of gear, stop tallying and take time to identify and weigh the bycatch that has been landed or weigh fish for average weights of the tallied species. Your lengths can be obtained from the target fish you collect for average weights at this time as well. Then, when you have warmed up from this activity, go back to your sample station and tally more skates of gear.

There is a tendency to sample the first part of set retrieval. The rest of the crew is starting work at that time and you are probably warm and ready to work too. There is also a tendency not to sample the end of set retrievals because observers get cold and tired, the boat takes off to the next set and bounces around more, and the crew is cleaning up and shifting to their next task. Observers must do their best to avoid these natural biases. For statistical analysis, *all* fish in the catches should have

an *equal* opportunity of being sampled. If your sampling method is to tally when ready, make a sample record table of which units of gear (skates, tubs or mags) or depths that were sampled for each set in your logbook. Look at this record after a week or two to see if your sampling is skewed. Consider assigning each unit of the gear a number and randomly selecting the units to be sampled before retrieval.

Should you be unable to tally at intervals throughout the retrieval as described above, tally some single portion (1/3 or more) of the set, but, to avoid bias over time, vary the portion sampled from set to set. For example, when three sets per day are retrieved, an observer might sample the first third of the skates/pots on the first set, the middle third of the second set, and the last third of the last set. Keep track of this in your logbook.

Careful Release Of Halibut - Most groundfish fisheries are currently managed using prohibited species catch limits (caps). A fishery is closed for the season once the bycatch cap is reached, regardless of whether the quota for that fishery was fully utilized. The halibut limits set annually by the North Pacific Fisheries Management Council, reflect the weight of halibut *mortality* by vessels targeting on groundfish species. Halibut bycatch is managed in terms of mortality because not all halibut caught and released die in the process. Mortality is estimated by applying discard mortality rates to bycatch estimates. Discard mortality rates are estimated by measuring the release viability of bycatch according to condition category; excellent, poor, or dead.

Unlike trawlers, longliners allow halibut to be returned to the water in a relatively short period of time, and thus increasing their chances of survival. Research conducted by the Pacific Halibut Commission determined that the previously accepted halibut mortality rates could be further reduced if measures were taken to carefully release the halibut during the retrieval process.

Reducing the rate of harvest mortality effectively increases the total tonnage of halibut that can be taken as bycatch. The longline industry, together with the Council, the Halibut Commission, and the NMFS developed a management plan known as the Careful Release Program. This program requires by regulation that halibut bycatch taken by longline vessels be released using one of the three following techniques:

1) Cutting the gangion;

2) Positioning the gaff on the hook and twisting the hook from the halibut;

3) Straightening the hook by using the gaff to catch the bend of the hook and bracing the gaff against the vessel or any gear attached to the vessel.

Puncturing a halibut with a gaff or other device; or allowing the halibut to contact the vessel or a fixed object in such a way that the hook is ripped from the halibut (known as crucifying) are prohibited actions. These actions are commonly used on other species of bycatch. However, out of concern for halibut mortality caps, they are not allowed to be used on halibut.

Since the Careful Release Program was implemented in 1993, industry and the Observer Program have worked together to develop a successful program. Weekly halibut viability reports

from observers are used to assess changes in viability. As a result of this program and these combined efforts, mortality rates by longline vessels in the groundfish fishery have declined.

Observer based data has been a critical element in the success of this program. In addition to weight estimates, viability assessments, and length frequencies, we ask that you **record in your logbook and on your final report, information about the techniques used by your vessel to release halibut.** For the careful release program to be accurately assessed, and to aid in the identification of vessels that may not be in compliance with the regulations, we ask that you record instances where careful release methods were not used. This information should be recorded in the daily notes section of your logbook. Remember to include details such as: the number of halibut (or estimated number) not carefully released and the total number of halibut for the sample period, the frequency at which it happened, the individual(s) involved, the vessel policy, and whether or not the captain was aware that careful release methods were not being used. Record any circumstances that may aid Observer Program staff in assessing the situation. And finally, when you return for debriefing, compliance concerns should be brought to the attention of your debriefer.

Outside of Tally Sampling Periods

Obtaining Average Weights - Randomly collect fifty of each of the tallied species and weigh and count each species collection to obtain an average weight. You can do your length frequency sample now as well. Multiply the average weight of the tallied species times the number tallied to obtain the total weight of those fish only counted during your sampling period. If you are pressed for time (as when there are so few skates in a set that to sample 1/3 of them would not allow time to collect 50 of each tallied species for average weights) and you are concerned about your duty priorities, keep in mind that the target fishery is managed by weight. It is very important that your average weight of at least the target species be as accurate as the tallies you are making on sampled skates. If you need to collect less than 50 of the non-target tallied species per set to allow more time to weigh 50 of the target species, that is preferable to getting too few fish for a representative average weight of the fishery target.

The best representative subsample for average weights is 50 fish per species, per set. If you cannot obtain 50 fish on a per set basis, you might collect as many of the tallied species as you can on one set and combine their numbers and weights with a like set of similar-sized fish (like sets have similar depth, location and soak time of day). Try to optimize the number weighed, especially the target species, with 50 fish being your goal, and preferably on a per set basis.

Average Weight Priorities - 1) 50 of the tallied species per set or, 2) 50 of the tallied species, at least for the target fish, over more than one set. 3) At least 15 of the non-target species per set, or collected from more than one set. 4) If many sets have been hauled and you haven't collected even 15 fish, use however many you did obtain for the average weight. 5) If you cannot collect any fish (as in when an uncommon type drops off and none are landed), use an estimated weight (lowest in priority because this is an unsubstantiated guess).

Length Frequencies of Target - Remember that sampling target length frequencies is a lower priority duty than average weight sampling to complete the composition sample or biological

sampling of prohibiteds (such as length and viability sampling of halibut). Also, the requested workload of taking sexed lengths of approximately 150 of the target species each day may be too difficult on a longline or pot vessel if, 1) the fish are processed immediately upon landing, 2) slitting the belly to sex the fish would destroy the product, and/or 3) the fish are large and therefore more work to handle. You may find it necessary to reduce the number of length measurements taken each day and it is permissible to obtain unsexed lengths when necessary. Do not drop this sampling altogether. Just do as many as possible up to 150 per day, and sex as many as you can. If your vessel is targeting halibut, please collect length frequency data on a fish species other than halibut. Of particular importance are the various rockfishes harvested.

If the fish are being headed and gutted, try working with the crew, taking the length measurement first then examining the viscera visible when the fish is gutted by a processor. Another alternative is to ask the crew to show you how to make the pectoral cut. In general, make a diagonal dorsoventral cut from behind the head to behind the pectoral fin, then angle the knife forward to the isthmus. Make the same cut on the other side. Or, you may be able to just make a ventral cut from the pectoral fin anteriorly to the isthmus and back to the other pectoral fin. Then you can reach in and pull out the gonad or peer into the cavity to see the gonad and determine the sex. Pass the fish to the crew to finish processing. Make sure that your procedure is acceptable to the crew or factory boss.

Sexed length data are more useful and are preferred but if this is too time consuming or difficult, try to sex some of the measured fish (random subsample) and take un-sexed length measurements of the rest. If this cannot be done, such as when the fish are being frozen whole, unsexed lengths are better than no length data. *Remember that the sample for length frequency of target does not have to be a sub-set of the composition sample. Also, these fish may be taken from a set not sampled for composition.*

Halibut Length and Viability (L/V) Sampling -- Ask the crew to land as many as 20 per set, or examine at least 20 per day for the viability study. Halibut length and viability sampling is next in importance after composition sampling. The viability study benefits all longline fishers, providing accurate data used when setting mortality rates for longline vessels. Observers are the only ones collecting these data on halibut condition so it is important that the crew cooperate in landing the required fish according to your sampling scheme.

There are two options for selecting the fish for these samples. **If you cannot sample using one of these two methods then do not take viability or length data on halibut.** Taking one sample for halibut is acceptable but it is preferred that you spread your collection out by sampling halibut in two to four sample periods, just before or just after tally sampling for composition. **Sample for halibut viability only on sets sampled for composition.** Either (1) Take a sequence of x consecutive halibut, where you choose the value of x from five to twenty fish depending on the number of samples per set, or (2) if there are lots of halibut on the line such that the first option would flood you with fish, collect every nth fish after completing the last fish. You choose the value of "n," usually two or three. The value of "n" is constant for the set. This second option allows you to work on only one fish at a time. Other sampling concerns and solutions will depend on if the vessel is fishing halibut IFQs.

Halibut IFQ: If you are sampling on a boat which is currently retaining halibut, sample viability only from halibut that the rollerman would be releasing back to the sea, for obvious reasons. However, *all* halibut caught, regardless of size, are the population to be sampled for length measurements.

So, there are two options for length and viability sampling: 1) have the rollerman land all halibut. Have him call out to you which ones are "discards." Measure each fish and examine only the ones he labeled "discard" for condition. Then you throw the discard-size halibut over as you finish with them. It would be best to do just a few at a time, say 5 to 10 halibut, and sample two or three times. When you have sampled enough halibut in a sample period, tell the rollerman you're stopping and that he can go back to releasing the undersized, "discard" ones at the rail.

2) When there are lots of halibut coming in, measuring each one isn't feasible. Pick a value of "*n*," where you sample the "*nth*" fish after you finish measuring the last fish. Have the rollerman land all halibut for a time. Have him call out to you which ones are "discards." Measure every "*nth*" halibut after the last one measured. Examine for viability (a) only the measured fish which are "discard" size, or (b) examine all the discard sized fish, only a few of which will also be measured. When you're done, tell the rollerman to stop landing discard-sized halibut for you.

If you cannot take a systematic sample as explained above, regardless of size or retention, do not take halibut lengths when halibut are being retained. When no length data are collected, sample for and record only viability data on the 7US with frequencies summed by condition code and entered next to a size group of zero.

No Halibut IFQ: On vessels not retaining halibut, measure collected halibut, examine and determine their condition. Then record halibut lengths (actually measured fish only) under condition codes "E," "P," or "D," on Form 7US. Record length data in order by set, group halibut data by condition, and list size groups in ascending order.

All Longline Observers: When looking at a fish in hand, all injuries and conditions caused by the act of fishing should be assessed. This includes sand flea predation, hooking injury and hook removal injury. Because these duties will occupy all of your attentions, it is best that you not try to accomplish other sampling duties while sampling for halibut viability. ***Therefore, on longliners, sample for halibut viability and length before or after each tally period, and only on sets sampled for composition.*** This enables data managers to categorize the length and viability data by target fishery and extrapolate it to the estimate of total halibut caught.

Many longliners are very protective of their halibut bycatch because they target on the adults. They may be reluctant to bring halibut aboard for you to sample. Talk to the skipper and rollerman about the importance of the viability study and the necessity of having halibut "in-hand" for you to determine viability and other data. Communicate clearly with the roller man as to which fish need to be landed. Give him enough time to react to your request.

Five issues to be aware of when sampling halibut for viability on longliners:

Halibut sampled for viability should be released inboard using the same method as is normally employed by the crew when halibut are released outboard of the roller. In most cases, the rollerman will be able to use the same release method inboard of the roller to release the fish as is used outboard when you are not sampling. The main exception is hook straightening: many rollermen find that this cannot be done inboard because they can't find anything to brace the gaff against. If halibut are released inboard for your sampling in a different manner than they are normally released outboard, try to work with the rollerman to overcome the problem. If this is just not possible, then it is permissible to allow one careful release method to take the place of another. Note this inconsistency on your Inseason Halibut Viability Form, keeping in mind that it may only be a problem for one particular crewman.

Attempt to rotate your viability sampling among all crew that are assigned to work the roller. Releasing halibut from the hook is largely a matter of skill, so "green" crew may produce different hook removal injuries than experienced crew. Be sure that your sampling does not all take place with one specific crewman, resulting in biased, or unrepresentative, data.. Spread your sampling among the crew working at the roller.

Similarly, be sure to distribute your sampling across the set so that fish from the first end are not the only fish examined. Halibut caught on the first end are fish subjected a shorter soak time than those at the "far" end of the set. Since sand flea predation can be affected by soak time, it is important that sampling be spread out across the set so that halibut with varying soak times comprise the sample.

All halibut selected for viability sampling must be brought aboard the vessel for inspection, despite awkward size or injury that may occur by being brought aboard. You must have the fish in front of you to properly assess hooking and release injuries. You must closely inspect eyes, gills, and vent to look for sand fleas, and examine all parts of the fish for bleeding and other wounds. Under no circumstances should you look at a fish as it is hanging overboard from the hook. Also, data from large fish are just as important as data from small fish, because large fish may suffer different hook injuries due to their larger jaw. **It is crucial that any injury to the halibut while it is being brought aboard at your request (e.g., an errant gaff) is to be ignored in your assessment of viability.**

Any halibut which you intend to sample that ends up going through a crucifier, intentional or not, must be examined with the crucifier injury taken into account. Crucifier injuries are usually fairly severe, and it is impossible to overlook or disregard the damage while at the same time attempting to assess the other injuries. If you see that a large proportion of the halibut are getting crucified, be sure to notify the skipper/deck boss of your observations, as they usually do not want this practice to occur.

Definition Of Halibut Condition For Longliners
(Criteria are listed in priority order.)

Longline Catches Only (Observers on pot boats use the same table as trawlers, see end of section 3.)

Excellent: No sign of stress

Hook injuries are minor (limited to the hook entrance/exit hole, torn lip) and located in the jaw or cheek.
Bleeding if present, is minor and limited to jaw area.
No penetration of the body by sand fleas (check eyes, fins, anus).
Muscle tone or physical activity is strong.
Gills are deep red.

Poor: Alive but showing signs of stress

Hook injuries may be severe; broken jaw; punctured eye.
Vital organs are not injured.
Bleeding may be moderate but not from gills.
No penetration of the body by sand fleas (check eyes, fins, anus).
Muscle tone or physical activity is weak: intermittent movement; may respond if stimulated; body appears limp.
Gills are red.

Dead: No sign of life or, if alive, likely to die from severe injuries

Vital organ(s) may be damaged: torn gills; gaff wound to head or body; jig injury to viscera; side of face torn loose or missing jaw.
Sand fleas have penetrated the body (they usually attack the eyes first, but also fins and anus).
Severe bleeding may occur, especially from the gills.
No sign of muscle tone; physical activity absent or limited to fin ripples or twitches.
Gill may be red, pink, or white.

FORM 3US--SPECIES COMPOSITION FOR LONGLINE AND POTS

Page _____ of _____

Worksheet

Species:	Sablefish	Grenadier				
Wt. of above:	50	60				
No. weighed:	145.5	211.30				
Avg. weight:	2.910	3.5217				

Other calc.& comments: Sampled 7 out of 10 skates (980 hooks). Tallied sablefish & grenadier

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	10	22	9

ST = Sampling Type
L = Longline
T = Trap/pot

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	No. of hooks or pots sampled	% Retained
(keypunch check)		999		821	2551.40		198
Halibut		101	L	33	99.12	980	
Salmon unident.		220		0	0		
Brown King crab	M	8		1	1.70		
Tanner Crab		3		0	0		
Herring		611		0	0		
Skate		90		8	20.74		0
Sablefish		203		269	782.79		98
Grenadier		80		426	1500.24		0
Shortraker R.F.		326		1	2.70		0
Arrowtooth fl.		141		13	28.61		0
Shortspine Thornyhead		350	↓	60	79.30	↓	100
Pollock		201	L	10	36.20	980	0

Revised 1/1/97

Form 3US - Instructions For Longline And Pot Vessels

This form is very similar to the 3US form for trawlers - only some of the labels for the sampling type and column headings are different. In fact, if you do run out of longline/pot forms, you can substitute the trawler forms (and vice-versa), so long as you realize what ought to be recorded in the columns. Rather than reiterate column by column what should be recorded on this form, only the items that differ from the 3US trawler forms are presented.

1. Sampling type : the only available options for this field are to use an "L" for longline or a "T" for trap/pot vessel. **Do not use "W, P, or B."**

2. Number of hooks or pots sampled: Longline and pot observers must have only one sample size (number of hooks or pots sampled) for all species (including target and prohibited species). Longline observers obtain the number of hooks sampled by multiplying the number of skates (or other units of gear) sampled times the average number of hooks per skate (unit) **or** tallying the number of empty hooks retrieved during sampling and summing that number with the total number of organisms tallied to obtain total hook count.

3. A reminder: just as for the trawler form, it is necessary to indicate the sample size for king crab herring, Tanner crab, halibut, and salmon, even if you do not see individuals of those species in your samples. (Herring bait doesn't count!) If no individuals of these species group were observed, then the observer should enter the group name, the species group general code, sample type, number of hooks or pots monitored for that species group, 0 for the number, and 0 for the weight.

4. **Percent Retained:** Longline observers should count fish that drop off or are intentionally knocked off the line, as part of their normal sampling procedure. On pot vessels, observers need to make note of any sampled cod which were not kept by crew. Count the discards, apply *an appropriate* average weight, and calculate *by weight* what percent of each species was retained in your sample. Percent retained for prohibited species is not needed. Leave those lines blank. Should drop-offs be so frequent that they cannot be counted separately, a visual approximation, as with trawlers, is acceptable. Take note also of landed fish which are later rejected by the processing crew. If sand fleas are present, it's likely that additional fish will be rejected during processing.

   Even on IFQ vessels during halibut fishing observers do not need to report the percentage of halibut retained. It may be confusing that halibut are still classified as a "prohibited species" in our data base though the vessel operators may be legally retaining them. As possible, the Observer Program does not collect data from the halibut fishery.

SPECIES COMPOSITION SAMPLING ON POT FISHING VESSELS

Sampling on pot fishing vessels is very similar to the tally method described for longline vessel sampling. Please read the longline sampling section. When a pot is landed and opened, the contents are spilled onto a table or into a tote, or other container. Crew then remove the desired species, usually just Pacific cod, and throw the bycatch overboard. The observer should count the cod and take the rest of the bycatch aside for counting and weighing, thus relieving the crew of part of their work. After emptying, the pot has to be re-baited, closed and launched, then the vessel proceeds to the next pot to begin hauling it. Consequently, there should be ample time for the observer to complete the sampling of one pot before the next is emptied. In order to gather 50 cod to determine average weight without seriously delaying the crew, take just a few cod from each pot, weigh them quickly and return them to the crew before dealing with the bycatch.

MONITORING FOR MARINE MAMMALS

On longline and pot fishing vessels marine mammal catch occasionally occurs, and deterrence of sea lions and killer whales is more likely to occur than on trawlers. So, when observing on these vessel types, monitor for marine mammal interactions and record that effort on 1US. Fill out Form 10US for any occurrences of marine mammal interactions . An elephant seal was observed entangled in a longline and harbor seals have been caught in pots. Killer whales in the vicinity of a longline vessel may strip fish from a line being retrieved, particularly in the black cod and turbot longline fisheries. Sperm whales have also been observed to prey on fish caught on longlines. If they come close enough, there may be attempts to deter whales. On Form 10US, record deterrence or catch of marine mammals or instances of mammals feeding on catch.

Interactions with marine mammals are all coded on the 10AUS but in the case of whales feeding on longline catch, killer whales in particular, please provide additional information on the marine mammal *sighting* form, 11US. When observing on a longline vessel targeting black cod, turbot, or halibut you are more likely to see killer whales. They may just be touring around the vicinity or actively diving to the line to feed on catch. Try to distinguish feeding behaviors from other activities. Describe what you saw. Watch for fish coming up on the line that have been bitten or scraped by teeth. Only record feeding when you witness the animals in the act. Remember that when there is predation, the gear performance code on the 1US needs to be changed accordingly.

If feeding (predation) occurs during tally periods, make a record for 11US of how many fish were lost with what evidence of loss. Do not include just empty hooks as loss! When only fish heads (or "lips!") are on the hook due to predation, count the heads as you would whole fish and apply the average weight of whole fish for their weight. If the set is too decimated through predation, you may have to skip sampling that set. Detail the number of predator-damaged fish, and the average and total weight calculation for the prey species on the 3US worksheet. Sighting conditions, species identification, individual identification of killer whales, circumstances and behavior take on added importance for assessing predation.

Photographs of individual killer whales, *Orcinus orca*, are requested from observers by the National Marine Mammal Laboratory, in Seattle. There are catalogs of identification photos of over 1000 killer whales in the N.E. Pacific against which observer's photographs can be compared for identification. Most importantly, the distribution and movement of individuals can be tracked with this type of information. Also, certain family groups, or "pods," have been responsible for the majority of depredation of bottomfish on longline catches in the Bering Sea. The extent to which this is continuing is of interest.

Though guidelines for the professional photographer are given under "Shooting Whales (photographically) From Small Boats" in the appendix, any type of film, prints or slides, showing the dorsal fin and light patch behind it is desired. Optimally a picture would be fairly close up, showing the dorsal fin and saddle patch on the *left* side of the whale. Attach any pictures you have to your sighting form 11US, or send them with your name, vessel name, cruise number, vessel code, sighting date, position, and description of event to:

Marilyn Dahlheim
NMFS/NMML, F/AKC3
7600 Sand Point Way
Seattle, WA 98115-0070
(206) 526-4045

CATCH MESSAGE REPORTING FOR LONGLINE AND POT VESSELS

Observers on freezer longline and pot fishing vessels transmit their weekly catch messages on Sunday or Monday. Observers on shoreside delivery vessels must wait until their boats come into port and transmit messages from there. The total sample weight for Species Composition Catch Message Form A will be the sum of the species weights. The prohibited species group sample weights will be the same on CMB as on CMA, converted to metric tons and carried to at least three decimal places. You do not fill in the marine mammal column on the CMB form for pot or longline vessels.

An Inseason Halibut Report must be turned in by all observers for each week of fishing whether or not any viability data were taken. For this report, a sum of the numbers in each of the condition codes on the Form 7US's for the week must be made, keeping data from Bering and Gulf separate. Go to a new form page when entering data from a new sampling vessel.

To obtain a weekly total of the number of halibut for each condition code, compute the three condition frequency sums for each page (day) of the 7US form and write them in the bottom margin. Double check the page sums. Then for each catch message there are, at most, only seven numbers for each condition code to add up. These steps will make the weekly summation easier and more accurate. For more information on the Inseason Halibut Report form refer to the Catch Message section six of this manual.

PROCESSING PLANT OBSERVER INSTRUCTIONS

Current regulations require managers of processing plants receiving 1,000 mt or more of groundfish per month to have an observer present at the facility each day it receives or processes groundfish. Managers of processing facilities receiving between 500 mt and 1,000 mt of groundfish monthly must have an observer present at the facility for 30 percent of the days it receives or processes groundfish during that month. Some plants may also receive deliveries of crab, halibut or salmon. However, observers are only to work on deliveries of groundfish. Individual observer assignments will vary; some observers may be stationed at only one 100% coverage plant, others may be expected to cover one 100% coverage plant and one or two 30% coverage plants. If assigned to cover a plant, you will have the following responsibilities:

PLANT OBSERVER DUTIES AND PRIORITIES

Collecting Delivery Information: The Form A Port Sample Summary Form is comparable to the Haul Form 2US or the Set Form 1US and completing it is the top priority for a plant observer. Information must be gathered and recorded for all groundfish deliveries to a plant during an observer's assignment. All days must also be accounted for on Form A, including days when no deliveries are made. The plant sampler is expected to contact each vessel delivering groundfish to collect data from the observer aboard or from the vessel logs.

Assisting Catcher Boat Observers With Sampling: Plant observers must plan and schedule their time in order to assist each vessel observer who samples at the plant. Plant observers should coordinate the assistance of the plant personnel and arrange for the set-up of totes, scales, etc. as needed. Plant observers should assist vessel observers in sampling for prohibited species, thus allowing the vessel observer a much needed break.

Length Frequencies of a Target (Sample) Species: For 100% coverage plants--150-200/day; for 30% coverage plants--150-200/day on days that you work at the plant (you'll be working at this plant approximately 30% of the time). Sample preferentially the deliveries from non-observed vessels and those that did not sort the target species at sea. However, data from observed deliveries and sorted target fish **are used** so don't let that deter you. Do not take lengths of prohibited species unless you receive special project instructions or they are tagged fish or crab.

Age Structures: For 100% coverage plants--100/plant/mo; for 30% coverage plants--200/plant/3 mo. period. Remember that the fish you collect age structures from must be a sub-set of the fish sampled for length frequencies.

Special Projects: Observers will be asked to collect sample data on densities where possible and are sometimes asked to collect special biological information such as pollock maturity or stomach samples. If you are assigned a special project, follow the directions that will be provided.

FORM A - PLANT DELIVERY and DELIVERY COMPOSITION FORMS

Keep the data for each plant separate. Delivery information should be filled out by the plant observer from the NMFS ship logs or interview with the catcher boat observer and from observations of scale weights or scale readouts. Maintain separate sets of Form A's for each plant. Number the Plant Delivery and the Delivery Composition forms separately. At the top of each set of forms, enter your name and the name of the processing plant. Make an entry on each form for every groundfish delivery made to the plant.

Make at least one line of entry on each form for every day. On days where there are no deliveries, note in your log whether or not you were present at the plant and whether or not they were still *processing* groundfish on that day. These notes will help us to verify observer coverage.

Halibut Deliveries: When IFQ boats come in with halibut, they are required to keep all the cod and rockfish they catch incidentally. This is why these boats will sometimes carry an observer. We are only interested in the groundfish portion of the delivery. Under "Total weight delivered" enter only the round weight of catch other than halibut. On the Delivery Composition Form, enter as the species code the species with the most delivery weight after halibut. The information on the rest of that line will refer to that groundfish species, not to halibut. If no groundfish are in the delivery, do not record it.

Plant Delivery Form

1. **Cruise number, Plant code, Year:** Cruise number and plant code will be given to you prior to deployment, in training or briefing. Substitute plant code for the "Vessel Code" entry required on 7US, and 9US. Enter the last two digits of the year.

2. **Catcher boat name:** Enter, only once, the name of each catcher boat which delivers to the plant. When all the lines on the first page are used up, continue the list on page two, then page three. You do not need to enter boat names on top of each page where their deliveries are listed. When a new boat delivers, add its name to the next line of the listing, which is not necessarily on the page where its delivery first appears. Keep the catcher boat list together on only the first few pages of the Delivery Form.

   You should be able to easily find ADF&G boat numbers on the side of the boat and on the NMFS vessel and plant logbook pages. *The Coast Guard number (CG#) and/or Permit number only need to be recorded in rare circumstances when the vessel does not have an ADF&G boat number.*

3. Place a check mark in the far left column to indicate which deliveries you sampled for length frequencies or assisted a vessel observer. (Remember, you are entering a line of data for each delivery, not just ones you sample.) Then check mark the "Observer Onboard" column if the vessel delivering catch has an observer assigned to it.

FORM A - Plant Delivery Form

Cruise #	Plant code	Year
4214	P050	97

Catcherboat Name	ADF&G #	CG #	Permit #
Arcturus	45978		
Auriga	56153		
Starlite	34931		
Resolute	17402		

Delivery sampled ?	Observer onboard ?	Delivery date: Month	Delivery date: Day	Delivery Number	Gear type	NMFS area number	No. of tows	Average duration (minutes)	Total wt. delivered (round wt.)	LB or MT	ADF&G # of catcherboat	ADF&G fish ticket number
✓		04	07	1	1	517	5	249	187297	LB	45978	G97023076
		04	08	No	deliveries,	no	processing,	Observer	present			
		04	09	2	1	517	7	253	198127	LB	45978	G97023078
✓	✓	04	10	3	1	517	6	270	215639	LB	56153	G95000341
	✓	〃	10	4	1	517	12	258	165663	LB	34931	
			11	No	deliveries,	did	process	groundfish,	Observer	present		
✓			12	5	1	521	9	132	258165	LB	45978	G95000342
	✓	↓	13	6	1	521	5	143	264643	〃	56153	G9617361
✓	✓	04	14	7	8	515	12	1440	8349	LB	17402	G97023079
				EXAMPLE	FROM	PLANT	THAT	WEIGHS	IN	MT:		
✓		07	09	111	2	521	4	252	98.7	MT	34931	G9612255
✓	✓	07	09	112	1	521	6	290	87.3	MT	56153	G9612256

FORM A - Delivery Composition Form

Cruise #	Plant code	Year
4214	P050	97

Delivery Date		Delivery number	Species code	Main product code	Possible length/sex bias?	Weight of target species discarded at sea	Round weight of target species delivered	LB or MT
Month	Day							
04	07	1	202	23	N		187234	lb
"	09	2	202	23	N		198101	"
	10	3	201	30	N		192045	
	10	3	202	23	Y	250	23580	
	10	4	201	30	N		165324	
	12	5	202	23	N		258093	
	13	6	201	30	Y	1000	260218	
	13	6	202	23	N		4387	
04	14	7	202	23	N		8349	lb

4. **Delivery date:** Enter the date of completion of each delivery to the processing plant i.e., if the catch is delivered over a period of two or more days, use the date when the transfer of fish to the plant is completed. Use the *delivery* date on Forms 7US and 9US. This is not necessarily the same day you sampled for length frequency and age structures. The delivery date should coincide with the date that is used in the NMFS processing plant logs and on the ADF&G fish ticket.

   If a vessel delivers to more than one plant: If you discover that a vessel is delivering fish caught in one trip to more than one plant, record only the weight delivered to your plant.

5. **Delivery number:** Delivery numbers for each plant should be sequential. Record only one line of data for each delivery on the "Plant Delivery Form." Do not split delivery data due to fishing in two areas. Refer to instructions below for the NMFS area number. On Forms 7US and 9US the date and "Set/haul no." must correspond with the date and delivery number on Form A.

6. **Gear type:** Enter the appropriate code.

1 = non-pelagic trawl	6 = pot or trap gear
2 = pelagic trawl	7 = jigging vessel
3 = unknown or mixed trawl haul	8 = longline gear
4 = pair trawl	9 = gill net
5 = shrimp trawl	10 = Scottish seine

7. **NMFS area code:** This is the 3-digit code for the area in which the vessel fished (refer to the map in the catch message section of this manual). If the vessel fished in two or more areas for the catch delivered, record the area in which most of the fish was caught, but enter an asterisk (*) in the left margin of the form and note on the back of the form the areas fished. Do not divide delivery data by area.

8. **No. of tows:** record the number of tows that were made during the trip. If the vessel is a longliner or a pot vessel, record the number of sets. This information can be obtained from the NMFS ship logs.

9. **Average duration:** record the average duration of the tows in minutes. Get the actual length of each haul from the NMFS logbook, add up the durations and divide by the number of hauls to get the average duration. You can go up to 9999 minutes for the average length of soak for a longline or pot set.

10. **Total weight delivered (round wt), lb. or mt:** Record the total **round** weight of the catch delivered to the processing plant for that trip. Delivery weights reported in pounds must be recorded to the nearest whole pound; weights reported in metric tons must be recorded to the nearest tenth of a metric ton. When cut or bled fish are delivered, divide the delivery weight of cut fish by the appropriate product recovery rate to estimate the round weight of the fish before cutting. For instructions, product codes, and recovery rates, refer to the appendix.

It is preferred that the observer be on hand to record the scale readouts but if this is not possible, these data can be taken from the ADF&G fish ticket. In most cases, total delivery weight should be the same as the sum of groups reported on the fish ticket, but make sure that the fish ticket sum includes the weight of discards from the plant.

11. **ADF&G Catcher boat # , ADF&G Fish Ticket #:** Be careful not to confuse these two numbers. Both should be recorded in the NMFS fishing and production logs. Usually though, the plant observer will have access to the fish ticket through the dock foreman or the plant office personnel.

Delivery Composition Form

The heading, date and delivery number instructions are the same as for the Plant Delivery form. The entries on these two forms will go onto different database tables and so these identifiers must be repeated on each.

12. **A delivery date and number should be repeated** on a second or third line if there are substantial amounts of more than one utilized species in the delivery. Do not split delivery data for any other reason. On Forms 7US and 9US the date and "Set/haul no." must correspond with the date and delivery number on Form A's.

13. **Species code:** This is the species composition code number (not the report group code!) for the main target species of the delivery. This is usually the species you measure for length frequencies. Subsequent information on the line refers to this species. If there is more than one fish they were **targeting**, an additional line of entry is made out. See the example for delivery number 3. Do not record all species listed on the fish ticket for the delivery. Generally, do not enter a species which makes up less than 25% of the catch delivered. An exception would be when in a multiple target fishery such as the Gulf shallow water flatfish. Then enter a line of data for each species making up the top 75% of the catch by weight.

14. **Main product:** Enter the code for the main or primary product that is made by the plant from the species coded in the previous column. If the plant is making surimi out of pollock and also taking roe from mature female pollock, list the main product as surimi. (Refer to the "List of Alaska Product Types" in the appendix of the manual or in the ship's logbooks.)

15. **Possible length or sex bias? (Y or N):** This question refers to whether or not any individuals of the species indicated were sorted prior to your sampling for sexed length data. Fishermen might discard undersized individuals, or fish of a given sex. Fish may not be sorted out of the catch but just into different holds before delivery. This would also affect your ability to take an unbiased sample and would warrant a "Y" in this column. This question *does not* refer to any sorting and discarding of other species, such as prohibited species or some other, unwanted species. You can check the NMFS ship logs for this information but it would be best to ask the vessel's observer if any, or ask one of the crew.

16. **Weight of target species discarded at sea:** If target fish were removed from the catch prior to delivery for any reason, indicate the approximate amount in lb. or mt. The units (lb. or mt) must be the same as those used for delivery weight. Target discard may be due to sorting, or because the holds were topped off and catch was dumped, or because the plant wouldn't accept a deck load. This information might be in the NMFS logs but is notoriously under-reported.

17. **Round weight of target species delivered, Lb. or mt:** If cut or bled fish are delivered, calculate an estimate of their round weight with a product recovery rate. Weight of target fish delivered can be obtained from the ADF&G fish tickets but is very possibly inaccurate or adjusted for "water weight" when there was no standing water on the scale. The weight of undersized fish may not be recorded on the ticket if the boat doesn't get paid for them. Be careful of weight totals on the ticket, the weight total may only be of "money fish". As possible, sum the scale weights yourself, either at the scale or from a paper readout of the tote weights. If there is a digital scale system, yet there are people who add up the tote weights of a delivery, question why.

SHORESIDE PROCESSOR DAILY CUMULATIVE PRODUCTION LOG — PART I

WHITE—Vessel Copy, Keep in Log Book
YELLOW—NMFS Copy, Remit

PART A

PAGE	WEEK ENDING DATE	PLANT NAME	MANAGER'S SIGNATURE
		ADF&G PROC. CODE	

GEAR TYPE: (circle one)
Hook & line | Pot | Non-pelagic trawl | Pelagic trawl | Jig/Troll | Other (specify)

OBSERVER PRESENT (*)

	MON	TUES	WED	THUR	FRI	SAT	SUN
YES							
NO							

REPORTING AREA

CDQ — YES / NO
If yes, enter CDQ number

NOTE (*) OBSERVER: Check box for YES or NO to indicate whether an observer was present on each day.

PART B

CATCHER VESSEL DELIVERY INFORMATION — Indicate lbs or nearest 0.01 mt ☐ lb ☐ 0.01 mt

DATE OF DELIVERY	FISH TICKET #	RECEIPT TIME	CATCHER VESSEL NAME	ADF&G NO.	GROUNDFISH DELIVERY WEIGHT

PART B (cont.)

CATCHER VESSEL DELIVERY INFORMATION (Continued)

DATE OF DELIVERY	FISH TICKET #	RECEIPT TIME	CATCHER VESSEL NAME	ADF&G	GROUNDFISH DELIVERY WEIGHT

PART C

RETAINED LANDINGS INFORMATION — Indicate lbs or nearest 0.01 mt ☐ lb ☐ 0.01 mt

Species Code																		
Product Code																		
Weekly Balance Forward																		
SUN	date																	
MON																		
TUES																		
WED																		
THUR																		
FRI																		
SAT																		
WEEKLY CUMULATIVE TOTAL																		

PART D

DISCARDED SPECIES INFORMATION — Discard Product Code (93, 98, 99, 99 ONLY) — For groundfish and herring, indicate lbs or nearest 0.01 mt. For halibut, salmon, king crab and Tanner crab, record in numbers — Indicate lbs or nearest 0.01 mt ☐ lb ☐ 0.01 mt

Species Code																		
Product Code																		
Weekly Balance Forward																		
SUN	date																	
MON																		
TUES																		
WED																		
THUR																		
FRI																		
SAT																		
WEEKLY CUMULATIVE TOTAL																		

CHECKING DELIVERY INFORMATION

After having collected Form A delivery information, the NMFS Plant Daily Cumulative Production Log should be checked daily for comparison. This log is used to prepare the plant's Weekly Production Report, which is essential in the in-season management of the catcher-boat fleet. It is thus important that all catch and discards are accounted for in the log as best as is practical.

Part B of the Production Log should be checked for the date of delivery, catcher vessel name, ADF&G number, and the groundfish delivery weight. Important discrepancies should be questioned and noted in the observer's logbook. (Minor discrepancies such as the start-of-delivery date instead of the completion date should be ignored.) Discarded Species Information (Part D) should be looked at just to verify that the NMFS plant log reflects the species groups which you know to have been caught and discarded by the boats (code 98) and/or the plant (code 99).

SAMPLING INSTRUCTIONS

Assisting Catcher Vessel Observers With Sampling:

Plant observers must meet vessels coming in for delivery to get fishing information for the Plant Delivery Form and to meet with each vessel observer every time they're going to sample at the plant. Even if the vessel observer claims they "can handle it," talk the situation over with them. Assisting the vessel observers is a primary duty, second only to collecting delivery information. Assistance includes providing delivery weight information to vessel observers, helping to send their catch messages and helping observers sample for prohibited species. During pollock deliveries to Dutch Harbor for example, observers will usually sample a whole delivery for prohibited species that may take anywhere from 12 to 20 hours to complete. The plant observer should relieve the boat observer for several hours (depending on the length of the delivery) for meals, rest, or to complete catch messages. Observers must not rely on plant personnel to sort, save and or count fish unless they are working under the observer's immediate supervision.

Take the initiative to show the vessel observer how to work together and to arrange the schedule. If you're covering more than one plant, or more than one vessel is delivering at a time, it may be necessary to coordinate delivery assistance between plants or boats to ensure that observers with long deliveries have help. Establish a message board or system so plant and vessel observers can communicate with each other. Check it frequently when vessel observers are in. This is especially helpful for vessel observers who cannot send their own catch messages because of office hours or quick vessel departures.

To assist vessel observers and to collect and verify their own information, the plant observer must have a detailed knowledge of the fish handling system. Get to know the dock foreman and how to get updates on the progress of off-loading. Does the handling of fish change when they are backed up with deliveries? How are prohibited species returned to sea? Plant observers may have to transmit delivery weight data to the vessel observer after the boat has gone back to sea. If fish are sorted before weighing, the weight totals for the bycatch and several grades of the target fish will have to be summed for delivery weight. The most accurate sources for "Total weight delivered" and "Weight of target" are scale readout records in the sorting area. When fish ticket data must be

utilized, be very careful to interpret them correctly. Read again the two sections on fish tickets under "Catcher-Only Trawlers, Official Total Catch Weight Estimation" in section two of this manual.

Sometimes plant personnel subtract a percentage from the scale weights for water. If you suspect that this is happening, ask plant personnel what their policy is. Check scale readout totals against the fish ticket. Look to see if there is water in with the fish at the weighing point. Document the circumstances and your findings. Report this to your debriefer. If there is a difference between scale readouts and fish ticket weights, use the fish ticket weights for the target species.

Length Frequency Sampling:

Collect lengths from the main utilized species being delivered to the plant. To spread out the collection of length frequency information, it is preferable for plant observers to sample lengths of target species from boats that don't have observers on board. If all the delivering vessels have observers on board, sample for length frequency anyway. Data from plant observers are usually compiled separately from vessel observer data, so plant observer's length sampling does not substitute for the vessel observer's sampling of the same delivery (or vice versa).

It is important to always ask whether any of the target species were sorted out at sea (see Delivery Composition Form). Sorted deliveries should be avoided for length frequency sampling <u>if possible</u> but if sorted fish are all that is available, take length measurements anyway. The code on Form A will flag the sorted length data. Sometimes the fish are delivered headed and gutted. If only headed and gutted fish are delivered, you cannot take length, otolith, or density samples! You can check the vessel and processor NMFS logs for accuracy and you'll probably have time on your hands.

Plant observers should collect 150 - 200 lengths per day, for each day you work at that plant. Length frequency sampling is lower priority work than assisting vessel observers with their sampling. However, length frequency sampling should never be dropped; you can cut back on the number of measurements when you are overloaded with work. If more than one target species is being delivered to the plant you may take length frequencies from more than one species. Remember though, 150 - 200 length measurements are needed from each species you collect lengths from each day. Avoid taking small amounts of data from many species over time; more data from only one or two species is preferred. It is important to strive for unbiased sampling; therefore take several samples spaced throughout the delivery.

On the 7US form the date of the data is the delivery completion date which may not be the date you measured the fish. Under set/haul no. enter the delivery number from Form A.

Age Structure Collection:

Observers are asked to collect up to 100 age structures per plant per month, when working at a plant that requires 100% observer coverage. When sampling at plants that require only 30% observer coverage, the observer should collect up to 200 age structures per plant per three month period.

Age structure collections should be stratified/random collections (5 per cm. per sex) of a single species per month unless otherwise instructed. You may change the length and otolith sample species to another target species when you begin a new month.

As with form 7US, the delivery number will substitute for haul number on the form. The date is the delivery completion date which will correlate with the Form A. This may or may not be the date the fish were sampled.

The "roundfish" species of the highest priority for age structure collections are: Pollock, Pacific cod and all rockfish species including thornyheads (Sebastalobus spp.). ***If age structures are collected from Pacific cod, remember to collect both a scale sample and the otoliths, and put them together in the same vial.*** Do not collect age structures from sablefish. The flatfish species of most importance are listed below in order of priority:

Bering Sea	Gulf of Alaska
Yellowfin sole	Rock sole
Rock sole	Flathead sole
Flathead sole	Rex sole
Alaska plaice	Dover sole

If you have collected lengths from more than one species in a month, do not split your age structure collection between the two species. Collections are of most value if they consist of about 200 age structures for any one species. If you begin an age structure collection and then find out that the species that you are collecting lengths and age structures from is no longer going to be delivered, you have a decision to make concerning whether or not to keep the partially completed age structure collection. The rule of thumb to use in making this decision is: if the collection contains more than 50 age structures, go ahead and keep it, and use the remaining empty vials from that collection for another species; conversely, if the collection contains less than 50 age structures, dump it and use the entire collection of vials for a new species.

WEEKLY PLANT REPORT

We want to hear from each observer each week. For your weekly message, please record a new line of entry for each plant you worked at that week. The "Week End Date" is simply the Saturday date for each Sunday - Saturday reporting period. Send us a message even if you had no deliveries for a report week.

Cruise No. 3926 Observer Name Jamahl Observer

Plant Name (Once per page list the processor code.)	100% or 30% Plant?	Week End Date	List Dates of work for the week
All Alaskan F0222	100%	5/8	5/5 - 5/8
King Crab F1929	30%	5/8	5/4, 5/6
All Alaskan	100%	5/15	5/9 - 5/15
King Crab	30%	5/15	5/11, 5/12, 5/14

WEEKLY PLANT REPORT

Plant Name (Once per page list the processor code.)	100% or 30% Plant	Week End Date	List Dates of work for the week

OBSERVING IN MOTHERSHIP OPERATIONS

For observer program data handling purposes, a vessel is described as a mothership if it receives unsorted catch via codend transfer for at-sea processing. There are basically two kinds of motherships. Your vessel may operate solely as a fish processor for smaller catcher-only vessels (as is the case for the Ocean Phoenix), or it may only occasionally accept a codend transfer in the midst of its own tows. There are trawler motherships and one longliner (New Star) which process codends from delivering trawlers. Deliveries by codend transfer to motherships are recorded on Form 2US and get sampled using the same criteria as any other catcher/processor haul.

You must first determine if your vessel is considered a mothership or a floating plant. If your vessel ***routinely*** accepts catch which *could have been sorted*, it is a floating processing plant, commonly referred to as a "floater." The Northern Victor, Arctic Enterprise and the Yardarm Knot are floaters. Deliveries to floaters, like shoreside plants are logged on Form A, the Plant Delivery and the Delivery Composition Forms. (Refer to the instructions for plant observers in the previous section.) If a catcher/processor or mothership ***occasionally*** pumps or brails fish from the holds of the catching vessel, or takes catch from longliners or pot vessels, that catch *may have been sorted* and the delivery data should be recorded on the 2US with a vessel code of 4. Deliveries which could have been sorted are not sampled for composition by the observers on the processor. Deliveries of unsorted catch, via codend transfer, get recorded on Form 2US with a vessel code 2 and are sampled as usual.

MOTHERSHIP HAUL DATA

For the 2US form, enter a line of data for all hauls taken or delivered. Any days without haulbacks or deliveries must have an entry for noon position; see 2US form instructions. All days, from the day you board until you disembark, must be accounted for with a noon position, data on catch, or for in-port days, a note and date. If the mothership is also a catcher/processor vessel, fill out only one set of 2US forms with tows and deliveries listed one after another, in the order in which they occur. (See the 2US example page, bottom half.) To distinguish between hauls towed by your vessel and codends delivered, the "vessel type" will usually be "1" or "2." In the third column from the right margin, enter the catcher boat's ADF&G # for each catch delivered, and leave that column blank for any lines of data on self-made hauls. Also, at the top of the first page or two of the 2US form, list the vessel names and corresponding ADF&G vessel number for all catcher boats delivering to your ship. One list on the first page or two is all that's needed, not a list for each page!

Observers on motherships should enter codend retrieval positions on the 2US if at all possible. If retrieval positions are not available from delivering catcher boats, enter "D" in the location code column on 2US and list the position of the mothership at the time of delivery. Information on gear type, gear performance, retrieval location, fishing times, fishing and bottom depths, and average towing speed will have to be obtained from the delivering skipper (or an observer aboard, if any), usually by radio. Often, your ship's bridge officers obtain the data from the delivering vessel; sometimes you may have talk to the delivering skipper via radio; sometimes the data are sent over attached to the codend after a few deliveries. You may want to devise a worksheet

to give to the delivering skipper or your ship's manager listing the type of data you will be requesting to complete your 2US (see example). Obtaining the data needed is facilitated if the delivering skipper and your ship managers know what information you need for each delivery. If you cannot get some of the above information, try at least to get an estimate of fishing duration.

Format example: Skipper--Observer Worksheet for haul form data

Catcher Boat:_____ Catcher Boat ADF&G Number:_____

Haul #	Date	Retrieval Latitude	Retrieval Longitude	Nets on Bottom	Nets off Bottom	Fishing Depth	Bottom Depth	Trawl Speed

The retrieval time always determines the date of catch but the ordering of the hauls may differ from regular catcher/processors. Deliveries of catch often are not made in the order the nets were retrieved by the various catcher boats. Since the order of delivery of the codends may not be in sequence with the order of the retrievals, you may choose one of two options for recording the sequence of hauls: you may record the catch in order of delivery and have the retrieval times not be in the correct sequence, or you may reorder the deliveries by codend retrieval times before entering the data on the 2US. Either method is correct as long as each catch is attributed to the correct date (according to retrieval time) and the dates are sequential. The only lines of 2US data that may require reordering are those for deliveries around 0000 hours.

In almost all cases, you are the only observer recording data on these delivered hauls. You would treat each delivery as if your own ship fished for it and sample according to regular catcher/processor rules. There are other possibilities in delivery data protocol as well, involving the few times when there will be split codend deliveries or an observer present on the catcher boat. To guide you in determining whose responsibility it is to record data on the deliveries when another observer is present on the catcher boat, see the following scenarios:

1) If there *were* an observer on a catcher boat delivering **unsorted** codends to your vessel, the mothership observer is the one responsible for recording all the data and sampling the haul, not the catcher boat observer.

2) If a catcher vessel delivers **catch which has been or could have been sorted**, the mothership observer records the delivery on 2US (vessel type 4, mothership receiving sorted catch) and does not sample the catch for species composition. If there is an observer on this catcher boat, he/she also enters the haul data on 2US and samples the catch, just the same as if he/she would have delivered to a shoreside plant.

3) If a catch is split between two processors, contact the Observer Program office in Seattle for instructions on how to record the catch information.

SAMPLING AND CATCH MESSAGES ON MOTHERSHIPS

The observer on a mothership selects hauls to be sampled according to the random sampling table or, in the hake fishery, the observer randomly selects the hauls to sample and keeps a histogram of sampling effort. Follow the same sampling guidelines and use the same data forms as a regular catcher/processor observer. Though some tows have been delivered by catcher vessels and some may have been caught by your own mothership, if they are all *unsorted* tows, you may sample them in the regular manner. If a delivery comes to your mothership *which has been or could have been sorted,* on 2US the vessel type is 4 and you do not sample it for composition.

The are three large motherships, the Ocean Phoenix, Excellence, and Golden Alaska, which do not fish as catcher/processors, instead they stay near the fishing grounds of their catcher boats and take 9 to 14 unsorted codends in a single day. Even when employing a Break Table, it is sometimes impossible for the observer to follow a Random Sampling Table in sampling deliveries, and get other duties accomplished as well. Observers may have to adjust their sampling schedule while keeping in mind duty priorities. The most important duty of a mothership observer is recording the 2US information for every delivery. Then in pollock fisheries, sample whole or partial hauls for prohibited species and drop to basket sampling for other species as needed. Sending catch messages and any requested daily messages is next in importance. Lengths and special project collections may have to be cut back, as they are of lesser priority. However, do not drop length frequency sampling altogether. If you cannot follow the prescribed species composition sampling routine, log which hauls you skipped sampling and record the difficulties you encounter in completing normal duties in the daily notes section.

Follow these rules for recording monitoring for marine mammals on the 2US form: If you have watched the entire dumping of the codend on your mothership, you should record the haul as monitored for marine mammal take. If there is a catcher vessel observer, you should contact them to find out if any mammals were deterred or caught during the net retrieval and sorting (this can be done when you request information on haulback location and times, your split of the duration, etc.). If there is no observer aboard, ask that any marine mammal interactions be reported to you by the vessel, either in your or your ship manager's calls to the ships.

After filling out 3US and 7US forms for all the sampled hauls, create inseason catch messages CMA and CMB and the Halibut Viability Form. The halibut form will contain a summary of all of the halibut you sampled for viability for the week, regardless of whether hauls were from various deliveries and various vessels or your own ship's tows. You do not separate halibut viability data.

Mothership observers **must** separate the data for delivered unsorted codends versus mothership-caught hauls on the CMA and CMB forms. Enter all hauls where the processor fished for itself on one set of CMAs and CMBs and enter all hauls delivered to the processor on another set of CMAs and CMBs. You do **not** need to group the deliveries by catcher vessel on CMA and CMB forms. Send all sets to NMFS.

CATCH MESSAGE INSTRUCTIONS

One of the primary tasks of the Observer Program is the estimation of the catch of groundfish and prohibited species throughout the year to insure that these catches remain within the quotas established by the management councils. To account for each observer, and in order that the observer's data may be utilized before returning from sea, each observer must send a catch message each week to the NMFS Observer Program office in Seattle summarizing the observer's activity when no fishing occurs or the week's fishing activity and sampling data. The first page of the message will be the Form 1US or 2US to provide the fishing area, gear type, effort, catch etc. The Catch Message Form A will give the species composition data for each sampled haul, and the Catch Message Form B will provide data specifically on the samples for prohibited species, and for trawlers, a marine mammal catch report. The Halibut Inseason Viability Form is the last page of each message. It summarizes the number of halibut in each condition category in samples for the week. For weeks of no fishing, a 1US or 2US form with transit information or a note on plain paper will suffice.

Section 6 Topics:

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- TELEPHONE, RAPIDFAX, TELEX NUMBERS, ETC. ..... 6 - 2
- THE REPORT WEEK ..... 6 - 3
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- CORRECTIONS AND QUESTIONS ..... 6 - 5
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- BERING SEA REPORT GROUPS AND CODES ..... 6 - 10
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TELEPHONE, RAPIDFAX, TELEX NUMBERS, ETC.

Alaska Fisheries Science Center, Seattle (Contact for weekly catch messages; for between-trip debriefing or sampling questions) :

Telex: `230329422 callback=NWASC-SEA
(backup telex in Bldg.#1 at NWAFC = 9104442786)
Standard C: country code 582, phone no.: 430349910
Standard A: (206) 526 - 6301
Fax: (206) 526-4066 or 526-4207, backup faxes: 526-6723 and 526-4004
Phones: **(206) 526-4240**. This is the number for COMS questions to Glenn A. Campbell. During working hours, program staff members will accept collect calls. For calls after-hours, a message recorder is available on (206) 526-4205. On the recorder, leave a message even if only to tell us you are trying to reach us. The recorder message states you can leave collect calls. You can leave up to a 5-minute message. **Be sure to back up catch messages by phone by faxing the forms or mailing us copies of the catch message forms as soon as you return to port. Keep your originals!**

Address: NMFS Observer Program, F/AKC2
Alaska Fisheries Science Center
7600 Sand Point Way NE
BIN C15700, Bldg. 4
Seattle, WA 98115-0070

Sampling Questions, Heather Weikart, (206)526-4213
Debriefing, (206) 526-4192
Gear Room (206) 526-6827

Alaska Regional Office (This office will accept collect calls from observers on matters directly related to observer work, i.e. CDQ daily reports, not "quota remaining" or "fishery closure" questions.)

Phone: (907) 586-7229
Fax: (907) 586-7131
Telex: 62296000 callback = NMFS AKR JNU

Address: National Marine Fisheries Service, F/AKR
P.O. Box 21668
Juneau, AK 99802 - 1668

Field Offices

Kodiak: Allison Barns
1211 Gibson Cove Road, Suite B
Kodiak, AK 99615
Phone: 907-486-6920
Fax: 907-486-6028
SSB Call Sign: WYH (Whiskey, Yankee, Hotel)
4125.0 KHz: M - F, 0800 - 1630

If you need to contact our Kodiak or Dutch Harbor office staff at other than the hours above, leave a message on the phone recorder.

Dutch Harbor: FTS Office Complex, Suite 104
Dutch Harbor, AK 99692
Phone: 907-581-2060, or -2063
Fax: 907-581-2066
VHF Channel 9, M - F, 0830 - 1600
SSB Call Sign: WYI (Whiskey, Yankee, India)
4146.0 KHz from 10-11 AM, M - F
6227.0 KHz from 2-3 PM, M - F

NMFS Fisheries Management, Dutch Harbor
907-581-2062
NMFS Enforcement Division, Dutch Harbor
907-581-2061

THE REPORT WEEK

The Observer Program office in Seattle gathers and processes inseason catch report data and sends a weekly report to the Regional Office in Juneau. The Regional office does some further processing and uses these data to monitor the progress of the fisheries and to close them before overfishing occurs. These data are compiled by report week and if necessary, by day. For Alaskan waters, **the report week is SUNDAY through SATURDAY,** Alaska Local Time and date. You must send us the data for each Sunday through Saturday time period on the following Sunday or Monday. If your data are not in on time, information critical to the decision making process is missing but the decision must be made anyway. Late reports are the reason why fisheries may have to reopen at a later date and why overfishing sometimes occurs. (If your vessel goes into the Washington, Oregon, and California coastal area to fish, obtain a packet of instructions for that area.)

Observers on all vessels (and plants) except catcher-only vessels must send their messages on Sunday or Monday. Observers on catcher-only vessels are to send their messages trip-by-trip, after each delivery. However, when trips are short (1 to 2 days) consolidate transmissions to two per week. Catcher-only vessel data may lag one trip (or at the most, one week) behind. Catcher boat observers transmit their messages from the processor delivered to. If your catcher-only trawler, longliner or pot vessel will be making longer trips of ten to twelve days, call or send us a message to let us know when to expect your catch report message.

Catch messages are critical and must be sent on time. Therefore, when messages are not being received from a vessel, that observer's certification may be suspended and a vessel without observer coverage may not legally continue to fish. If your catch messages are due, do not start new samples or trips until the catch message has been sent. If there is no data for a week, or the catch message is not ready, there is a difficulty in transmission, or other problem, call or send us a message informing us of that. **We want to hear from each observer every week even if no fishing occurs.** When asked to repeat a message, please do so immediately and do not wait until the end of the week.

WHEN TO START A NEW SET OF CM FORMS

The Catch Message A and B Forms will comprise one data set, compiled and numbered for the vessel in the same order in which they were sent. When there are many hauls or sets per week, you'll fill out two CMA's for each CMB simply due to the number of lines on these forms. C/p and mothership observers: start each week's data (Sunday - Saturday) on a fresh sheet of each of these forms. Catcher vessel observers: start a new pages of CMA and CMB for each fishing trip. Record the hauls or sets making up each delivery together. Even if a fishing trip spans a report week (over midnight, Saturday), report the hauls for that trip together in one catch report, on one pair of forms.

All Observers -- Start a new set of catch message forms (CMA and CMB) if one of the following changes:

- The **year**, or the **vessel** you're assigned to
- **report week** - (Sun through Sat, ALT) except catcher boat observers who report by trip.
- **region** - Bering (includes all of area 540), Gulf, or Coast
- **catcher/processor vessel acts as a mothership** or vice versa. (Both vessel types are entered on only one set of 2US forms though.)
- **CDQ** - a vessel starts, ends, or works more than one CDQ contract

TRANSMISSION OF WEEKLY CATCH MESSAGES

Catch messages can be sent to NMFS Observer Program office in Seattle by Standard A or Standard C satellite transmission, rapidfax, telex, satellite telephone from sea (private communication), single sideband (SSB) radiotelephone from sea (public communication), or via regular telephone lines ashore. Observers who will be entering their data onto computers will receive software instruction in training or briefing and will have to get some orientation help from the vessel's communications person. If preparing a message for fax transmission, your message must be written in larger than normal, block printing. Your letters and numbers must be written in **black**, crisp lines. The appropriate page(s) of Form 1US or 2US, Catch Message Forms A and B, and a Halibut Inseason report are faxed as your weekly data transmission. For other messages or questions sent via rapidfax, use **unlined** white paper. Observers who must transmit data via telex or satellite Standard C will have to type in their data and must refer to the Typed Message formatting instructions following the catch message forms in this section. If your fax or telex messages are not getting through to our office, try sending your messages to the other numbers listed on the previous page -- four fax and two telex lines are available. If your messages are not being acknowledged as being received, send a question to us through their company office. We will probably be able to clear up the problem from this end. If they can send messages to their office, they should be able to send your messages directly to our offices as well. Catch message data is **not** to be routed through the company office. Call or transmit a message to our Seattle, Kodiak, or Dutch Harbor offices for our assistance and support if you are having difficulties.

If aboard a mothership or catcher/processor, the fax machine is broken (or there is none) and there is no telex or satellite communications, it will at least be possible to call in your weekly message via SSB radiotelephone directly to Kodiak, Dutch Harbor, or call Seattle via SSB and the marine operator (in Alaska this is KMI). To Seattle, if your call can get through during working hours, you can call collect. However, daytime atmospheric conditions will oftentimes interfere with these transmissions. If you cannot get through to our Kodiak office, then you must try your call to Seattle again later. After working hours you will be leaving your catch message on the phone recorder. The ship must pay for the call if it is only possible to get a call through at night. This is a requirement for the vessel under the Observer Plan. Not reporting or waiting until you return to port is not an option. Data from all vessels must be sent to Seattle according to the above schedule.

For voice transmissions of data by telephone or radiotelephone, the data will have to be summarized. Use the Catch Message Form for Voice Communications (CMV) explained in this section. Whenever catch (or any other) information is being relayed by radiotelephone, anyone can

listen in. You must remember that radiotelephone conversations are public. Do not directly state information such as fishing area or catch weights. As catch information must be kept confidential, radiotelephone catch messages must be coded according to instructions on the CMV form. Using codes would also be appropriate if it is necessary to make daily reports to a lead observer or to relay catch information for one vessel after transferring to another vessel. When reading the alphabetic codes for the numbers, use the phonetic alphabet for clarity (given in the appendix section titled "Radio Communications - Procedure"). Any transmission of data by voice must be followed up by faxing your report forms to the Seattle office as soon as possible after docking. In your logbook, record all your transmissions in the Communications Record and keep a copy of all messages received.

CORRECTIONS AND QUESTIONS

Along with catch reports or at any time, observers can ask questions or send information relating to observer work. For example, if you have no catch report for a week, you can type a text message or fax us a plain piece pf paper with your name, vessel name, and the week ending date as a heading and just say, "Boarded vessel (mo/day), still in port, no catch report this week." If you have a correction to data previously sent, send it as a separate text message or fax it on a plain piece of paper. Tell us: Your Name, Vessel Name

Correction for Week Ending Date (month, day)
Haul or Set number:
Original entry:
Corrected entry:

Questions about observer sampling or responsibilities, information about health problems, or logistical information are commonly sent. When asking sampling questions, include parameters such as target species, average catch size, composition, and the sources for your estimates to help us understand your situation. A question or information should be written carefully so it is clear, not too wordy, appropriate and professional. Realize that you may not receive an answer for several days even though answering your questions is a top priority for us. We commonly have a hundred or more observers at sea at any one time. It takes time for messages to be received and for replies to be formulated and sent.

Cruise # 4011 Vessel code A110 Vessel Name Sea Peace CMA - SPECIES COMPOSITION Page 5 of _____ for vessel

Observer Name Jane Observer Page 2 of 4 for transmission Fax /Telex # 482-9356 (Weekly Message) or Resubmission of Message

GROUP ABBREVIATIONS		Prohib	Yell	Cod	Flat	Asole	OFlat	Oth	Non	Arrow	Poll	Orock				
SPECIES GROUP CODES		900	127	110	122	123	120	100	999	121	270	139				
HAUL NUMBER	TOTAL SAMPLE WEIGHT IN KG	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE
48	330.63	2.51	253.4	8.6	13.36	6.1	2.4	7.1	2.41	5.8	28.95	0				
48	% of group retained	0	100	100	0	90	0	0	0	0	0	0				
49	337.2	0	267.9	15.3	1.1	5.7	2.3	8.3	1.8	5.2	29.6	0				
49	% of group retained	0	100	100	0	78	0	0	0	0	0	0				
50	21709.2	3.5	0	6.2	3.0	0	0	0	5207.57	2.0	16476.23	10.7				
50	% of group retained	0	0	100	0	0	0	0	0	0	97	57				
51	18922.5	0	0	30.0	1.5	0	0	0	24.4	0	18866.6	0				
51	% of group retained	0	0	100	0	0	0	0	0	0	99	0				

Two Sets of Calculations For Haul 50

Weight of Dominant (Target) Report Group:

Sample wt. - *wt. of bycatch* = wt. of dominant species.
21709.2 kg - 38.5 kg bycatch = 21670.7 kg pollock & jellyfish

173.8 kg pollock ÷ 228.6 kg basket sample = .7603 or 76% pollock.
Pollock made up 76% of the basket sample weight and jellyfish was about 24%.

21670.7 kg x .7603 = 16476.23 kg pollock in sample weight
21670.7 kg x .2397 = 5194.47 kg jellyfish in sample weight.

% Retained for Other rockfish report group:

Thornyheads were all retained 6.1 kg x 1.00 = 6.1 kg
Yelloweye were all discarded 4.6 kg x 0 = 0 kg retained

weight retained, 6.1 kg ÷ 57 % retained for "orock" group.
(6.1kg + 4.6 kg)

CMA FORM INSTRUCTIONS

A catch message is *at least* composed of the pertinent pages of Form 1US or 2US, CMA and CMB, and the Halibut Inseason Viability Form. Two lines of information will be entered for each haul sampled on the Catch Message A Form. *Do not make an entry line for hauls or sets not sampled for composition.* The first line must be equivalent to the data on 3US for the target and bycatch sample, and data on the second line are your estimates of retained catch for each report group.

1. "Page ____ of ____ for vessel" in the upper right corner is a consecutive numbering of all the combined CMA **and** CMB forms for that boat--all sets of CM's, all weeks, with the CMA's and the CMB's mixed together in the same sequence in which the forms were transmitted. The CMA and CMB forms are two parts of a whole unit of CM forms for the boat so their page numbering is combined.

2. On the second heading line, in the "Page ____ of ___ for the Transmission," enter the total number of pages that you have for that transmission, including the haul or set forms, CMA's, CMB's, and the Halibut Inseason Form. Then we can be sure we've received all the pages you intended to send.

3. In the next blank write the fax or telex number of your vessel so we can get back to you with questions, if necessary. If you are on a shoreside delivery vessel, enter the fax or telex number of the plant where you can be reached.

4. Circle "Weekly Message." For various reasons, you may be sent a message from the Observer Program office in Seattle asking you to resend catch message forms. In this case, erase the circle around "Weekly Message" and circle "Resubmission of Message" instead.

   If you need to inform us of a correction *you have discovered*, it must look different or it may be processed as a regular report. Send your corrections on a separate, blank page or text message. Include your name, vessel name, date and haul number concerned, old value and new, corrected value.

5. If the hauls or sets of a report week were fished in both the Bering Sea and the Gulf of Alaska, two sets of catch message forms would have to be made, by region. Determine which region your hauls or sets were made in (if necessary) by plotting their positions from Form 1US or 2US on the maps which follow. Select the appropriate list of report groups by region. For each species recorded in the sample for target and bycatch on 3US, refer to this list and find the corresponding report group and its code.

   Write the report group abbreviations and codes across the tops of the columns. For subsequent samples, additional report groups may need to be added. Be sure to go back and "zero fill" as necessary, refer to item 8 below. **For each set of forms for a week (or trip), all pages of CMA must have the same report groups, in the same order.**

6. **Two lines of entries must be made for each sampled haul or set.** No lines of entry are needed for hauls or sets not sampled. Days of no fishing or sampling are accounted for on the Forms 1US or 2US. For each haul sampled, enter the haul (or set) number in the first column.

7. Enter the sample weight of your species composition sample, in kilograms, from Form 3US. If you have two or more sample types, enter the weight sampled *for bycatch.*

8. Enter the weight or weight *sum* for each report group, in kilograms, from the sample data on Form 3US. ***If some or all of the* prohibited species groups *have a different, larger sample weight, those with the larger sample weight are not entered on a Catch Message Form A, but will be on the Prohibited Species Catch Message Form B instead.***

   If no members of a particular report group were seen, you must enter a zero in that column, that is, fill in all empty data cells with zeros ("zero fill"). (See CMA example.)

   If you have whole or partial haul sampled for bycatch, the weight of the target or dominant species will have to be obtained by subtraction. See CMA example haul 51.

   Sample weight - weight of bycatch = weight of dominant species.

   If there are two dominant species, as in example haul 50, the weight of the dominant two species has to be proportioned based on their relative weight in the basket sample.

9. **Add the report group weights across the line. The sum of these weights must equal your species composition sample weight exactly.**

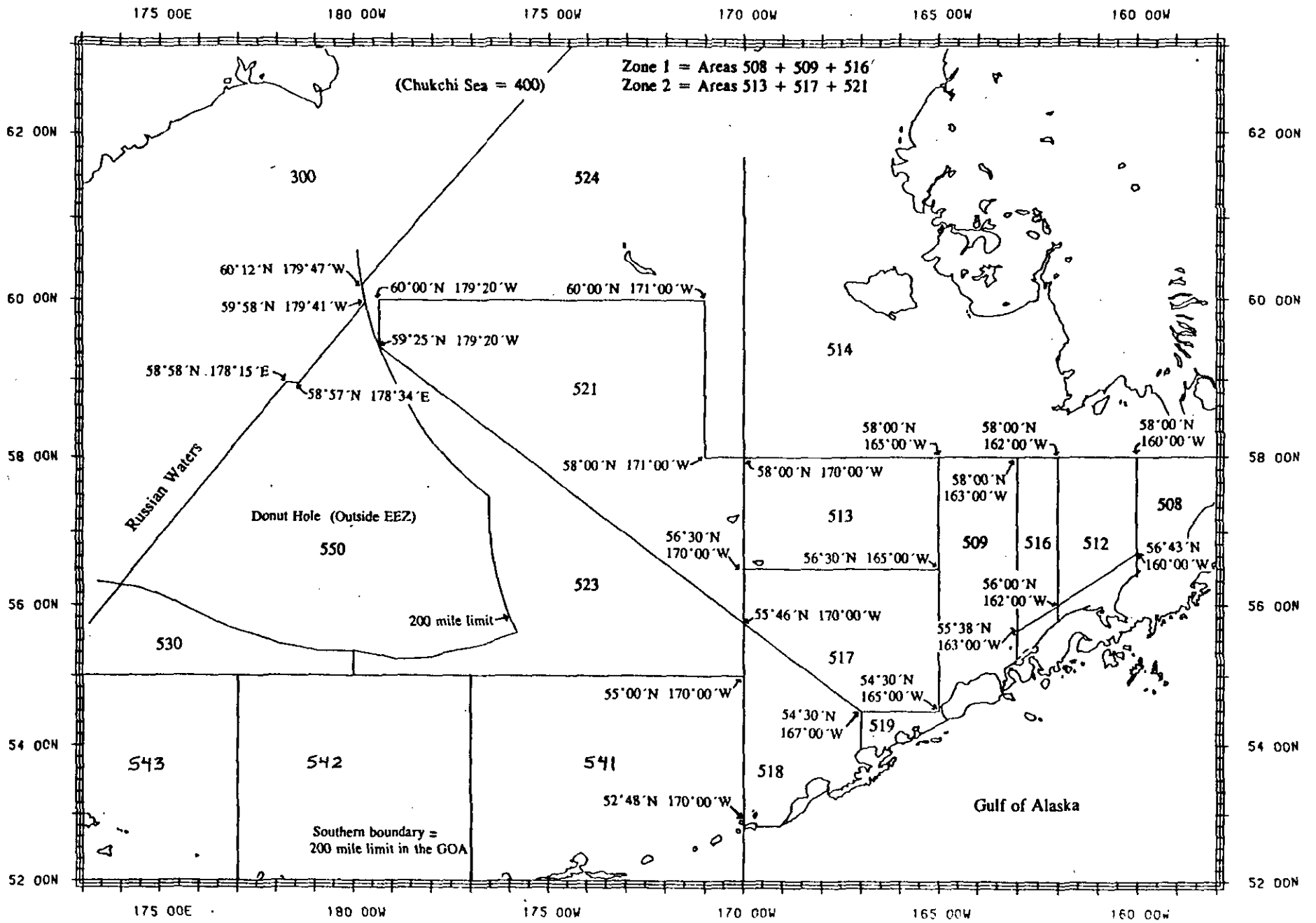
10. For each sampled haul or set, on the second line enter the haul number again in the first column. Then enter the percentage by weight of each species **or species group retained.** As explained for the 3US entries in manual section 3, for each species group, this is the fresh weight of fish before processing, which is kept on board, divided by the total catch weight of that species or species group. Observers are to make their best estimate. As this is only an approximation, do not spend a lot of time and effort on this task.

    Single species report categories will have the same percent retained as on 3US. Report groups with multiple species may have to have the % retained re-calculated.

    Report group consists of species *A* and *B*.
    Species *A* weight in sample x % retained = weight retained for spp. *A*
    Species *B* weight in sample x % retained = weight retained for spp. *B*

    $$\frac{\text{Weight retained for spp. } A + B}{\text{Weight in sample for spp. } A + B} = \text{\% retained for report group}$$

    List the percentage as a whole number. A figure of 100 indicates that all of the fish from that species group were retained from that haul. A figure of 0 indicates that the entire species group was discarded. If there is no entry for a report group for a sample, enter a zero in the percentage retained line as well (zero fill). Initial instructions for percent retained are in manual section 3 for trawl vessels and in section 5 for longline and pot vessel observers.


175 00E
180 00W
175 00W
170 00W
165 00W
160 00W
62 00N
60 00N
58 00N
56 00N
54 00N
52 00N
Zone 1 = Areas 508 + 509 + 516
Zone 2 = Areas 513 + 517 + 521
(Chukchi Sea = 400)
300
524
514
521
513
509
516
512
508
517
519
518
523
530
543
542
541
550
60°12'N 179°47'W
60°00'N 179°20'W
60°00'N 171°00'W
59°58'N 179°41'W
59°25'N 179°20'W
58°58'N 178°15'E
58°57'N 178°34'E
58°00'N 171°00'W
58°00'N 170°00'W
58°00'N 165°00'W
58°00'N 162°00'W
58°00'N 160°00'W
58°00'N 163°00'W
56°30'N 170°00'W
56°30'N 165°00'W
56°43'N 160°00'W
56°00'N 162°00'W
55°46'N 170°00'W
55°38'N 163°00'W
54°30'N 165°00'W
54°30'N 167°00'W
55°00'N 170°00'W
52°48'N 170°00'W
Russian Waters
Donut Hole (Outside EEZ)
200 mile limit
Southern boundary =
200 mile limit in the GOA
Gulf of Alaska

BERING SEA REPORT GROUPS AND CODES

Species Group	Report Group	Abbreviation	Code
Squid	Squid	squ	875
Yellowfin sole	Yellowfin sole	yell	127
Rock sole	Rock sole	rsole	123
Flathead sole	Flathead sole	flat	122
Greenland turbot	Greenland turbot	turb	134
Arrowtooth flounder	Arrowtooth flounder	arrow	121
Kamchatka flounder			
Other flatfish (except halibut)	Other flatfish	oflat	120
Pollock	Pollock	poll	270
Pacific cod	Pacific cod	cod	110
Sablefish	Sablefish	sab	710
Atka mackerel	Atka mackerel	atka	193
Pacific ocean perch	POP	pop	141
Shortraker rockfish	Deepwater rockfish	deep rf	171
Rougheye rockfish			
Northern rockfish	Northern-sharpchin	no chin	172
Sharpchin rockfish			
All other rockfish (Sebastes and Sebastolobus spp.)	Other rockfish	orock	139
Sharks, skates, sculpins, eulachon, smelts, capelin and octopus **only**	Other fish *	oth	100
All remaining fish spp.	Non-allocated *	non	999
Invertebrates (except squid and octopus)			
Miscellaneous items			
Prohibited spp.	Prohibited species	prohib	900

* The reporting requirement for the ship's and plant's logbooks is different than for the observer's weekly messages. For example, vessels and plants are required to report each of the species groups of "Other fish" (sharks, skates, etc.) separately. Vessels and plants are not required to log any species in the observer's non-allocated category. Refer to the instructions for the vessel logs for their reporting requirements.

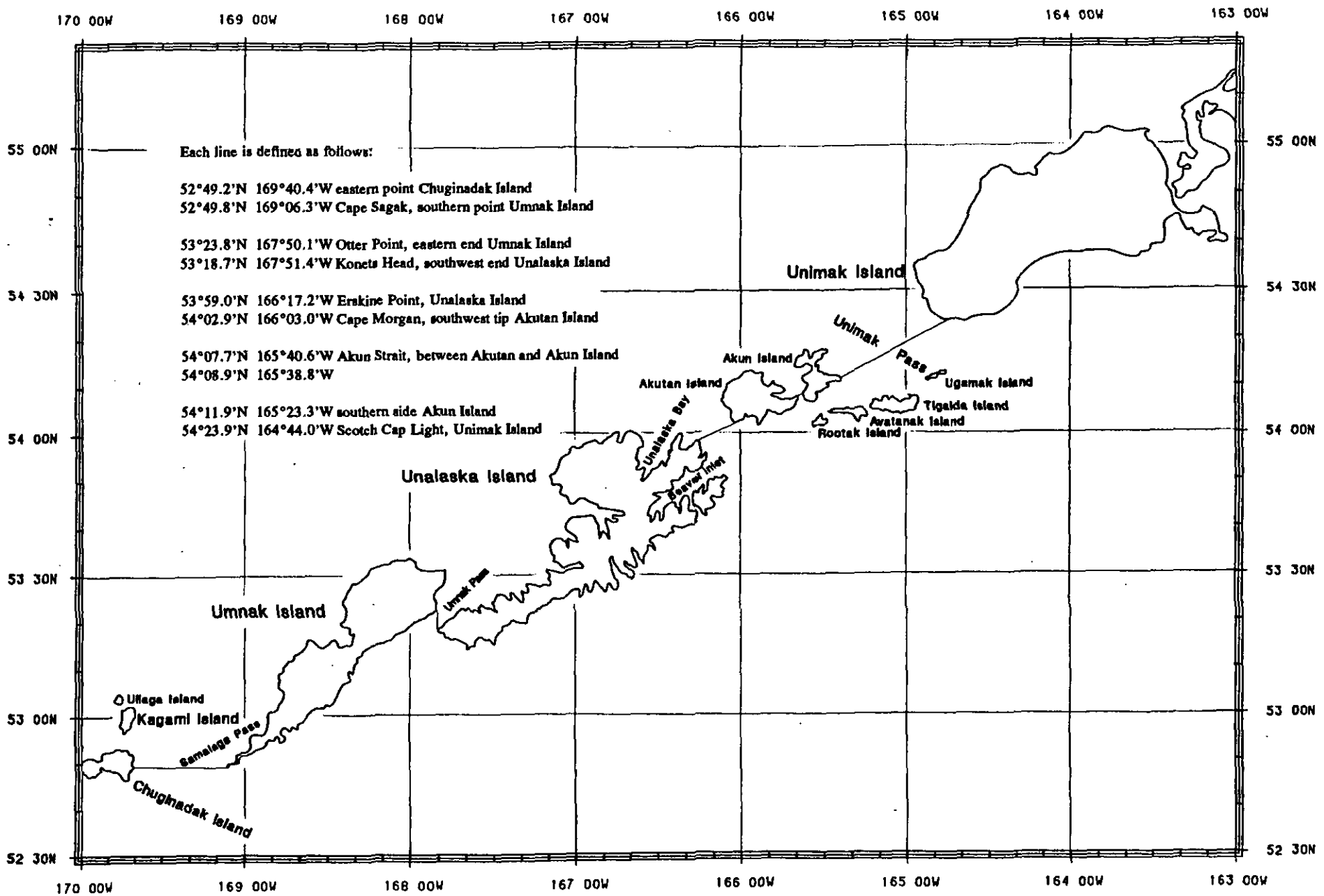
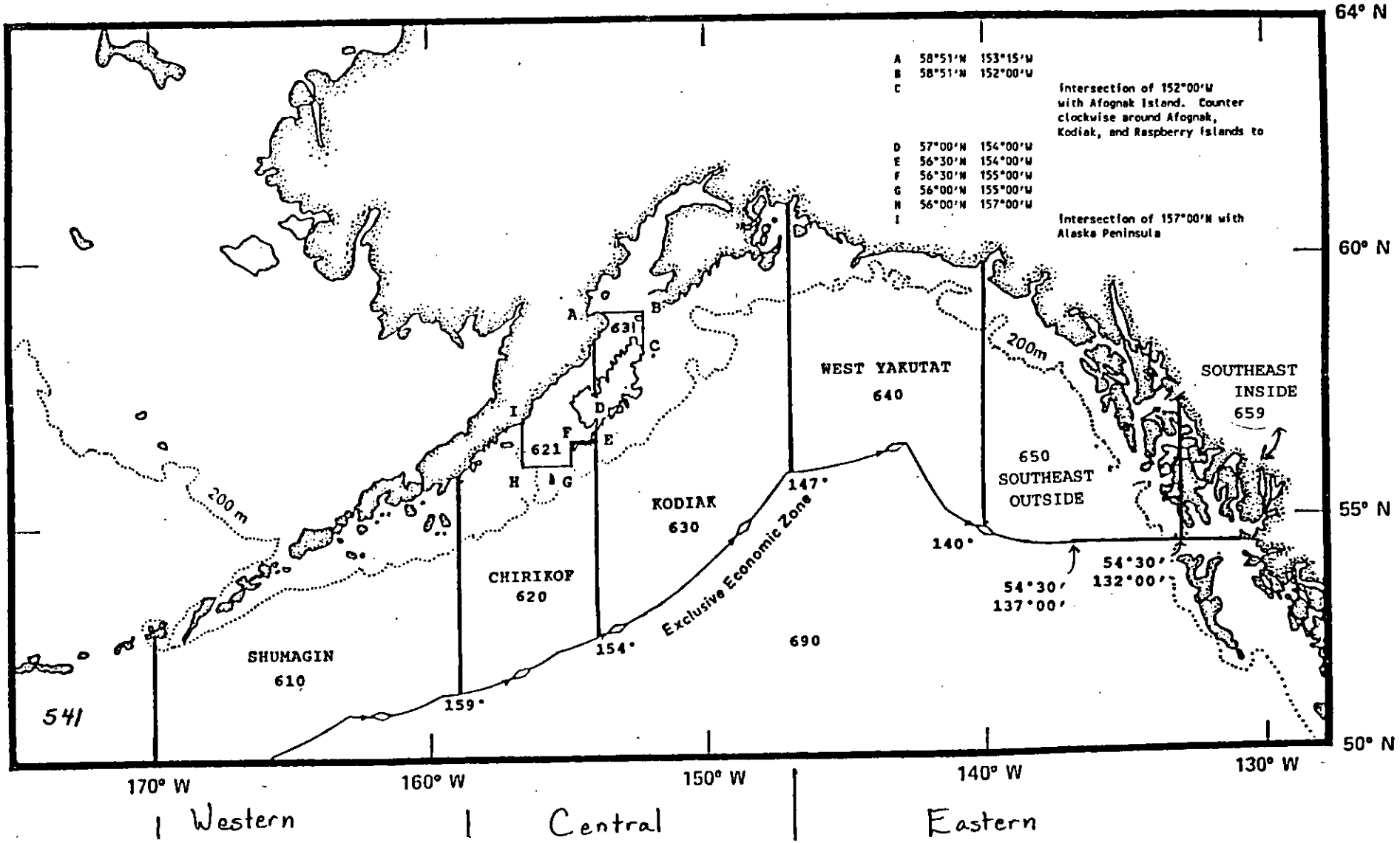


Figure 1 - boundary between Bering Sea and Gulf of Alaska.



Regulatory and reporting areas of the Gulf of Alaska.

GULF OF ALASKA REPORT GROUPS AND CODES

Species Group	Report Group	Abbreviation	Code
Rex sole	Rex sole	rexs	125
Dover sole Greenland Turbot	Deep-water flatfish	dflt	118
Flathead sole	Flathead sole	flat	122
Arrowtooth flounder	Arrowtooth flounder	arrow	121
Rock sole Yellowfin sole Butter sole Starry flounder All other flatfish (except halibut)	Shallow-water flatfish	sflt	119
Pollock	Pollock	poll	270
Pacific cod	Pacific cod	cod	110
Sablefish	Sablefish	sab	710
Atka Mackerel	Atka mackerel	atka	193
Pacific ocean perch (S. alutus)	POP	pop	141
Rougheye rockfish (S. aleutianus) Shortraker rockfish (S. borealis)	Deep-water rockfish	deep rf	171
Northern rockfish (S. polyspinus)	Northern rockfish	nork	136
Sharpchin rockfish (S. zacentrus)	Sharpchin rockfish	chin	166
Red banded rockfish (S. babcocki)	Redbanded rockfish	rbnd	153
Longspine thornyhead (Sebastolobus altivelis) Shortspine thornyhead (Sebastolobus alascanus)	Thornyhead rockfish	thrn	143

Gulf of Alaska (Areas 610 - 680) cont.

Species Group	Report Group	Abbreviation	Code
Aurora rockfish (Sebastes aurora) Blackgill rockfish (S. melanostomus) Chilipepper rockfish (S. goodei) Darkblotched rockfish (S. crameri) Greenstriped rockfish (S. elongatus) Harlequin rockfish (S. variegatus) Pygmy rockfish (S. wilsoni) Bocaccio (S. paucispinus) Shortbelly rockfish (S. jordani) Splitnose rockfish (S. diploproa) Stripetail rockfish (S. saxicola) Vermilion rockfish (S. miniatus) Yellowmouth rockfish (S. reedi) Redstripe rockfish (S. proriger) Silvergray rockfish (S. brevispinus)	Slope rockfish	slprf	144
Canary rockfish (S. pinniger) China rockfish (S. nebulosus) Copper rockfish (S. caurinus) Quillback rockfish (S. maliger) Rosethorn rockfish (S. helvomaculatus) Tiger rockfish (S. nigrochinctus) Yelloweye rockfish (S. ruberrimus)	Demersal Shelf Rockfish	demrf	168
Black rockfish (Sebastes melanops) Blue rockfish (S. mystinus) Dusky rockfish (S. ciliatus) Widow rockfish (S. entomelas) Yellowtail rockfish (S. flavidus)	Pelagic Shelf Rockfish	pelrf	169
Sharks, skates, sculpins, eulachon, smelts, capelin, octopus and squid.	Other fish *	oth	100
Prohibited spp.	Prohibited species *	prohib	900
All remaining fish spp., (except squid and octopus), Miscellaneous items	Non-allocated *	non	999

* The reporting requirement for the ship's and plant's logbooks is different than for the observer's weekly messages. For example, vessels and plants are required to report each of the species groups of "Other fish" (sharks, skates, etc.) separately. Vessels and plants are not required to log any species in the observer's non-allocated category. Refer to the instructions for the vessel logs for their reporting requirements.

Cruise # 4011 Vessel code A110 Vessel Name Sea Peace CMB - PROHIBITED SPECIES Page 6 of _____ for vessel

Observer Name _____ Page 3 of 4 for transmission (Weekly Message) or Resubmission of Message

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB NUMBER	RED KING CRAB WEIGHT KG	OTHER KING CRAB NUMBER	OTHER KING CRAB WEIGHT KG	SAMPLE WEIGHT IN MT	HERRING WEIGHT KG	SAMPLE WEIGHT IN MT	BAIRDI TANNER NUMBER	BAIRDI TANNER WEIGHT KG	OTHER TANNER NUMBER	OTHER TANNER WEIGHT KG	SAMPLE WEIGHT IN MT	PACIFIC HALIBUT NUMBER	PACIFIC HALIBUT WEIGHT KG	SAMPLE WEIGHT IN MT	CHINOOK SALMON NUMBER	CHINOOK SALMON WEIGHT KG	OTHER SALMON NUMBER	OTHER SALMON WEIGHT KG	Marine Mammals code	Marine Mammals #
48	.331	0	0	0	0	.331	.3	.331	7	2.21	0	0	.331	0	0	.331	0	0	0	0	NU	
49	17.530	↓	↓	↓	↓	17.530	0	17.530	629	100.0	28	4.24	17.530	14	208.99	17.530	0	0	0	0	EJ	1
50	21.709	↓	↓	↓	↓	21.709	.3	21.709	0	0	0	0	21.709	0	0	21.709	0	0	1	3.2	NU	
51	54.408	0	0	0	0	18.923	0	18.923	0	0	0	0	54.408	0	0	54.408	0	0	0	0	NU	

An excerpt from the observer logbook. (Refer to the example 3US data form for haul 49 in manual section 3.):

ADDITIONAL CALCULATIONS

VESSEL/PLANT NAME Sea Peace

Haul 49 Crab Extrapolations:

Bairdi Wt.: 5.44 kg males + 8.7 kg females = 14.14 kg bairdi + 0.6 kg opilio = 14.74 kg total subsample wt.
14.14 kg bairdi ÷ 14.74 kg subsample x 89.5 kg unident. = 85.8568 kg bairdi + 14.14 kg subsample = 100.00 kg. est. bairdi in haul

Bairdi No.: 32 males + 59 females = 91 Bairdi + 4 Opilio = 95 tanner crab in subsample.
91 bairdi ÷ 95 in subsample x 562 unident. tanners = 538.34 bairdi + 91 bairdi in subsample = 629 est. bairdi in haul

Other tanner Wt.: 0.6 kg opilio ÷ 14.74 kg subsample x 89.5 kg unident. = 3.6431 kg opilio + 0.6 kg in subsample = 4.24 kg estimated opilio in haul
Other tanner No.: 4 Opilio ÷ 95 in subsample x 562 unident = 23.66 opilio + 4 in subsample = 28 estimated opilio in haul.

Math Check - **For Weight:**
100.00 kg Bairdi + 4.24 kg Others = 104.24 kg tanner in haul.
What is the total wt. of tanner crab on Form 3US?
(0.43 + 0.17 + 5.44 + 8.7 + 89.5 kg = 104.24 kg✓)

For Number:
629 Bairdi
+28 Other
657 Tanner in haul

What is the total number of Tanner crab for haul 49 on 3US?
(3 + 1 + 32 + 59 + 562 = 657✓)

CMB FORM INSTRUCTIONS

The following instructions pertain only to your sample data for prohibited species (king crab, herring, Tanner crab, halibut, and salmon) from Form 3US (all vessels) and any freshly dead or "lethally removed" marine mammals landed *on trawlers*. Entry of data on Catch Message Form B for Prohibited Species will be made for every haul or set you sample for fish, **even if no prohibited species are found in your samples.**

1. Enter the Cruise number, Vessel code, and the name of your vessel in the appropriate blanks.

2. "Page ____ of ____ for vessel" is a consecutive numbering of all the CMA and CMB forms together for that boat, in the same sequence in which the forms were transmitted, all weeks combined. Do not number the CMA's separately from the CMB's. The total number of forms for the vessel is the total of all CMA's and CMB's together.

3. On the second line of the heading, in "Page ____ of ___ for the Transmission" continue your entry of the number of pages that you have for that transmission, starting with the haul or set forms, the CMA and CMB forms by set, and ending with the Inseason Halibut Report Form. This will allow us to be sure that we have received all the pages you intended to send.

4. Circle "Weekly Message." For various reasons, you may be sent a message from the Observer Program office in Seattle asking you to resend catch message forms. In this case, erase the circle around "Weekly Message" and circle "Resubmission of Message" instead.

   If you need to inform us of a correction *you have discovered*, it must look different or it may be processed as a regular report. Send your corrections on a separate, blank page or text message. Include your name, vessel name, date and haul number concerned, old value and new, corrected value.

5. *Just as on the CMA form, entries are made only for each* **sampled** *haul or set. No lines of* entry are needed for hauls or sets not sampled. For each haul sampled, enter the haul (or set) number in the first column.

7. Enter the weight of groundfish catch sampled in metric tons to the nearest .001 mt (i.e., sample weight converted to tons from 3US) for each of the prohibited species report groups. Use the following report groups.

Report Group	**Species Included**
RED KING CRAB	*Red King Crab*
OTHER KING CRAB	Blue, Golden & Couesi King Crab
HERRING	Pacific Herring
BAIRDI TANNER	Bairdi Tanner Crab
OTHER TANNER	Opilio, Hybrid, Angulatus, & Tanneri Tanner Crab

Report Group	Species Included
PACIFIC HALIBUT	Pacific Halibut
CHINOOK SALMON	Chinook Salmon
OTHER SALMON	the other species of salmon including steelhead

8. Enter the number of prohibited species found in your prohibited species samples for each of the prohibited species report group and their weight. (For herring just report the weight.) Do not enter the number of any salmon that did not occur in your sample weight, that is, catch weight that you sorted or directly supervised the sorting of.

   If you subsampled a prohibited species group, you need to proportion the unidentified salmon or crab based on the relative numbers and weights of species in the subsample. Using the first haul of the 3US example forms, the calculations that should appear in the observer logbook are shown below the CMB form. There is no column for "unidentified tanner crab" on CMB. So, what number and weight of the unidentified crabs listed on the 3US would have been Bairdi and "other" tanner crabs, based on your subsample? Notice that the crab *numbers and weight are proportioned separately*. Using this method, less rounding difference is introduced. Notice also that the "other" tanner *numbers and weights are not obtained by subtraction*. When the second group is obtained by subtraction, it is not likely you would discover a math mistake in the first calculation. The sum of species numbers and weights on CMB must sum exactly to the total numbers and weights of these species on the 3US. Check your data before they are used by NMFS to manage the fishery!

9. **If no members of a particular prohibited species report group are seen, then enter a zero (0) in each of the number and weight columns**. It is permissible to use arrows for continuation of the zero down a column. Enter a zero at the top and a wavy arrow and another zero at the bottom of the arrow, just as is done for other forms.

10. **Observers on trawlers** must report incidental kill of marine mammals in hauls randomly chosen for monitoring. If none were killed, it is important to record that there were none. **Only freshly dead or "lethally removed" mammals that are landed in monitored hauls (hauls randomly chosen) are to be listed**. For these catches of marine mammals, designate the species with the two letter species code given in the instructions for Form 10US. In the last column, report the number of these mammals. (This is for trawl catches only. Observers on longline and pot fishing vessels must leave these columns blank.)

The following table describes the types of data entry on CMB to be made for all possible combinations of events, with examples of a sea lion (EJ) and a fur seal (CU) being caught. This table coincides with the 2US form example and the CMB form example in this manual.

As shown with 2US haul no.	Sampled for Groundfish	Monitored for Marine Mammals	Fresh Dead MM in Catch	CMB Entry: Code No.
48	yes	yes	no	NU
49	yes	yes	yes - EJ	EJ 1
not shown	yes	no	no	NU
50	yes	no	yes - EJ	NU
not shown	no	yes	no	no line of entry
not shown	no	yes	yes - EJ	EJ 1 (zero fill prohib. line)
not shown	no	no	yes - EJ	no line of entry
not shown	yes	yes	yes - EJ/CU	EJ 1 and on the next line list:
				CU 1

HALIBUT INSEASON VIABILITY FORM INSTRUCTIONS

Inseason Halibut Viability Form

Observer Name Jane Observer

Vessel Name Sea Peace

Fax to:
Domestic Observer Program
(206) 526-4066 or
(206) 526-4207

Office Use Only Cruise # Permit # Proc. Code

BSA or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	If IFQ, Were Halibut Retained? Y or N (Non IFQ, Leave Blank)
~~BSA~~	~~8/30~~	~~12~~	~~16~~	~~22~~	~~50~~	
BSA	9/6	8	6	2	16	

The halibut data on the Halibut Inseason Viability Form is used by the International Pacific Halibut Commission. Scientists in the Halibut Commission need to have the data on a weekly basis to derive how many of the excellent, poor and dead halibut to count as total mortality for that fishery, for that week. Sample data is extrapolated to hauls and vessels not sampled. The figures you provide will help determine how much of the prohibited species cap has been taken to date. Include this form as the last page of each weekly catch message sent. It is only necessary to send the viability form data with your weekly or trip catch message. You do not need to send this form along with any daily catch messages, unless requested. NMFS in Seattle is forwarding the data to the Halibut Commission.

1. Enter data for only one boat per page. Go to a new form for each new sampling vessel.

2. Record your name and vessel name at the top. In the first column, record the region fished in this week. BSA = Bering Sea-Aleutian Islands and GOA = Gulf of Alaska. If your vessel fished in both regions within a week, you will have to separate your data for the Bering versus the Gulf and enter two lines of data for the week.

3. The week ending date is always a Saturday. When assigned to a catcher vessel, use the Saturday date of the week your vessel *delivered.* This may be in the next week after the fishing trip.

4. **When entering data for a new week, please draw a single line through other weekly data already sent.**

5. In the next three columns, record the weekly summation from Form 7US of all of the halibut examined that were in excellent, poor and dead condition. This will be easier if you have summed each condition category for each page of the 7US form. The entry in the next, or sixth column, should be equivalent to the sum of the "E, P, & D" columns. It is the total number of halibut examined for viability.

   If there were no halibut in your samples or none were examined for viability, send a report anyway or it will be assumed that this part of your message just got lost or was never sent. Enter the region fished, week ending date, and total = 0.

6. **For the "If IFQ..." column on the right** only make an entry if your vessel is a longliner fishing IFQ. Enter an "N" (for no) if your longline vessel is fishing under IFQ but not retaining any halibut. Enter a "Y" (for yes) if your longline vessel is retaining halibut.

TYPED MESSAGE FORMAT FOR WEEKLY CATCH MESSAGES

If typing your message into a computer (which doesn't have COMS) for satellite transmission or onto a telex machine, you must use the following format for transmitting the data from Form 1US or 2US, the CMA and CMB forms, and the Halibut Inseason form. Review these instructions and examples carefully before typing your weekly message.

There are many types of Telex machines. We cannot generalize here the instructions for how to operate the Telex on your vessel. You will first need to find the instruction booklet or ask the Telex operator aboard before typing your catch message.

Typed Message Format for Form 1US and 2US

When transmitting your weekly messages in Typed Message format, the order should be the 1US or 2US first, CMA, CMB, and then the Halibut Inseason form. For each line of entry on the Form 1US or 2US, type data from all columns of the form - do not leave out any category of information. Column headings are not required. It is suggested that you use back slashes or asterisks to separate columns as shown in the example. Each line of data on the form will probably wrap around (continue) onto a second line on the screen. At the end of a line of data on the form, just enter a "hard return" to start a new line on your screen for the next haul or set. For fields where you have no entry, enter two slashes (//) to indicate the blank field.

On Form 1US, check marks (✓) are commonly entered in the first column for "Sets sampled for composition?" Please type a "Y" or "N" for each line of telex entry for this column. Similarly, for Form 2US, start with a "Y" or "N" for the "Hauls sampled for composition?" column. Other columns should be typed using the same format as when filling out the form, i.e. do not use leading zeros except where instructed on the form. Total catch entries must have a decimal and two digits behind the decimal. Any entries for non-fishing or delivery days **must** also be typed on a line with the corresponding dates.

Typed Message Format for 1US and 2US

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Observer Name: Olivia Observer

Vessel Name: F/V Swell

Page 1 of ____ for transmission

Page 1 of ____ for vessel

Plant/Processor name	Location	Processing code #
Akutan Fish Co. (for pot boat example)	Akutan Is	F0040

Sets sampled for composition	Cruise number	Vessel code	Year
	4822	A413	97

721 ORC

Sets sampled for composition	Date: Month	Day	Set #	% Monitored for marine mammals	Gear type	Gear performance	Vessel type	Location code	End position of set: Latitude (N)	E or W	Longitude (100)	Soak time hrs	min	Avg. bottom depth	M or F	# of skates or # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	Vessel's Total Catch Estimate in metric tons	Processor code	CDQ/IFQ number
	10	21	0					N	5530	W	6845	No Fishing - rough weather								.	.	.		
																				.	.	.		
✓	10	22	7	50	8	1	1	R	5534	W	6842	10	45	325	F	10	300	140	1400	2.80	2.80	2.00		
✓	10	22	8	60	8	1	1	R	5542		6842	12	10	285		10			1400	1.95	1.95	1.00		
✓	10	22	9	70	8	1	1	R	5528		6821	12	20	165		10			1400	3.64	3.64	2.00		
																				.	.	.		
	10	23	10	0	8	1	1	R	5456		6711	11	50	186		10			1400	2.80	.	2.20		
✓	10	23	11	80	8	1	1	R	5524	W	6802	13	20	127	F	12	300	140	1680	3.40	3.40	2.80		

Form 1US appearance in Typed Message format:

```
Olivia Observer  F/V Swell  ORC 721
//10/21/0/////N/5530/W/6845/No fishing - rough weather
Y/10/22/7/50/8/1/1/R/5534/W/6842/10/45/325/F/10/300/140/1400/2.80/2
.80/2.00///
Y/10/22/8/60/8/1/1/R/5542/W/6842/12/10/285/F/10/300/140/1400/1.95/1
.95/1.00///
Y/10/22/9/70/8/1/1/R/5528/W/6821/12/20/165/F/10/300/140/1400/3.64/3
.64/2.00///
Y/10/23/10/0/8/1/1/R/5456/W/6711/11/50/186/F/10/300/140/1400/2.80/0
/2.20/0
Y/10/23/11/80/8/1/1/R/5524/W/6802/13/20/127/F/12/300/140/1680/3.40/
3.40/2.80///
```

Form 2US appearance in Typed Message format:

```
Jane Observer  F/V Sea Peace  ORC 534
//08/31/0/////N/5726/6553/No fishing - rough weather
Y/09/01/48/Y/1/1/1/R/5759/W/6531/2215/0045//50/50/F/3.5/22.34/22.34
/C/.89/20.00////
Y/09/01/49/Y/1/1/1/R/5751/W/6531/0730/0915//52/52/F/3.5/17.53/17.53
/C/.87/15.00////
Y/09/01/50/N/1/1/1/R/5751/W/6554/1000/1218//68/70/F/4.0/43.21/43.21
/C/.98/35.00////
Y/09/01/51/Y/1/1/1/R5746/W/6551/1440/1730//66/70/F/4.0/54.41/54.41/
C/.93/58.00////
N/09/02/52/N/1/9/2/R/5746/W/6550//0730/120/70/75/F/4.5/44.24/44.24/
C/.93/45.00/50570///
```

Typed Message Format For Catch Message Form A

Cruise # 4011 Vessel code A110 Vessel Name Sea Peace CMA - SPECIES COMPOSITION Page 5 of _____ for vessel

Observer Name Jane Observer Page 2 of 4 for transmission Fax /Telex # 482-9356 (Weekly Message) or Resubmission of Message

GROUP ABBREVIATIONS		Prohib	Yell	Cod	Flat	Rsole	Oflat	Oth	Non	Arrow	Poll	Orock				
SPECIES GROUP CODES		900	127	110	122	123	120	100	999	121	270	139				
HAUL NUMBER	TOTAL SAMPLE WEIGHT IN KG	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE
48	330.63	2.51	253.4	8.6	13.36	6.1	2.4	7.1	2.41	5.8	28.95	0				
48	% of group retained	0	100	100	0	90	0	0	0	0	0	0				
49	337.2	0	267.9	15.3	1.1	5.7	2.3	8.3	1.8	5.2	29.6	0				
49	% of group retained		100	100	0	78	0	0	0	0	0	0				
50	21709.2	3.5	0	6.2	3.0	0	0	0	5208.0	2.0	16475.8	10.7				
50	% of group retained	0	0	100	0	0	0	0	0	0	97	57				
51	18922.5	0	0	30.0	1.5	0	0	0	24.4	0	18866.6	0				
51	% of group retained	0	0	100	0	0	0	0	0	0	99	0				
	% of group															

(1)4011(2)A110(3)SEA PEACE(4)JANE OBSERVER(5) 482-9356
900/127/110/122/123/120/100/999/121/270/139
48/330.63/2.51/253.4/8.6/13.36/6.1/2.4/7.1/2.41/5.8/28.95/0
48/0/100/100/0/90/0/0/0/0/0/0
49/337.2/0/267.9/15.3/1.1/5.7/2.3/8.3/1.8/5.2/29.6/0
49/0/100/100/0/78/0/0/0/0/0/0
50/21709.2/3.5/0/6.2/3.0/0/0/0/5208.0/2.0/16475.8/10.7
50/0/0/100/0/0/0/0/0/0/97/57/
51/18922.5/0/0/30.0/1.5/0/0/0/24.4/0/18866.6/0
51/0/0/100/0/0/0/0/0/0/99/0

The information in the heading of each form has been sequentially numbered as shown in the previous example. For instance, (1) represents the cruise number. Type the numbers in parentheses before each heading item. The CMA heading will begin with cruise number and end with: (5) the fax or telex number that is your return address. Make sure that you are providing the return address numbers so we can contact you, if necessary and not our office number. Remember, type in the numbers in parentheses before each heading item to identify the entry.

Report group codes are typed in the line following the heading. The abbreviated report group names do not get entered on typed messages but the report group codes are listed, one after the other, with slashes in between. Enter these as a separate line from the species weight data.

The next series of lines have: the haul number, species composition sample weight (with a decimal point and one or two decimal places, no "kg" typed), and the individual species groups weights, separated by slashes. No preceeding zeros are typed for species group weights when less than 1 kg. No slashes are required at the end of the line. Each line of data on the form should be a separate line of type as well. The line of data underneath each line of species weights is the percentage retained for each species report group listed, with slashes between each entry.

Typed Message Format for Catch Message Form B

Cruise # 4011 Vessel code A110 Vessel Name Sea Peace CMB - PROHIBITED SPECIES Page 6 of _____ for vessel

Observer Name _____ Page 3 of 4 for transmission (Weekly Message) or Resubmission of Message

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB NUMBER	RED KING CRAB WEIGHT KG	OTHER KING CRAB NUMBER	OTHER KING CRAB WEIGHT KG	SAMPLE WEIGHT IN MT	HERRING WEIGHT KG	SAMPLE WEIGHT IN MT	BAIRDI TANNER NUMBER	BAIRDI TANNER WEIGHT KG	OTHER TANNER NUMBER	OTHER TANNER WEIGHT KG	SAMPLE WEIGHT IN MT	PACIFIC HALIBUT NUMBER	PACIFIC HALIBUT WEIGHT KG	SAMPLE WEIGHT IN MT	CHINOOK SALMON NUMBER	CHINOOK SALMON WEIGHT KG	OTHER SALMON NUMBER	OTHER SALMON WEIGHT KG	Marine Mammals code	Marine Mammals #
48	.331	0	0	0	0	.331	0	.331	7	2.21	0	0	.331	0	0	.331	0	0	0	0	NU	
49	17.530	↓	↓	↓	↓	17.530	0	17.530	629	100.0	28	4.24	17.530	14	208.99	17.530	0	0	0	0	EJ	1
50	21.709	↓	↓	↓	↓	21.709	.3	21.709	0	0	0	0	21.709	0	0	21.709	0	0	1	3.2	NU	
51	54.408	0	0	0	0	18.923	0	18.923	0	0	0	0	54.408	0	0	54.408	0	0	0	0	NU	

(1)4011(2)A110(3)SEA PEACE(4)JANE OBSERVER
48/.331/0/0/0/0/.331/0/.331/7/2.21/0/0/.331/0/0/.331/0/0/0/0/NU
49/17.530/0/0/0/0/17.530/0/17.530/629/100.0/28/4.24/17.530/14/208.99/17.530/0/0/0/0/EJ/1
50/21.709/0/0/0/0/21.709/.3/21.709/0/0/0/0/21.709/0/0/21.709/0/0/1/3.2/NU
51/54.408/0/0/0/0/18.923/0/18.923/0/0/0/0/54.408/0/0/54.408/0/0/0/0/NU

Sequentially number the heading information and type in the number in parentheses with the entry for that line. Typing in form page numbers is not required.

For the body of the form, type in the lines of data separately, with slashes wherever there is a column line on the original form (between all column numbers). Then list the haul weight, slash, sample weight, another slash, and the individual prohibited species group numbers and weights with slashes between them. Finally, do not forget to enter the marine mammal data at the end of each line.

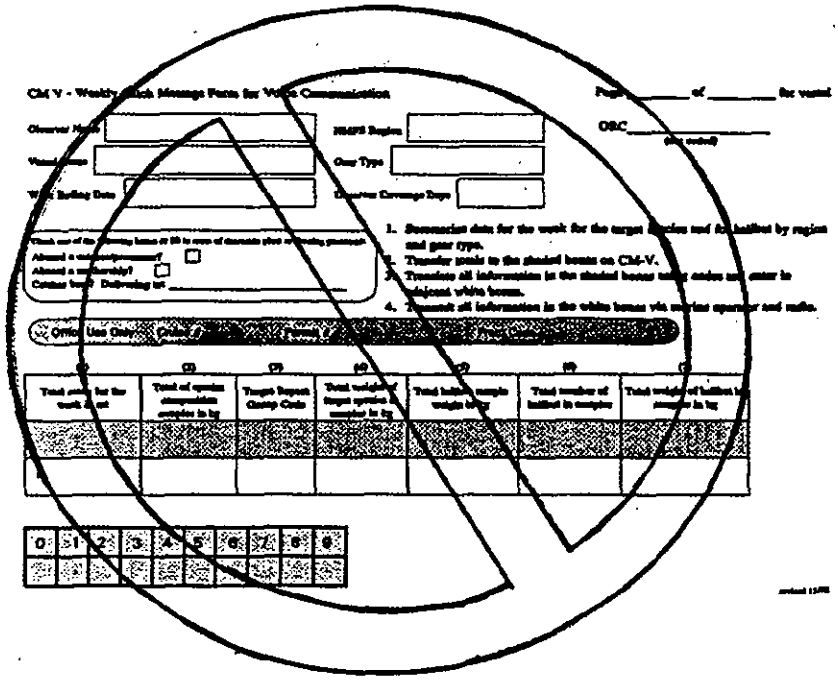
For Voice Transmissions of the Weekly Catch Message

If you are aboard a catcher/processor or mothership which does not have functional satellite communications, in order to send your weekly catch message on time, please contact the Seattle office via the marine operator or contact our Kodiak or Dutch Harbor offices via the single sideband radio and report the following:

Report

1. Name of the observer
2. Vessel name
2. Week Ending Date
3. ORC code
4. Nature of the communications problem

It is critical that we receive your catch message in a timely manner, but because it is impractical to send the entire message by voice communications we are only requesting the information listed above. If you have only been able to send voice transmissions, it is imperative that you send your entire catch message as soon as you arrive on shore.



(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for FAX communication

RKNG - Red King Crab
OKNG - Other King Crab
HERR - Herring
BTAN - Bairdi Tanner Crab
OTAN - Other Tanner Crab
HBT - Pacific Halibut
CSAL - Chinook Salmon
OSAL - Other Salmon

To: Alaska Regional Office
Inseason Management Branch
Juneau, AK

Via FAX: (907) 586-7131
Via TELEX: 62296000
Via Operator: (907) 586-7228

Vessel's FAX/TELEX _____

(6) Date		(7)	(8)	(9)	(10)	(11)	For requested prohibited species			(15)	For requested species group	
							(12)	(13)	(14)		(16)	(17)
Month	Day	NMFS Area	By area, total daily weight in metric tons	Sampling method	Total of haul weights per sampling method	Species Report Group Code	Total of prohibited species sample weights in metric tons	Total number of prohibited species in samples	Total weight of prohibited species in kilograms	Species Report Group Code	Total of species composition sample weights in kilograms	Total weight of species group in samples in kilograms

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(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

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CMD - DAILY CATCH MESSAGE FORM
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RKNG - Red King Crab
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(6) Date				(7)	(8)	(9)	(10)	(11)	For requested prohibited species			(15)	For requested species group	
Month		Day		NMFS Area	By area, total *daily weight in* metric tons	Sampling method	Total of *haul* weights per *sampling* method	Species Report *Group Code*	(12) Total of *prohibited* species sample weights in metric tons	(13) Total number of prohibited species in samples	(14) Total weight of prohibited species in kilograms	Species Report *Group Code*	(16) Total of species composition sample weights in kilograms	(17) Total weight of species group in samples in kilograms

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DIAGONAL BOUNDARY LINE TABLES FOR THE BERING SEA

When you are given a position that is close to the diagonal boundary lines that separate areas 517 and 518 or areas 521 and 523, it may be difficult to determine exactly which area the catch should be attributed to. These tables will aid you in that determination.

The 1st table: Table 1, is a plot of the line intersecting areas 517 and 518. The line gives the corresponding latitude position for each minute of longitude.

The 2nd table: Table 2, is a plot of the line intersecting areas 521 and 523.

How To Use The Tables

First find the longitude of your retrieval position in Column B of the table. The corresponding latitude in Column A marks the point on the line which intersects the two areas. If the latitude of your retrieval position is greater than the table latitude, your position falls in the area to the north of the line. If the latitude of your retrieval position is less than the table latitude then your position falls in the area to the south of the line.

Special Cases

For retrieval positions that fall exactly on the line, or if the retrieval position falls on "Four Corners", the intersecting point of 55-46 N 170-00 W, use the trawl data you have for the haul or set to decide which area the fish were caught in and assign the catch to that area.

Example of Use

To demonstrate the use of the tables: suppose your ship had received a codend and records the retrieval position as 54-39 N 68-07 W. Determine what area this retrieval position falls in.

1. First, find longitude 168-07 W in Column B of the tables:
   (longitude 168-07 is found in Table 1)

Col. A	Col.B	
5457. 72	16805. 00	
5458. 15	16806. 00	
5458. 57	16807. 00	<----- retrieval longitude
5458. 99	16808. 00	
5459. 42	16809. 00	

2. Read the corresponding latitude from Column A:

	Col. A	Col. B
	5457. 72	16805. 00
	5458. 15	16806. 00
----->	5458. 57	16807. 00
	5458. 99	16808. 00
	5459. 42	16809. 00

3. Determine whether your retrieval latitude is greater than or less than the latitude in Column A:

   retrieval latitude 54-39 (5439. 00) is lower than Intersecting latitude 5458. 57

4. Determine the area:
   Remember that Table 1, where the retrieval longitude was found, represents points on the line between areas 517 and 518. Table B represents points on the line between areas 521 and 523. Since the retrieval latitude was lower than the line latitude, the retrieval position falls into area 518, the area south of the line.

Summary Table

	Table 1	Table 2
Retrieval latitude less than line latitude	AREA 518	AREA 523
Retrieval latitude greater than line latitude	AREA 517	AREA 521

LAT COL. A	LONG COL. B
3430.00	16700.00
3430.43	16701.00
3430.86	16702.00
3431.29	16703.00
3431.72	16704.00
3432.14	16705.00
3432.57	16706.00
3433.00	16707.00
3433.43	16708.00
3433.86	16709.00
3434.29	16710.00
3434.71	16711.00
3435.14	16712.00
3435.57	16713.00
3436.00	16714.00
3436.43	16715.00
3436.85	16716.00
3437.28	16717.00
3437.71	16718.00
3438.14	16719.00
3438.56	16720.00
3438.99	16721.00
3439.42	16722.00
3439.85	16723.00
3440.27	16724.00
3440.70	16725.00
3441.13	16726.00
3441.55	16727.00
3441.98	16728.00
3442.41	16729.00
3442.83	16730.00
3443.26	16731.00
3443.69	16732.00
3444.11	16733.00
3444.54	16734.00
3444.97	16735.00
3445.39	16736.00
3445.82	16737.00
3446.25	16738.00
3446.67	16739.00
3447.10	16740.00
3447.52	16741.00
3447.95	16742.00
3448.38	16743.00
3448.80	16744.00
3449.23	16745.00
3449.65	16746.00
3450.08	16747.00
3450.50	16748.00
3450.93	16749.00
3451.35	16750.00
3451.78	16751.00
3452.20	16752.00
3452.63	16753.00
3453.05	16754.00
3453.48	16755.00
3453.90	16756.00
3454.33	16757.00

LAT COL. A	LONG COL. B
3454.75	16758.00
3455.18	16759.00
3455.60	16800.00
3456.03	16801.00
3456.45	16802.00
3456.87	16803.00
3457.30	16804.00
3457.72	16805.00
3458.15	16806.00
3458.57	16807.00
3458.99	16808.00
3459.42	16809.00
3459.84	16810.00
3500.27	16811.00
3500.69	16812.00
3501.11	16813.00
3501.54	16814.00
3501.96	16815.00
3502.38	16816.00
3502.81	16817.00
3503.23	16818.00
3503.65	16819.00
3504.08	16820.00
3504.50	16821.00
3504.92	16822.00
3505.34	16823.00
3505.77	16824.00
3506.19	16825.00
3506.61	16826.00
3507.03	16827.00
3507.46	16828.00
3507.88	16829.00
3508.30	16830.00
3508.72	16831.00
3509.15	16832.00
3509.57	16833.00
3509.99	16834.00
3510.41	16835.00
3510.83	16836.00
3511.26	16837.00
3511.68	16838.00
3512.10	16839.00
3512.52	16840.00
3512.94	16841.00
3513.36	16842.00
3513.78	16843.00
3514.21	16844.00
3514.63	16845.00
3515.05	16846.00
3515.47	16847.00
3515.89	16848.00
3516.31	16849.00
3516.73	16850.00
3517.15	16851.00
3517.57	16852.00
3517.99	16853.00
3518.41	16854.00
3518.83	16855.00
3519.25	16856.00
3519.67	16857.00

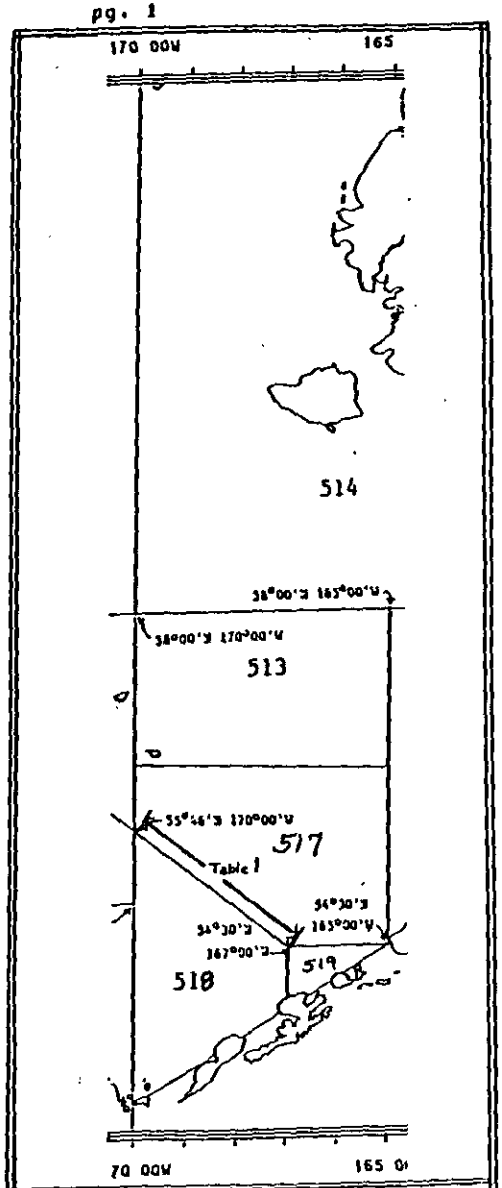
LAT COL. A	LONG COL. B
3520.09	16858.00
3520.51	16859.00
3520.93	16900.00
3521.35	16901.00
3521.77	16902.00
3522.19	16903.00
3522.61	16904.00
3523.03	16905.00
3523.45	16906.00
3523.87	16907.00
3524.29	16908.00
3524.71	16909.00
3525.13	16910.00
3525.55	16911.00
3525.97	16912.00
3526.39	16913.00
3526.81	16914.00
3527.23	16915.00
3527.64	16916.00
3528.06	16917.00
3528.48	16918.00
3528.90	16919.00
3529.32	16920.00
3529.74	16921.00
3530.16	16922.00
3530.57	16923.00
3530.99	16924.00
3531.41	16925.00
3531.83	16926.00
3532.25	16927.00
3532.66	16928.00
3533.08	16929.00
3533.50	16930.00
3533.92	16931.00
3534.34	16932.00
3534.75	16933.00
3535.17	16934.00
3535.59	16935.00
3536.01	16936.00
3536.42	16937.00
3536.84	16938.00
3537.26	16939.00
3537.67	16940.00
3538.09	16941.00
3538.51	16942.00
3538.93	16943.00
3539.34	16944.00
3539.76	16945.00
3540.18	16946.00
3540.59	16947.00
3541.01	16948.00
3541.42	16949.00
3541.84	16950.00
3542.26	16951.00
3542.67	16952.00
3543.09	16953.00
3543.51	16954.00
3543.92	16955.00
3544.34	16956.00
3544.75	16957.00

LAT COL. A	LONG COL. B
3545.17	16958.00
3545.58	16959.00
3546.00	17000.00

TABLE 1

plot of the points on the line intersecting between subareas 513 and 518, 519.

pg. 1



Map Section showing the line that the points of Table 1 follow.

LAT COL. A	LONG COL. B
5546.41	17001.00
5546.82	17002.00
5547.23	17003.00
5547.64	17004.00
5548.05	17005.00
5548.46	17006.00
5548.87	17007.00
5549.28	17008.00
5549.70	17009.00
5550.11	17010.00
5550.52	17011.00
5550.93	17012.00
5551.34	17013.00
5551.75	17014.00
5552.16	17015.00
5552.57	17016.00
5552.97	17017.00
5553.38	17018.00
5553.79	17019.00
5554.20	17020.00
5554.61	17021.00
5555.02	17022.00
5555.43	17023.00
5555.84	17024.00
5556.25	17025.00
5556.66	17026.00
5557.07	17027.00
5557.48	17028.00
5557.89	17029.00
5558.29	17030.00
5558.70	17031.00
5559.11	17032.00
5559.52	17033.00
5559.93	17034.00
5600.34	17035.00
5600.75	17036.00
5601.15	17037.00
5601.56	17038.00
5601.97	17039.00
5602.38	17040.00
5602.79	17041.00
5603.19	17042.00
5603.60	17043.00
5604.01	17044.00
5604.42	17045.00
5604.83	17046.00
5605.23	17047.00
5605.64	17048.00
5606.05	17049.00
5606.46	17050.00
5606.86	17051.00
5607.27	17052.00
5607.68	17053.00
5608.08	17054.00
5608.49	17055.00
5608.90	17056.00
5609.30	17057.00

LAT COL. A	LONG COL. B
5609.71	17058.00
5610.12	17059.00
5610.52	17100.00
5610.93	17101.00
5611.34	17102.00
5611.74	17103.00
5612.15	17104.00
5612.56	17105.00
5612.96	17106.00
5613.37	17107.00
5613.78	17108.00
5614.18	17109.00
5614.59	17110.00
5614.99	17111.00
5615.40	17112.00
5615.80	17113.00
5616.21	17114.00
5616.62	17115.00
5617.02	17116.00
5617.43	17117.00
5617.83	17118.00
5618.24	17119.00
5618.64	17120.00
5619.05	17121.00
5619.45	17122.00
5619.86	17123.00
5620.26	17124.00
5620.67	17125.00
5621.07	17126.00
5621.48	17127.00
5621.88	17128.00
5622.29	17129.00
5622.69	17130.00
5623.09	17131.00
5623.50	17132.00
5623.90	17133.00
5624.31	17134.00
5624.71	17135.00
5625.12	17136.00
5625.52	17137.00
5625.92	17138.00
5626.33	17139.00
5626.73	17140.00
5627.13	17141.00
5627.54	17142.00
5627.94	17143.00
5628.35	17144.00
5628.75	17145.00
5629.15	17146.00
5629.56	17147.00
5629.96	17148.00
5630.36	17149.00
5630.76	17150.00
5631.17	17151.00
5631.57	17152.00
5631.97	17153.00
5632.38	17154.00
5632.78	17155.00
5633.18	17156.00
5633.58	17157.00

LAT COL. A	LONG COL. B
5633.99	17158.00
5634.39	17159.00
5634.79	17200.00
5635.19	17201.00
5635.60	17202.00
5636.00	17203.00
5636.40	17204.00
5636.80	17205.00
5637.20	17206.00
5637.61	17207.00
5638.01	17208.00
5638.41	17209.00
5638.81	17210.00
5639.21	17211.00
5639.61	17212.00
5640.01	17213.00
5640.42	17214.00
5640.82	17215.00
5641.22	17216.00
5641.62	17217.00
5642.02	17218.00
5642.42	17219.00
5642.82	17220.00
5643.22	17221.00
5643.62	17222.00
5644.02	17223.00
5644.43	17224.00
5644.83	17225.00
5645.23	17226.00
5645.63	17227.00
5646.03	17228.00
5646.43	17229.00
5646.83	17230.00
5647.23	17231.00
5647.63	17232.00
5648.03	17233.00
5648.43	17234.00
5648.83	17235.00
5649.23	17236.00
5649.63	17237.00
5650.03	17238.00
5650.43	17239.00
5650.83	17240.00
5651.23	17241.00
5651.62	17242.00
5652.02	17243.00
5652.42	17244.00
5652.82	17245.00
5653.22	17246.00
5653.62	17247.00
5654.02	17248.00
5654.42	17249.00
5654.82	17250.00
5655.22	17251.00
5655.61	17252.00
5656.01	17253.00
5656.41	17254.00
5656.81	17255.00
5657.21	17256.00
5657.61	17257.00

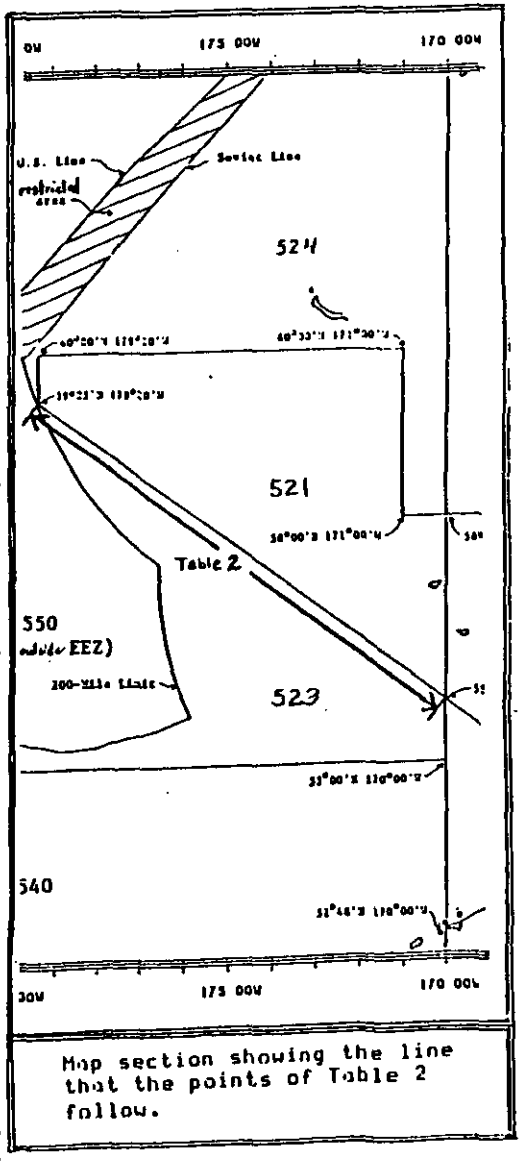
LAT COL. A	LONG COL. B
5658.00	17258.00
5658.40	17259.00
5658.80	17300.00
5659.20	17301.00
5659.60	17302.00
5659.99	17303.00
5700.39	17304.00
5700.79	17305.00
5701.19	17306.00
5701.59	17307.00
5701.98	17308.00
5702.38	17309.00
5702.78	17310.00
5703.17	17311.00
5703.57	17312.00
5703.97	17313.00
5704.37	17314.00
5704.76	17315.00
5705.16	17316.00
5705.56	17317.00
5705.95	17318.00
5706.35	17319.00
5706.75	17320.00
5707.14	17321.00
5707.54	17322.00
5707.94	17323.00
5708.33	17324.00
5708.73	17325.00
5709.13	17326.00
5709.52	17327.00
5709.92	17328.00
5710.31	17329.00
5710.71	17330.00
5711.11	17331.00
5711.50	17332.00
5711.90	17333.00
5712.29	17334.00
5712.69	17335.00
5713.08	17336.00
5713.48	17337.00
5713.87	17338.00
5714.27	17339.00
5714.67	17340.00
5715.06	17341.00
5715.46	17342.00
5715.85	17343.00
5716.25	17344.00
5716.64	17345.00
5717.03	17346.00
5717.43	17347.00
5717.82	17348.00
5718.22	17349.00
5718.61	17350.00
5719.01	17351.00
5719.40	17352.00
5719.80	17353.00
5720.19	17354.00
5720.59	17355.00
5720.98	17356.00
5721.38	17357.00

LAT COL. A	LONG COL. B
5721.77	17358.00
5722.16	17359.00
5722.55	17400.00
5722.95	17401.00
5723.34	17402.00
5723.74	17403.00
5724.13	17404.00
5724.52	17405.00
5724.92	17406.00
5725.31	17407.00
5725.70	17408.00
5726.10	17409.00
5726.49	17410.00
5726.88	17411.00
5727.28	17412.00
5727.67	17413.00
5728.06	17414.00
5728.45	17415.00
5728.85	17416.00
5729.24	17417.00
5729.63	17418.00
5730.02	17419.00
5730.42	17420.00
5730.81	17421.00
5731.20	17422.00
5731.59	17423.00
5731.99	17424.00
5732.38	17425.00
5732.77	17426.00
5733.16	17427.00
5733.55	17428.00
5733.95	17429.00
5734.34	17430.00
5734.73	17431.00
5735.12	17432.00
5735.51	17433.00
5735.90	17434.00
5736.29	17435.00
5736.69	17436.00
5737.08	17437.00
5737.47	17438.00
5737.86	17439.00
5738.25	17440.00
5738.64	17441.00
5739.03	17442.00
5739.42	17443.00
5739.81	17444.00
5740.20	17445.00
5740.59	17446.00
5740.99	17447.00
5741.38	17448.00
5741.77	17449.00
5742.16	17450.00
5742.55	17451.00
5742.94	17452.00
5743.33	17453.00
5743.72	17454.00
5744.11	17455.00
5744.50	17456.00
5744.89	17457.00

TABLE 2

Plot of the points on the line intersecting between subareas 521 and 523.

pgs. 2-3



Map section showing the line that the points of Table 2 follow.

LAT COL. A	LONG COL. B
3745.28	17458.00
3745.67	17459.00
3746.06	17500.00
3746.44	17501.00
3746.83	17502.00
3747.22	17503.00
3747.61	17504.00
3748.00	17505.00
3748.39	17506.00
3748.78	17507.00
3749.17	17508.00
3749.56	17509.00
3749.95	17510.00
3750.34	17511.00
3750.73	17512.00
3751.11	17513.00
3751.50	17514.00
3751.89	17515.00
3752.28	17516.00
3752.67	17517.00
3753.06	17518.00
3753.44	17519.00
3753.83	17520.00
3754.22	17521.00
3754.61	17522.00
3755.00	17523.00
3755.38	17524.00
3755.77	17525.00
3756.16	17526.00
3756.55	17527.00
3756.94	17528.00
3757.32	17529.00
3757.71	17530.00
3758.10	17531.00
3758.49	17532.00
3758.87	17533.00
3759.26	17534.00
3759.65	17535.00
3800.03	17536.00
3800.42	17537.00
3800.81	17538.00
3801.20	17539.00
3801.58	17540.00
3801.97	17541.00
3802.36	17542.00
3802.74	17543.00
3803.13	17544.00
3803.52	17545.00
3803.90	17546.00
3804.29	17547.00
3804.67	17548.00
3805.06	17549.00
3805.45	17550.00
3805.83	17551.00
3806.22	17552.00
3806.60	17553.00
3806.99	17554.00
3807.38	17555.00
3807.76	17556.00
3808.15	17557.00

LAT COL. A	LONG COL. B
3808.53	17558.00
3808.92	17559.00
3809.30	17600.00
3809.69	17601.00
3810.07	17602.00
3810.46	17603.00
3810.84	17604.00
3811.23	17605.00
3811.61	17606.00
3812.00	17607.00
3812.38	17608.00
3812.77	17609.00
3813.15	17610.00
3813.54	17611.00
3813.92	17612.00
3814.31	17613.00
3814.69	17614.00
3815.08	17615.00
3815.46	17616.00
3815.85	17617.00
3816.23	17618.00
3816.61	17619.00
3817.00	17620.00
3817.38	17621.00
3817.77	17622.00
3818.15	17623.00
3818.53	17624.00
3818.92	17625.00
3819.30	17626.00
3819.68	17627.00
3820.07	17628.00
3820.45	17629.00
3820.83	17630.00
3821.22	17631.00
3821.60	17632.00
3821.98	17633.00
3822.37	17634.00
3822.75	17635.00
3823.13	17636.00
3823.52	17637.00
3823.90	17638.00
3824.28	17639.00
3824.66	17640.00
3825.05	17641.00
3825.43	17642.00
3825.81	17643.00
3826.19	17644.00
3826.58	17645.00
3826.96	17646.00
3827.34	17647.00
3827.72	17648.00
3828.10	17649.00
3828.49	17650.00
3828.87	17651.00
3829.25	17652.00
3829.63	17653.00
3830.01	17654.00
3830.40	17655.00
3830.78	17656.00
3831.16	17657.00

LAT COL. A	LONG COL. B
3831.54	17658.00
3831.92	17659.00
3832.30	17700.00
3832.68	17701.00
3833.06	17702.00
3833.45	17703.00
3833.83	17704.00
3834.21	17705.00
3834.59	17706.00
3834.97	17707.00
3835.35	17708.00
3835.73	17709.00
3836.11	17710.00
3836.49	17711.00
3836.87	17712.00
3837.25	17713.00
3837.63	17714.00
3838.01	17715.00
3838.39	17716.00
3838.77	17717.00
3839.15	17718.00
3839.53	17719.00
3839.91	17720.00
3840.29	17721.00
3840.67	17722.00
3841.05	17723.00
3841.43	17724.00
3841.81	17725.00
3842.19	17726.00
3842.57	17727.00
3842.95	17728.00
3843.33	17729.00
3843.71	17730.00
3844.09	17731.00
3844.47	17732.00
3844.84	17733.00
3845.22	17734.00
3845.60	17735.00
3845.98	17736.00
3846.36	17737.00
3846.74	17738.00
3847.12	17739.00
3847.50	17740.00
3847.87	17741.00
3848.25	17742.00
3848.63	17743.00
3849.01	17744.00
3849.39	17745.00
3849.77	17746.00
3850.14	17747.00
3850.52	17748.00
3850.90	17749.00
3851.28	17750.00
3851.65	17751.00
3852.03	17752.00
3852.41	17753.00
3852.79	17754.00
3853.17	17755.00
3853.54	17756.00
3853.92	17757.00

LAT COL. A	LONG COL. B
3854.30	17758.00
3854.67	17759.00
3855.05	17800.00
3855.43	17801.00
3855.81	17802.00
3856.18	17803.00
3856.56	17804.00
3856.94	17805.00
3857.31	17806.00
3857.69	17807.00
3858.07	17808.00
3858.44	17809.00
3858.82	17810.00
3859.20	17811.00
3859.57	17812.00
3859.95	17813.00
3900.32	17814.00
3900.70	17815.00
3901.08	17816.00
3901.45	17817.00
3901.83	17818.00
3902.20	17819.00
3902.58	17820.00
3902.96	17821.00
3903.33	17822.00
3903.71	17823.00
3904.08	17824.00
3904.46	17825.00
3904.83	17826.00
3905.21	17827.00
3905.58	17828.00
3905.96	17829.00
3906.33	17830.00
3906.71	17831.00
3907.08	17832.00
3907.46	17833.00
3907.83	17834.00
3908.21	17835.00
3908.58	17836.00
3908.96	17837.00
3909.33	17838.00
3909.71	17839.00
3910.08	17840.00
3910.45	17841.00
3910.83	17842.00
3911.20	17843.00
3911.58	17844.00
3911.95	17845.00
3912.33	17846.00
3912.70	17847.00
3913.07	17848.00
3913.45	17849.00
3913.82	17850.00
3914.19	17851.00
3914.57	17852.00
3914.94	17853.00
3915.31	17854.00
3915.69	17855.00
3916.06	17856.00
3916.43	17857.00

LAT COL. A	LONG COL. B
3916.81	17858.00
3917.18	17859.00
3917.55	17900.00
3917.93	17901.00
3918.30	17902.00
3918.67	17903.00
3919.05	17904.00
3919.42	17905.00
3919.79	17906.00
3920.16	17907.00
3920.54	17908.00
3920.91	17909.00
3921.28	17910.00
3921.65	17911.00
3922.02	17912.00
3922.40	17913.00
3922.77	17914.00
3923.14	17915.00
3923.51	17916.00
3923.88	17917.00
3924.26	17918.00
3924.63	17919.00
3925.00	17920.00

SPECIAL PROJECTS AND ASSIGNMENTS

AGE STRUCTURE SAMPLING

Otoliths, or ear bones are the structures collected for age determination for most commercial species. From salmon though, scales not otoliths are collected. Scales and otoliths are taken from Pacific cod. Scales and otoliths are read in a similar manner as tree rings to determine age. If given this project, the species assigned is usually the target species of the vessel. One exception is if your longline or pot vessel is targeting sablefish (black cod). Age structures are not needed from that species. You may be asked to work on a specific species, or perhaps given several species to choose from. If given a choice, your sampling species (one) will be dependent upon on what is abundant in the catches of your vessel. When you know your what your sample species is, consult the table for "Age Structure Sample Type and Storage Media" on page 8 of this section.

Once the species is selected, the fish you take age structures from must first be from a random sample of the catch, and subsequently are selected by length. Therefore, the fish sampled should be a subset of those in your length frequency sample. (An exception would be when taking the otoliths or scales of a tagged fish.) Thus, the term "random stratified" means a collection based on length, from the random length frequency sample of fish.

A maximum of five pairs of otoliths per sex for each centimeter length group are to be taken for this type of collection (5 males and 5 females of each centimeter group). Do not be concerned if after filling your vials you do not have a complete set of five pairs of otoliths per sex for each centimeter length group that you observed. It is expected that you will have only a scattering of one or two samples from fish whose lengths are at the extremes of the size range you see. The object of this collection is not to complete the 5/cm/sex categories on the tally sheet or to fill all the vials. The object is to obtain age structures from most of the commonly observed length groups in the length frequency collection so that age and length information can be used to evaluate the status of the fish populations.

Age structures are always collected while taking length-frequency measurements by sex from the sampling species (except sablefish). A running tally of your age structure collection on your plastic form 9 helps you keep track of what sizes and sex of fish are still needed. (See an example of the plastic form 9 format on a following page.) Thus a cumulative tally should be maintained for the sampling species, for each collection. (Usually an observer makes only one collection of one species and a collection should be completed on one vessel.) After taking the length measurement, if the fish is of a size and sex needed, weigh the fish with the 2.0 kg or 12.0 kg scale. Record weight, sex, and length on the plastic form 9 next to the vial number in which the otoliths (or otoliths and scales in the case of cod) are placed. The otolith vials are to be filled in numerical order and the sexes should be grouped.

Remove the pair of otoliths from each fish. Clean the otoliths by rubbing them between your fingers in water, or on a wet sponge or cloth to remove slime and tissue. Place them in the vial dry. Place one set of two otoliths in each vial. It is extremely important to get the otoliths clean before storing them. If they are extracted fairly cleanly, rinse them anyway before dropping them in the

vial. Try not to get any water in the vial as it will provide a media for bacteria growth. At the end of the measuring period, the plastic Form 9 should be completed with species name, haul or set number, otolith number, and all corresponding sex, length, and weight data.

When you are preparing to turn your data and specimens in during debriefing, you must obtain the appropriate storage media, if any, (refer to the table which follows) and add it to each vial. Cover the age structures with the appropriate fluid (if any) and cap it. Most roundfish otoliths are stored in a 50% ethyl alcohol--50% fresh water solution. Flatfish otoliths are stored in the glycerol solution as provided. **Do <u>not</u> use isopropyl (rubbing) alcohol for storage media as it will destroy the otoliths.**

Age structure assignments may be assigned for the "first half" or "second half" of your time at sea. The purpose of this is to spread out the collection effort of all samplers over time. This request can be adjusted as necessary to conform with your period aboard one vessel. Age structure collections are "by vessel" and so should be completed on one boat. Try not to collect more than 20 age structures per day (10 males and 10 females). We would like the collection to be made over the duration of your sampling time on one boat, not in one or two days.

It is very important to have a clear understanding of the sampling scheme. A mistake in the numbering sequence or procedure used to relate the otoliths to associated biological data can make a collection useless. If it is necessary to take more otoliths of the same species on a second ship, continue with the same numbering sequence but start the second collection over with a new otolith tally sheet because it will be a new collection.

Plastic Form 9US

Running tally keeps track of what sexes and sizes have already been filled. It should not be erased until the end of the collection.

These four columns are transferred to the paper Form 9US and erased after every sample

Notice that the sexes are seperated.

Vial No.	Sex	Length	Weight	Hand select	Running Tally cm	M	F	cm	M	F	cm	M	F
65	M	32	.80		30			60			0		
66	M	40	.95		1	i		1			1		
67	M	35	.93		2	⌐	i	2			2		
68	M	34	.85		3	⌐	I	3			3		
69	M	34	.89		4	□	⊓	4			4		
70	M	42	.96		5	⊓	⌐	5			5		
71	M	44	.96		6	⌐	i	6			6		
72	M	33	.80		7	⊠	⌐	7			7		
73	M	35	.86		8	⌐	⊓	8			8		
74	M	34	.83		39	⊓	⊠	69			9		
75	F	34	.90		40	⊠	⌐	0			0		
76	F	35	.93		1	⌐	⊠	1			1		
77	F	33	.80		2	⊓	⊠	2			2		
78	F	43	.95		3	I	⌐	3			3		
79	F	34	.91		4	⊠	i	4			4		
80	F	45	1.05		5		⌐	5			5		
81	F	47	1.20		6	i		6			6		
82	F	43	.95		7		I	7			7		
83	F	34	.82		8	I		8			8		
84	F	38	.88		49	⌐		9			9		
					50		I	0			0		
					1	I	I	1					
					2			2					
					3		I	3					
					4			4					
					5			5					
					6			6					
					7			7					
					8			8					
					59			9					

Otoliths and Scales
Plastic Form 9
Haul/sample No. 101
Species Pollock

★ GPO 1985 JACKET #594-409

The blank in the tens position of the length allows the observer to vary the size categories according to the species being used.

Jane Observer
"Sea Gull"

AREA 521 **FORM 9US - BIOLOGICAL SAMPLING FORM** Page 1 of 12

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16-18	20-21	22-23
1		91	09	17	Walleye pollock	201	1	1

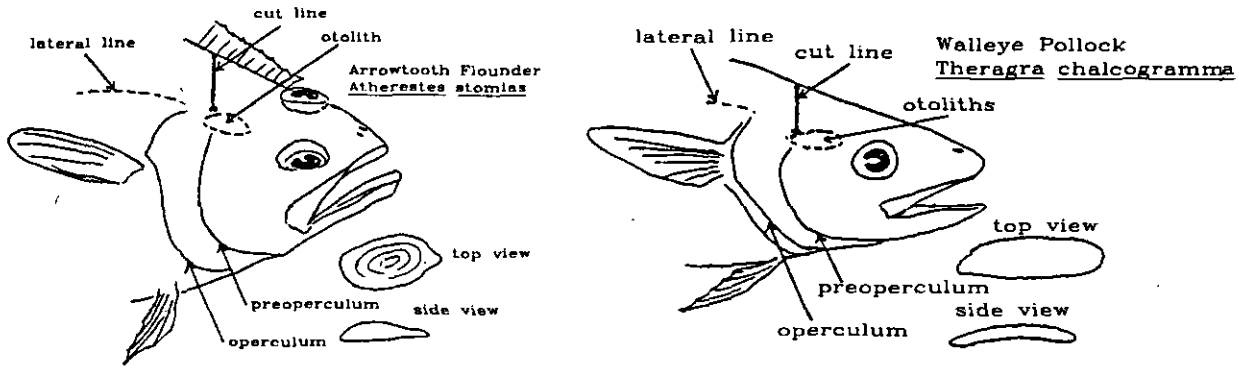
Total no. of specimens _____

Catalogue date _____

	Set/haul number	Specimen number	Sex	Length (cm)	Weight (kg)	Form 7	Maturity stage	Notes	Age	REMARKS
	25 26 27	28 29 30	31	32 33 34	35 36 37 38 39	41	42 43	44 45	47 48 49	
1	101	65	M	32	.80	Y				
2		66		40	.95					
3		67		35	.93					
4		68		34	.85					
5		69		34	.89					
6		70		42	.96					
7		71		44	.96					
8		72		33	.80					
9		73		35	.86					
10		74	M	34	.83					
11		75	F	34	.90					
12		76		35	.93					
13		77		33	.80					
14		78		43	.95					
15		79		34	.91					
16		80		45	1.05					
17		81		47	1.20					
18		82		43	.95					
19		83		34	.82					
20	101	84	F	38	.88	Y				
21					.					
22					.					
23					.					
24					.					
25					.					
26					.					
27					.					
28					.					
29					.					
30					.					
31					.					
32					.					
33					.					
34					.					
35					.					
36					.					
37					.					

Otolith Removal

The otoliths are located ventrally and to either side of the brain tissue, about one eye diameter behind the eye in most fishes (refer to the diagram below). There are three common methods of cutting into a fish's head to remove this pair of otoliths. On a roundfish, a horizontal cut, in an anterior to posterior direction which cuts off the top of the head can be done to expose the otolith cavity. This cavity can also be reached by going into the back of the mouth with a pair of forceps or scalpel and piercing up through the roof of the mouth. The easiest method to use in locating and removing otoliths is to make a vertical cut down through the top of the head to the location of the otolith pocket. This point is located by this simple rule of thumb: On the side of the fish's head, if you were to make a hypothetical extension of the lateral line and of the curve of the preopercular bone, determine the point at which these two lines would meet. Cut down to that point. Firmly grasp the fish by putting thumb and forefinger into the eye sockets. Bear down on the knife with even pressure as you cut through the bone of the head. Pay attention to the amount of pressure you are required to apply to make this cut. As soon as the cutting gets easier, let up on the knife or you will slice through the otoliths. Put down the knife and break the head open. If you have cut to the correct point, the otolith cavities (one on each side of the brain) will break open and expose the white, calcareous otoliths. They are then easily picked out with forceps and should be wiped clean before storage.



Approximate location of the otoliths (sagittal) and the cut for the removal of otoliths from flatfish (left figure) and roundfish (right figure).

Care should be taken not to break or crack the otoliths, but if an otolith is broken, and if the fish is of an uncommon size, include all pieces in the vial. Otherwise simply discard the otoliths because you will probably see fish of that sex and size again and it is extremely difficult to determine the age of broken otoliths.

Start with the lowest number of the vial number sequence when starting your collection and fill consecutively numbered vials. Attempt to take some otoliths each sampling day if the species seems readily available. We prefer that you collect fewer than 20 otoliths per day (10 males and 10 females). When a sample species is seldom seen in quantity, however, you may want to take advantage of hauls containing many specimens and collect more otoliths/scales on those days.

On special collection projects use the same otolith number to identify and label the additional structures taken (such as scales, vertebrae, fin rays, etc.). The numbers on those structures will then correspond to the sex, length, and weight information for that fish on Form 9US. There is no need to fill out an additional Form 9US unless instructed to do so.

Atka Mackerel Otolith Removal

Fish with bony skulls and small otoliths, such as sablefish, Atka mackerel and some rockfish, may pose problems at first. The horizontal cut, shown here, works best for these fish.

Figure 1

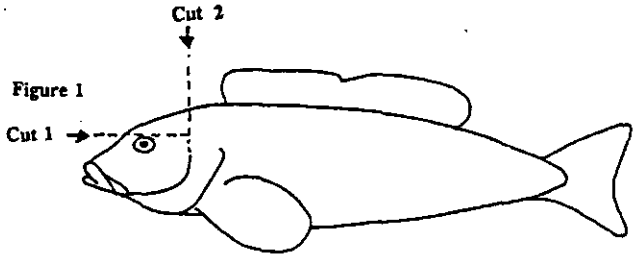


Figure 2

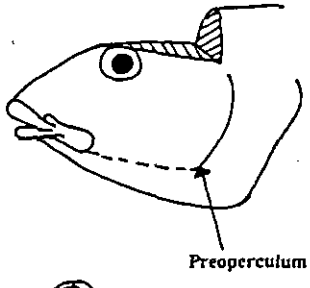
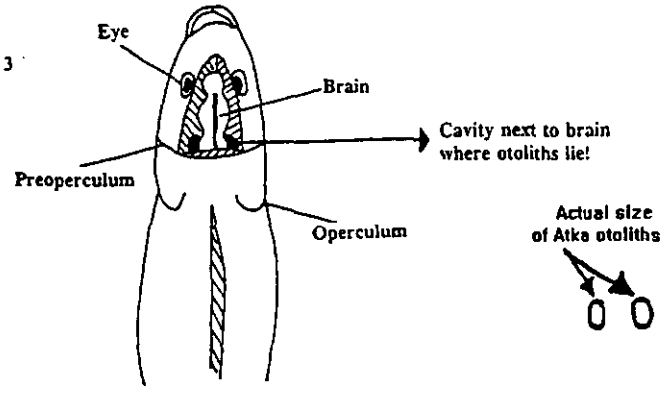


Figure 3



1. First make a horizontal cut that will pass right above the eye and up to the preoperculum (Fig. 1). Then start right above the preoperculum and slice down until you meet with the other cut.

2. Remove the top of the head (Fig. 2 and 3). You should see the brain.

3. The otoliths are in cavities under and to either side of the brain (Fig. 3). Lift the brain tissue up and out of your way. The otoliths should lie right underneath.

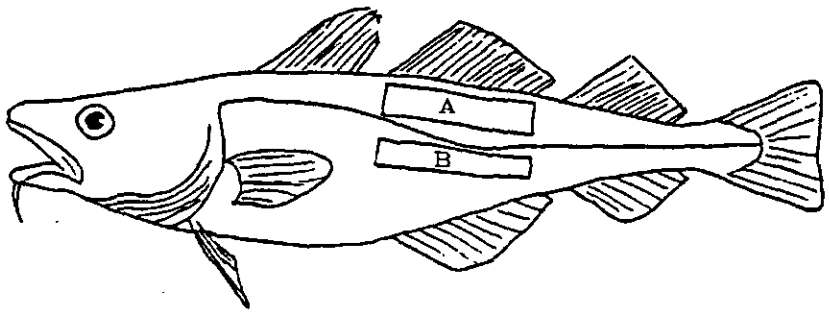
Take your time practicing with a few fish to make sure you get a good feeling for where the otoliths are. Then the otolith collecting should go much easier. If a lot of blood fills the head cavity (a big problem with Atka mackerel),

you probably cut too deep. Flush the cavity out with some water. Don't try to get the otoliths by turning the fish upside down and hitting it against a board. The otoliths are too small and it's unlikely you'd find them.

Pacific Cod Age Structure Sampling

From Pacific cod, **scales as well as otoliths should be taken** from a sample stratified by length and sex as explained above. To collect scales, first rinse the fish off or lightly wipe down the sides with a very wet sponge to remove scales of other fish and slime. There are two preferred body zones from which to take scales, see the figure below. Zone "A" is preferred over zone "B." Use a clean, thin-edged instrument (knife, scalpel, forceps) to scrape in an anterior direction (toward the head), within zone A or B if possible. Cod scales are much smaller than salmon scales so a scrape sample is necessary.

Cod scales should be put into the vials with the otoliths instead of into scale envelopes. In debriefing, the vials will have to be opened and alcohol added to cover the age structures. So when collecting, the scales should be smeared off down in the vial as opposed to scraping them off on the vial rim so they are not clumped and stuck together too thickly, they will be immersed when alcohol is added and they will not get lost when the vial is opened and closed. Clean any remaining scales off the instrument before sampling the next fish.



PACIFIC COD - Scrape along either side of the back directly below the second dorsal fin.

Age Structure Sample Type and Storage Media

Species	Sample Type	Storage Container	Storage Media
Walleye pollock	Otolith	Plastic vial	50% ethyl alcohol 50% water
Yellowfin sole (or other flatfish)	Otolith	Plastic vial	Glycerol/Thymol Solution
Atka mackerel	Otolith	Plastic vial	50% ethyl alcohol 50% water
Pacific cod	Otolith & Scale (both in same vial)	Plastic vial	50% ethyl alcohol 50% water
Pacific hake	Otolith	Plastic vial	50% ethyl alcohol 50% water
Jack mackerel	Otolith	Plastic vial	Dry
Sablefish (tagged fish only)	Otolith	Plastic vial	50% ethyl alcohol 50% water
Salmon	Scale	Paper envelope	Dry
Rockfish	Otolith	Plastic vial	50% ethyl alcohol 50% water

Note: **Ethyl alcohol** is the same compound as ethanol but **not the same as denatured or rubbing alcohol**. Do not use storage media other than that obtained from an NMFS program office.

CDQ FISHERY - DEVELOPMENT TO THE PRESENT

The Western Alaska Community Development Quota (CDQ) program for pollock was established under Amendment 18 to the Bering Sea and Aleutian Islands Fisheries Management Plan (the "inshore/offshore" amendment) which was approved by the Secretary of Commerce in 1992. The CDQ program is intended to help develop commercial fisheries in western Alaska communities. Amendment 18 provided for an annual allocation of 7.5 percent of the BSAI pollock total allowable catch (TAC) to the "CDQ reserve." This amount represents one-half of the annual non-specific reserve of pollock with a total annual tonnage in 1992 and '93 of 101,445.0 mt.

Pollock CDQs are assigned to organizations representing eligible Western Alaska communities who have submitted a Community Development Plan (CDP) that has been approved by the Governor of Alaska and the Secretary of Commerce. Each approved CDP receives a portion of the overall pollock "CDQ reserve." The harvest and processing of these CDP quota allocations are typically carried out by established fishing companies and their harvesting or processing vessels and plants either by purchasing the fish outright or by entering into partnerships with the various organizations. To date, six CDPs have been submitted and approved with each having from one to several processors harvesting the CDP's allotted quotas.

In open access fisheries, many individual vessels are attempting to maximize the proportion of the overall quota they harvest before the fishery closes upon reaching the established total allowable catch (TAC) or a prohibited species bycatch allowance. During open access, the individual vessel is not limited by their own harvests, but rather by the closure of the fishery due to the combined action of the fleet. Under this system, there is no direct cost to the individual processor for fish that they have caught. If total catch is over or underestimated for an individual processor, that error is distributed among all of the fishery participants in aggregated data.

In CDQ fisheries, each CDP has their own quota which they in turn allocate to their contracted or partner processors. In some cases, processors have been allotted a specific amount by their CDP, in others they have simply been accountable for their catch as a part of the overall CDP's quota. In either case, the derivation of total catch on an individual processor basis takes on an immediate economic dimension because the processor must compensate the CDP for the fish they are reported to have caught. If the processor's harvest is over-estimated, they pay for fish they did not catch. If, on the other hand, the processor's harvest is underestimated, they get fish they don't have to pay for.

Ultimately, NMFS is responsible for informing each CDP's designated representative if or when their quota has been exceeded. Each CDP's managing organization is responsible for managing their contracted or partner processors in a manner that prevents them from exceeding their quota. Both NMFS and the CDP representatives track the pollock quota by using the 2US and CMA data sent daily. The vessels may also take part in this by tracking their own harvest using your 2US and CMA data so a copy should be provided to vessel personnel if requested. Do not, however, calculate the vessel's pollock catch as your method of doing so may differ from the method NMFS uses. Please refer these questions on to the NMFS Regional Office in Juneau or to the appropriate CDP representative.

1996 CDQ Participants

Note: This 1996 list is provided as a guide. These contractual relationships are subject to change throughout the season. Please consult the logbook and vessel master to determine which CDQ plan your vessel is fishing under.

Aleutian Pribilof Island Community Development Association -CDQ9651

Starbound
Trident Seafoods, Akutan
Claymore Sea
Heather Sea
Saga Sea

Bristol Bay Economic Development Association - CDQ9652

Arctic Storm
Arctic Fjord

Central Bering Sea Fisherman's Association - CDQ9653

Pacific Explorer
Pacific Scout
American Triumph
Pacific Navigator
American Empress
American Dynasty
Ocean Rover

Coastal Villages Fishing Cooperative - CDQ9654

Browns Point
Westward Seafoods
Golden Alaska

Norton Sound Economic Development Corporation -CDQ9655

Northern Glacier
Pacific Glacier

Yukon Delta Fisheries Development Association - CDQ9656

Golden Alaska
Browns Point
Highland Light

Observer Instructions for CDQ Fisheries

Processor Vessels - C/P and Motherships: Two observers will be assigned to each processor vessel. Your first priority is to obtain independent volumetric estimates on all hauls and report the information on the 2US and CMA on a daily basis. Sending a daily FAX (not COMS) of the 2US and CMA to the NMFS Regional Office in Juneau is required from the outset of CDQ fishing. A weekly or trip-by-trip message including the 2US, CMA, CMB, and Inseason Halibut Viability Form will still need to be sent to the Observer Program in Seattle. Detailed instructions for the daily messages follow in this section.

The lead observer will usually be the first observer on the vessel if a second observer joins them later for CDQ fishing. If both observers board the vessel at the same time, the observer who will remain aboard the vessel after CDQ fishing should be the lead. If there is any question as to who should be the lead observer on your vessel, contact the Seattle office for this decision. The two observers should compile a single set of vessel sampling data and catch messages. The lead observer has the responsibility for keeping the entire set of vessel data and bringing it through debriefing. This includes special project data forms and specimens and salmon scales collected on that vessel by either observer. The non-lead observer who goes on to another assignment after the CDQ boat should begin their salmon scale collection over again.

Fill out only a single set of 2US forms, regardless of starting or ending CDQ fishing or fishing for more than one Community Development Plan. Remember, fill out separate CMA's and CMB's for each fishery or quota fished for in one week, but keep only one set of 2US forms.

In our experience, two observers usually end up rotating twelve hour shifts. **The total catch estimation method must be the same for the two observers on one processor vessel.** Each observer may use different composition sampling methods as long as they conform to the program guidelines. The primary objectives are to make observer estimates of every haul and sample at least all the hauls selected by the RST. However, with the increased work capacity of two observers, our next priorities are for you to 1) work on improving the accuracy of the volumetric catch weight estimations, 2) sample more hauls, then 3) increase sample sizes (in this order). If there is a difference of opinion between observers or with vessel personnel on priorities or methodology, be sure to contact one of our offices for clarification.

The Official Total Catch weight on CDQ processor vessels (except the Alaska Ocean) is a volumetric estimate made by observers from certified and marked bins (the Alaska Ocean has an in-line conveyor weighing system). Refer to the regulations section under "Western Alaska Community Development Program" regarding the requirements for certified bins. Utilize the certified bin measurements for your weight estimate and use your estimate for the OTC. Record your estimate in the OTC and Observer Estimate columns for every haul. The manual lists several options for estimating OTC. For observers on CDQ processor vessels however, observer estimation using the certified bin documentation, is the only method to be used.

While aboard, if there are any problems regarding the volumetric requirements, or if vessel personnel are trying to influence you about some aspect of your work, please contact an Observer Program office. It is expected that cooperation by vessel personnel will be provided to enable

accurate total catch estimates. For example, vessel personnel may have to meet the requirement to notify you when hauls are being retrieved. For bin volumes, they may have to hold up processing (particularly if you are whole haul sampling) to allow you the time to record fish height in the tank to determine volume of a haul. If you are not able to make good bin volume estimates due to a lack of cooperation from the vessel personnel, please contact a NMFS Observer Program office as soon as possible with details.

Observers should use a density factor of 0.93 if pollock makes up 95% or more of the catch. For **each haul** that you see or suspect from your samples that the bycatch may make up more than 5% of the total catch, sample for density as per manual instructions. Use a container larger (or better) than your baskets if possible. This calculation should be recorded in the density column of your logbook. Use your sample densities whenever the bycatch rate is greater than 5%. When bycatch is less than 5% of catch weight, use .93 for volume to weight calculations.

The Random Sample Table of the lead observer is the table to be used by both observers. All the "on" hauls must be sampled by one or the other observer and then additional hauls should be sampled in most cases. (Observers <u>can</u> sample a haul by working together as long as all the "on" hauls are sampled and usually additional hauls as well.) The break table should not be used and additional "off" hauls should be sampled as time permits. In many cases, all of the hauls can be sampled.

Daily Messages For CDQ Processor Vessel Observers: The CDQ pollock fishery requires excellent communication and cooperation of observers with Mary Furuness in the NMFS Juneau Regional Office. The basis for CDQ management is observer data, and the quotas are relatively small. To provide data to manage this fishery, catch and composition data must be sent to the Juneau Regional Office daily.

There are several specific instructions you will need to follow in sending Daily 2US and CMA messages during CDQ operations:

1. ***Observers on vessels fishing CDQ need to send their 2US and CMA forms daily via FAX to the NMFS Regional Office in Juneau at FAX 907-586-7131. Send a daily message via FAX during CDQ regardless of whether the vessels have COMS capability.*** The sending of the 2US and CMA replaces the previous use of the CMD message. Commence sending the 2US and CMA message to Juneau the first day you start fishing CDQ and continue sending a message each day until CDQ is ended. **If you do not fish during a day, please send a message so that we know this.**

2. The CDQ number identifies a specific group and is recorded in the vessel's logbook. Typically, this will be CDQ9751, CDQ9752, etc. For vessel records, the number has three components: CDQ identifies the Community Development Quota program; the next two digits identify the year; the last two digits are a number specific to each group. Remember, for entry on your 2US shorten this number to "C" and the last two digits, such as C51 and C52. If a vessel fishes on two different CDQs in any given day, the vessel is required to keep these tows on separate logbook pages.

3. This fishery is being managed directly from 2US and CMA observer data. Therefore, **if you discover an error on a message that has already been sent, please send Juneau a plain sheet FAX with your name, vessel name, week ending date, haul number, original value, and new value on it.**

4. If your vessel has COMS, you will need to be submitting the salmon retention daily via COMS to Seattle as well as the 2US and CMA FAX'ed daily to Juneau.

Observers on Catcher Vessels: Catcher vessels will only have one observer. The OTC weight will be obtained by proportioned delivery weight plus the weight of any fish discarded at sea. The delivery weight may be proportioned by either the observer's or the skipper's catch estimates. Daily messages are required from the plant observer regarding the delivery information so do not worry about transmitting catch data from sea. It is necessary for the plant observer to, 1) report the pollock deliveries for Bering Sea areas separately from catches in the Aleutian Islands and 2) to include the weight of any pollock discarded at sea. Be sure to provide the plant observer with this information.

Shoreside Plant Observers: The daily message required from deliveries to shoreside plants is different from the format explained for c/p observers (see below). The managers need the daily total of CDQ pollock weight delivered plus the weight of any pollock discarded at sea, reported separately by Bering Sea versus Aleutian Islands areas, and by vessel (name). Plant observers should ask at the plant office for the appropriate CDQ number to include on their message.

Shoreside Plant Observer Daily Report:
Observer Name
Plant name
CDQ number (use the complete number format, such as CDQ9751)
Date

Then for each vessel: Vessel name
Area (Bering Sea or Aleutian Islands)
Total pollock delivered
Total pollock discarded at sea (as reported by the vessel observer)

A caution: Look at the sorting and processing line. If discard pollock are sorted off the line (along with other bycatch species) before the retained pollock are weighed, be sure to get the weight of pollock discarded by the plant and add it to the weight of the pollock that went on to processing. Remember, the weight of pollock caught includes discards at sea and all pollock delivered.

If you have any questions concerning these instructions contact the Seattle or Dutch Harbor office. The Dutch Harbor office (when its open) can be reached via SSB between 1000-1100 on frequency 4146 or between 1400-1500 on frequency 6227.

SAMPLING SHRIMP TOWS

As groundfish seasons have been shortened some vessels are experimenting with shrimp fishing. Shrimp are managed by the State of Alaska; there is not a Federal Management Plan for shrimp. We are able to place observers on board these vessels because 1) they have volunteered to take observers or 2) they may alternate shrimp and groundfish operations or will keep some of their groundfish bycatch. The following set of instructions will give you information on sampling the catch and recording the data. Since this is a new fishery for us, situations may arise that we haven't addressed here; if you have any questions at all please contact our office. Species identification information is in the Species Identification manual.

FORMS: Since the ship will be able to retain incidentally caught groundfish species (in accordance with current regulations) you should record all data from the shrimp tows on the same set of forms as groundfish data.

Form 2US: On Form 2US leave the gear code blank and indicate somewhere on the form which tows are shrimp tows. All tows should be numbered consecutively, regardless of target species. We will assign a gear code later. OTC and Observer's estimate should be calculated using our usual methods.

FORM 3US: On the top of the Form 3US make a note identifying each shrimp tow. Identify shrimp to species and use the species codes provided. For species occurring in large quantities but for which we have no code, record them by name and leave the code blank. Bring back a sample of the shrimp species and we will assign a code. If you get very small quantities of different species, lump them together and record them as "shrimp unidentified". Groundfish should be identified as usual.

SAMPLING: The shrimp tows will probably be small, but may contain large numbers of shrimp or other small invertebrates. Since shrimp trawls have a codend liner or very small mesh, towing speed will be reduced. This should enable most fish to outswim the net. Try to use the following sampling methods:

Prohibited species - halibut, salmon, crab. Try to whole haul sample for these if possible. If there are large numbers of crab, use a sample size that you feel is appropriate.

Other large species - try to whole haul or partial whole haul sample for species that do not appear in great quantity in the tow or that are easy to pick out. These species will probably include some fish or large invertebrates.

Shrimp and other small animals - basket sample for these. You may want to avoid using large baskets for these samples since the sorting will be very time consuming. If the ship has small baskets see if you can use those. The baskets that are used to hold roe might be a useful size.

Try to avoid having two different sample sizes for species composition: this will cause problems in completing the CMA form. If you conclude that using two sample sizes results in better data or easier sampling, then extrapolate the smaller sample up to the larger sample size in your logbook. The extrapolated data will be entered on the CMA. Do not place the extrapolated data on the 3US

Form. (Note: Do not use two different sample sizes when sampling for target and bycatch composition if your vessel is targeting on something other than shrimp.)

If your ship uses pots, follow pot sampling instructions as outlined in the manual. Use only one sample size for all species. Again, you will probably have to keep your sample size small (sample few pots), depending on the numbers of animals in the pots. If you do pot sample, you will have to start a new set of forms separate from the trawl forms (1US, 3US-for longline and pot, 7US, 9US, 10US, 11US, and Catch Messages Forms).

Please use these species codes:

Code	Common Name	Scientific Name
70	shrimp, unidentified	
46	Arctic Argid	Argis dentata
73	Northern Pink	Pandalus borealis
72	Sidestripe	Pandalopsis dispar
71	Spot	Pandalus platyceros

[Paul Anderson, a NMFS shrimp expert in Kodiak is especially interested in the species Pandalopsis aleutica, so please make an effort to determine whether you are seeing these. (Refer to portion of the key that deals with the genus Pandalopsis for characteristics.) If you see any P. aleutica in your samples, count and weigh these, leaving the species code blank for now and, if possible, do a carapace length frequency. Bring back specimens if feasible.]

FORM 7US: You need to be issued calipers for measuring shrimp. The shrimp should be separated by species, but not by sex. Take length frequencies of the most common species in your sample. Shrimp are measured from the rear of the eye socket to the median of the posterior edge of the carapace. Measure to the nearest whole millimeter and record this data on the Form 7US. In addition, weigh the length frequency sample by species and record that weight in the margin of the Form 7US. Take length frequencies of prohibited species as you normally would.

FORM 9US: Salmon scales would be the only age structure taken and salmon should be rare in shrimp hauls.

FORM 10US AND 11US: Fill out the 10US and 11US as usual.

CATCH MESSAGES: Fill out your catch messages as usual, but label the shrimp tows clearly. All shrimp will be listed under report group code 700. Normally shrimp would be listed under the 900 code for nonallocated species. All other species code should be used as they normally would. For your own information, if the ship does retain groundfish from any shrimp tows they must record that in their logbook and weekly reports.

REPORTS: The Observer Program has very little information on the offshore shrimp fishery; please be very detailed in your explanations. We are particularly interested in the fishing gear being used, the fishing strategies and techniques, and species composition of the catch.

If you have any questions or problems, let us know.

INSTRUCTIONS FOR OBSERVERS ON JIG VESSELS

The use of jig gear in the North Pacific groundfish fisheries has been expanding in recent years, particularly so for smaller vessels targeting Pacific cod in the Bering Sea/Aleutian Islands, and black rockfish in the Gulf of Alaska. Most vessels using jig gear are smaller than 60 feet and are currently exempt from observer coverage. However, some larger vessels participate in these fisheries and take observer coverage. Should you find yourself on a vessel using jig gear, please follow these instructions for sampling and recording your data. Our experience on this gear type is limited so your observations and final reports are especially important. In particular, please advise us if your experiences differ from what this handout indicates.

The Gear Type and Fishing Strategy

Typically, a vessel using jig gear has several automatic jigging machines attached at points along the rail. Each machine has a single monofilament line weighted at the end with several hooks above the weight. The hooks have lures attached and usually are not baited. The automated machines deploy the gear to whatever fishing depth is programmed, or bottom depth. Upon reaching depth, they jig automatically. The more expensive machines can be programmed to sense a set resistance, such as 20 kilograms of fish, and automatically retrieve the gear, or retrieval can be done at the discretion of a crewman.

The strategy employed by jig vessels is similar to sport bottom fishing. The vessel either locates fish, or goes to a probable location, stops the vessel and deploys the gear at a drift. If fish are present, and are amenable to taking the jigs, the catch should commence immediately. Vessels will stay on a site until the fishing activity drops off, and then move to a more productive location. While at any particular site they may move about to some degree in order to drift over a certain spot, rock, ledge or whatever. For our purposes, this represents the same fishing site and the same fishing set.

Form Instructions

1US - On a Jig Vessel please use the 1US form and follow the 1US instructions for longline and pot vessels with the following exceptions:

1. The gear type for jigs is 7.

2. The soak time is the total time from when gear is first deployed in a set until the last jigs are retrieved. Do not get concerned if any given machine breaks down or if the vessel stops fishing momentarily at the same site- all the time on a site is counted as total time no matter how many jigs are deployed, or if there are short stops in fishing.

3. In place of the total number of skates, enter the total number of separate jigging machines that were used in that set.

4. In place of the skate length or pot set length, enter the fishing depth as measured at the bottom of the weight. Do not subtract a fathom or two to account for where the hooks are at on the line. In many cases, fishing depth will equal the bottom depth, but not always such as

when jigging for squid or pelagic rockfish. Of course, fishing depth cannot be greater than bottom depth.

5. In place of the number of hooks or pots per skate, enter the average number of hooks per jigging machine used on that set.

6. Leave the total hooks in the set blank. Because jig gear is generally set and retrieved many times in any given set, this column is not relevant. The total hooks figure on jig vessels cannot be used as on a longliner in extrapolating from hooks observed to total hooks set.

7. The OTC column on jig vessels should be the observer's estimate based on actual weights, or the observer's tally of fish with average weights applied. The catch rates are not comparable to trawl gear and it is often possible to weigh the entire catch. Because trips are short and catch rates relatively low, this methods is possible. If the catch rates are high and you are unable to observe all fish from all machines, it is possible to tally only some of the jig machines, and then extrapolate that tally to the total number of machines used in the set for an OTC figure. Should you miss a set for whatever reason, use the vessel estimate of catch for OTC. However, the few observers who have worked on jig vessels have been able to independently estimate all sets.

3US - On a jig vessel, please use the Form 3US designed for Trawl Vessels. The instructions for sampling are the same as on trawl vessels with the following clarifications which are specific to jig gear.

1. It is usually feasible to whole haul sample a jig set. The sets are not of a long duration, the catch size is small, and the diversity is not too great. If you whole haul sample and actually weigh each fish, enter a B in the sample type column. If you whole haul sample but tally and apply an average weight to fish in your sample, enter a W in the sample type column.

2. If for some reason you are unable to sample the entire set, you can partial haul or basket sample by observing the fish from only some of the jig machines. If you tally fish and apply an average weight to them, enter a P in the sample type. If you weigh all the catch from your sub-sample, enter a B in the sample type.

MID-CRUISE CHECK, REPORTS AND DEBRIEFING

MID-CRUISE CHECK

All observers on their first and second contract are **required** to have a mid-cruise check. Observers on their third contract or more will be notified in briefing if a mid-cruise check is required or not. To check-in, observers should report to the Kodiak or Dutch Harbor office sometime within the first month of their cruise with their data, including logbook, catch messages, and species ID forms. For observers on catcher/processors, this may be during the vessel's first off-load. For shoreside delivery vessels, observers should wait until the second or third delivery.

If the field office is temporarily closed (as on weekends) while you are in port, you should call and leave a message. If the vessel only comes into port on weekends, call the field office from sea. If you are assigned to a remote location, or you're on a vessel which doesn't come into Dutch or Kodiak, or (for whatever reason) you cannot contact the field offices; you are expected to phone, radio or fax the Seattle office for your mid-cruise check. Detailed answers to the following questions and any questions you may have (for each vessel) should be faxed to the office in lieu of your visit.

1. Please describe how Official Total Catch was determined. If the observer estimate was used, how did you obtain the OTC when no observer estimate was made? Explain any formulas used.

2. Describe in detail how the observer estimate was made. How were densities determined? What was the average density value and predominant species in the catch? If certified bin measurements were used, did you find any difficulties? If no observer estimates were made, explain why.

3. Explain in detail the sampling method(s) you used on this vessel. Describe your sampling area, how you collected the samples, and if there were any difficulties.

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

5. Please describe anything that has affected your ability to effectively conduct your work.

Since much of the data observers are collecting is used for in-season management, it is important that the data be recorded as accurately as possible **during** a cruise. Mid-cruise check-ins are an important tool in helping to identify and solve conceptual problems early on in the contract. They may also help in finding some math and paperwork errors, saving the observer time in making corrections during debriefing. Usually the data will not get a thorough enough check to catch minor errors, even if they are repetitive. During a mid-cruise check, observers are reminded of any duties they may have overlooked and are also helped in setting priorities if they are having difficulty completing some duties.

THE DEBRIEFING PROCESS

Debriefing is a process, not a single event. It is as important to your job as the work you do at sea. It consists of the following parts: completion of electronic final reports, the debriefing interview, gear check-in, the pre-keypunch check, and the observer check out. Be prepared to stay as long as it takes to get your data finalized.

At the end of debriefing, you will be evaluated on your performance as an observer. This evaluation is provided to your contractor and kept in your personal file at NMFS. It will include a recommendation for training before your next deployment-- two day briefings, four day briefings, or a three week retraining, and a rating score for each vessel assignment. You will find the rating criteria being used by the debriefing staff at the end of this section. If probation or decertification is recommended, the reasons for the action will be explained.

PREPARING FOR DEBRIEFING

This information has been prepared to help you avoid excessive post-cruise error corrections. If you use this section while at sea and review it as you check your data before a debriefing appointment, most problems will avoided. During the debriefing process, the most important thing for you to do is to maintain a tolerant attitude towards detailed questions and all data corrections. Some of the work requested may seem trivial or redundant but is necessary for quality data processing.

1. While you are at sea, check your work on a regular basis. The cleaner your work is when you return, the faster you will be finished with the debriefing process. Your manual should be your constant companion while you are doing paperwork. Consult your manual and be sure that you are right. Compare the examples of data forms with your own. The examples in the manual are a complete "set" of data, and show the correct format of each form.

2. Logbook: Filling out a logbook while at sea is a requirement. Inside the front cover (in ink) you need to put your name, cruise number, and contractor. Then list your ship's and/or plant names (for all the ships and/or plants that you worked on), the vessel or plant code for each ship or plant, and the dates you were aboard each ship or sampling at each plant. Do not write on the outside of the logbook. Complete your factory/deck diagrams, and sampling area diagrams with labels and notes. Your notes are essential for completing reports and answering questions that may arise about your work.

   Observers who witness fisheries violations may be instructed during debriefing to write an affidavit. These are formal legal statements, so if you encounter violations they must be well documented in your logbook and supported where possible by your data. (Refer to Observer Logbook Entries in section 1 and Steps To Take If You Suspect A Violation in section 9.) If you are required to write an affidavit, remember to write it in formal language and add precise details. You may or may not be contacted at a later date regarding your affidavits.

3. Reports: Prior to the debriefing interview, you will be filling out an electronic report for each vessel you are assigned to. During training you may request a copy of a preliminary questionnaire titled, "Information Required to Complete the Electronic Version of the Final Report." It will help you gather the information required to complete the electronic version of the final report.

4. Your last catch message must have been received before an appointment for debriefing can be made at NMFS. The last catch message, if not sent from the ship, should be sent before departing your port if you are returning to Seattle or as soon as possible.

5. You will need these forms and reports completed when you come in for debriefing:
For trawler observers:
Form 2US, 3US, 7US, CMA, CMB, and the Inseason Halibut Form
Species Identification forms
Preliminary vessel questionnaire in logbook
Other forms you may have include: Any special project forms, tagged fish forms, Form 8 (PRR), 9US, 10US, 11US, Salmon Retention forms.

For longline and pot vessel observers:
Form 1US, 3US, 7US, CMA, CMB, the Inseason Halibut Form
Species Identification forms.
Preliminary vessel questionnaire in logbook
Other forms you may have include: Any special project forms, tagged fish forms, Form 8 (PRR), 9US, 10US and 11US.

For plant observers:
Form A, 7US, and 9US, weekly plant report
Other forms you may have include: tagged fish forms, Form 8 (PRR), Salmon Retention, and plant observer special project forms.

With the exception of the electronic final vessel report, all of these forms should be filled out while you are at sea and must be complete at the time of debriefing. Keeping up with your work at sea becomes especially important if you are deployed on more than one vessel or plant. The speed with which you complete debriefing depends largely on your preparedness.

THE DEBRIEFING PROCESS

When your last catch message has been turned in, and you have all your data and reports completed, let your contractor know so that they may schedule a computer appointment to complete the final report and your debriefing interview. Upon arriving in the city in which you will debrief (Seattle, Kodiak, or Dutch Harbor), the following items must be completed:

1. Sign up in the debriefing office for a gear check-in appointment as soon as possible. Usually you will check in your gear at the place that you checked it out so you may be asked to return your gear at the training center in Anchorage. Your gear must be cleaned before the gear check-in appointment time. In Seattle, the gear check-in procedure occurs two or three times each week. If you have any questions about what is still usable ask a gear person (your debriefer can put you in touch with them).

2. Submit any unsent catch messages as soon as possible. Turn them in at NMFS in Seattle.

3. During debriefing you will be instructed to mount your salmon scales. You will need one paper slip for each species, for each boat. Scale samples of each species need to be placed in re-sealable plastic bags with the scale envelope attached to the outside of each bag. Don't discard any scales! In Seattle, you can ask your debriefer for the instructions and mounting materials.

4. Bring in any special project collections, materials and forms. Make sure otoliths or other special projects are in order. Otolith vials need to be arranged in groups of ten vials (1-10, 11-20, etc.) and the end of the box needs to be labeled properly. Instructions can be obtained from the debriefing staff.

5. Bring in all tags and complete the tagged fish forms.

6. Bring in any collected fish specimens, salmon snouts, or marine mammal snouts. Put them in the freezer and notify your debriefer.

If You Have Questions On Anything, Ask a Debriefer!

The Electronic Final Vessel Report

Your contractor will schedule a computer appointment for you to complete the electronic vessel report prior to the debriefing interview. This appointment will most likely be made the day before you meet with a debriefer to give you ample time to finish all the necessary reports. Several computer stations are set up in the debriefing office and instructions are provided in each station. Once the reports are completed, you will provide the debriefing staff with a print out of all the answers. Your debriefer will review all your reports before the interview so you both can discuss all the details about your deployment. These reports are a synopsis of your activities at sea and should contain enough detail so that any person can understand how you did your work. Even though these

are multiple choice reports, there are many that require you to provide comments. Your comments must be complete with good detail and written with step-by-step logic that is easy to follow.

The Interview

Interview appointments are also made by your contractor and cannot take place until the electronic vessel reports have been completed. *You must bring all your data forms and logbook to the debriefing appointment!!* During your interview, the debriefer will discuss your data collection methods based on the information you provided in the final report. Changes to the reports may be made at this point at the debriefer's discretion. Also, the debriefer will verify your species identification, and review your data forms and logbook for obvious errors.

The most important aspects of the interview are honesty and a willingness to discuss problems and difficulties. We need to know the feasibility of sampling on the various vessels and plants. Observers are our only sources for this kind of information. If you feel you were not able to sample adequately, tell us so we can help you and the next observer. If errors are detected, they must be corrected before you turn in your data for the pre-keypunch check. Potential fisheries or MARPOL regulation violations will be discussed in detail and documented. You may be asked to write affidavits or photocopy your data as evidence.

The Pre-Keypunch Check

This part of debriefing is referred to as a pre-keypunch check because it is a review of your data before it is converted to electronic data (keypunched). All data, biological samples, reports, and logbooks must be submitted for this review. Once you have turned in your data it will be checked on a first come, first served, basis. The debriefers then thoroughly check all your forms and logbook entries. The forms will be sent to keypunchers whose job it is to enter numbers. Their job is NOT interpreting data. Because almost all data are processed by computer, the forms have a specific format and must be filled in correctly. This is where handwriting and arrows for "repeat fields" become critically important. If you try to be creative with your forms, the data may not be entered properly.

As many errors as possible need to be identified before you are finished with debriefing because you may be the only person who can easily correct them. As an example, if there is a mismatch between forms on a date and haul number, only you may know which is correct. A data editor, weeks later, would have to read your logbook, compare all forms and may have to wait months for a vessel logbook to arrive before the correct date for a given haul can be obtained. After a debriefer has pre-keypunch checked your data, it will be returned to you along with a list of needed corrections. The next step is to make the noted corrections. Be sure to follow through corrections on all affected forms and in your logbook. If you make changes to your 1US, 2US, CMA, or CMB; do so in blue pencil. Entries made or circled in blue will alert editors to changes made to the data after your weekly message transmission.

Observer Check-Out

When you have made the noted corrections, submit the list of corrections with the data to a debriefer who will verify that it was completed. At this point, you will be asked to complete an anonymous survey to provide your comments on the observer program. The debriefer will show you your evaluation and send a copy to your contractor. If the debriefer is satisfied with your corrections and you have checked in your gear, you have finished your job.

CHECKING YOUR DATA FORMS

It is important to check and cross-check your data on a daily basis, and not get behind. All haul/set dates in all forms must match up to the date recorded on the 2US/1US forms (the day the gear was retrieved). Cross check (on a regular basis) dates, haul/set numbers, weights, fish numbers, etc. in all forms. The following preparation will make processing your data much easier and will get you out more quickly. This is a list of things to do and to look for.

If you make one correction, be sure to think about what other data might be affected by the change and carry the correction through to all data forms and logbook entries. It is helpful to check your forms in a new direction from the way in which you filled them out. In other words, check a set of data forms from back to front and check pages from the bottom to the top, rather than always starting at the beginning and from the top of the page. Looking at numbers in a different pattern will help you find omissions or errors you missed previously.

Get familiar with the following list of the most common mistakes. If you have corrected the most common mistakes, debriefing will proceed more quickly. Be sure to consult your manual to find the answers to your questions. The debriefers are also available to answer questions.

Remember, if you were on more than one ship and/or plant, the data from each will need to be kept separately. Do not mix the data together; number the pages in sequence for each vessel/plant and form type -- NOT for your entire trip. In addition, changing over to a new year requires a new cruise number, new page numbering, etc., even if you remain on the same vessel.

All Forms:

- Put your name and ship's name on the first page of each type of form for each ship or plant.
- Make sure the pages are numbered properly with no skipped numbers and no duplicate numbers. If you have a page with data on one side and blank on the other, the blank page may have a page number or not at your discretion.
- Every page needs to have a cruise number and a vessel code. They will be given to you before your debriefing appointment. Cruise numbers should be adjusted to the right and have no leading zeros.
- Leading zeros should be present only for dates, times, haul weights of zero weight (recorded as 0.00 on 2US). No other numbers or weights should have a leading zero.

- ☞ Every time there is a decimal point printed on the page there should be two decimal places written in behind it (the exception to this is the fishing speed on Form 2US). If there is no decimal point printed on the page then you can put one or two decimal places at your discretion. Remember that every weight must have a decimal place and no numbers of fish can have a decimal place.
- ☞ All repeat fields (arrows and brackets) should be complete and have the same number at the top and bottom.
- ☞ Be sure that your handwriting is clear and legible. The data is keypunched by people who do not have any idea how the data is used and what should be on each form. They will punch what they think they see.

Make notes on your forms and in your logbook at sea. Notes should be made any time you have something that is a little bit odd or that might need some explaining. There is space on the top, bottom, and edges of the forms to make notes, so use it. Only write notes in non-keypunched areas. These notes will enable the person checking your data, and data editors, to understand the circumstances without having to talk to you and have you explain it. Notes may include, but are certainly not limited to: sub-samples, long fishing times, missing data you could not obtain, and reasons for choices made that you weren't certain about.

Form 1US and 2US: Look these forms over carefully. Question anything that seems incorrect with the ship's personnel while at sea. If you make any changes to your catch messages (1US or 2US, CMA, and CMB) from the original data sent to NMFS, circle the change or use a blue pencil to make the correction. Check Form 1US or 2US for:

- ☞ An entry for every day, whether fishing or not. For non-fishing days at sea, make a note after the noon position giving the reason why the ship is not fishing. *If the ship is in port, no noon position is required* but on catcher vessels record the date and note the delivery. This is required even if, due to a quick turn around, a vessel is able to deliver and get back to fishing in one day. These entries are the only cases where you may write notes within a keypunch area of a form.
- ☞ No duplicate haul numbers.
- ☞ Haul numbers in consecutive order. Haul number zero for non-fishing days at sea (those with noon positions).
- ☞ No missing data in a line, except duration, possibly speed, or observer total catch data.
- ☞ No decimals other than those printed on the page.
- ☞ Depths must be rounded to whole numbers. No fishing depths deeper than bottom depths.
- ☞ Not putting the noon position under "Haul Position" on non-fishing days at sea.
- ☞ A position must be recorded for all hauls. Go back to the fishing log and look up the position, or if it's too late for that, interpolate one from the positions before and after the missing one.
- ☞ Positions that are very far from the previous position. If it's not plausible given the times recorded, put a note of explanation on form.
- ☞ No minutes greater than 59.
- ☞ No overlapping of on and off bottom times of one haul, or between hauls (except on catcher/processors acting as motherships or on motherships).
- ☞ Retrieval times of 0000 are attributed to the next day. Do not use 2400, use 0000 instead.

- ☞ Official total catches recorded for every haul to two decimal places.
- ☞ An "F" or "M" for every depth recorded.
- ☞ On 1US, number of skates and hook counts must be whole numbers.
- ☞ "Name of catcher boat" and "ADF&G boat #" at the top is only filled in if your vessel was a mothership. The box for plant name and the column for processor code is only filled in if you worked on a catcher boat.

Form A Plant Delivery and Delivery Composition Forms: Make sure that you have all mandatory information on the forms. Look at any empty blocks and question them as missing information. If the information *is* missing, explain the circumstance with a note. The weight of target species (Delivery Composition Form A) should be less than or equal to the total delivery wt. (Plant Delivery Form A). If more than one predominant species is listed, the sum of their weights cannot be greater than total delivery wt. Be sure to list the ADF&G boat numbers for your catcher boats. All dates should be dates of delivery. If delivery dates do not coincide with plant logs and ADF&G fish tickets, make a note of the specifics in your log. The column for "Weight of target species discarded at sea" applies only to the sorting at sea of the *targeted* species, not to the discard of unwanted or prohibited species.

Form 3US - Check for:

- ☞ Haul numbers matching the date as entered on 1US or 2US.
- ☞ Species names which match your species codes. Species codes are not the same as catch message report group codes.
- ☞ No species codes listed twice for one haul or set unless used in designating female and male prohibited species (salmon, king and Tanner crab only).
- ☞ No species codes listed without data accompanying them.
- ☞ Sex codes only included for salmon, Tanner and king crab when they are found in the sample. Otherwise, the sex field should always be blank.
- ☞ Entries for each of the prohibited species groups, Tanner crab, king crab, Pacific halibut, salmon, and herring, for every sample whether they were seen or not.
- ☞ A weight for every number and a number for every weight listed. The only time zeros should be recorded for either is when a prohibited species group was not found in your sampled haul.
- ☞ No species recorded that are out of normal range or normal depth. (Bring back a specimen for verification if this is the case.)
- ☞ "1's" in the number column for species code 900 (miscellaneous items) and species code 899 (decomposed fish), no matter what the weight.
- ☞ Sample types in descending order of sample weight. Please skip a line between sample types.
- ☞ Sample weights indicated for each line of entry.
- ☞ Whole-haul sample weights that match or round to 2US figure for OTC.
- ☞ For weights, at least one decimal place, no more than two places. Are all decimal points distinct?
- ☞ All weights in kilograms.
- ☞ Accurate sums of numbers and weights on the top line - check your math!
- ☞ *% retained is entered for all non-prohibited species listed.*

Form 7US - Check for:

- **No estimated lengths recorded!**
- Hauls listed in ascending order.
- Matching species codes to species names.
- Species name, species code, and haul number for every line of data.
- No species listed in a greater number than on the 3US form in whole haul sampled data.
- No decimal places in lengths.
- No lengths off by 10 cm. (Write in the tens' values on the plastic strip!)
- Lengths recorded in ascending order. No lengths with a frequency of zero.
- Lengths of zero for viability of halibut which are not measured.
- No size groups reversed with the frequency.
- Correct keypunch check sum of the numbers on the line. Did you double check your math?
- All crab units of measurement ending in a "3" or an "8."
- Sex codes recorded for every species, every line. Halibut have condition or sex codes of "E", "P", "D", or "U". All other species with a sex code of "F", "M", or "U".
- Hauls matching dates according to 1US or 2US data. Dates match delivery dates for all plant observer data.

Form 9US - Check for:

- Separate otolith collections of a single species taken on different boats. (See "General Instructions for Data Forms," in section 1 of this manual.)
- Specimen type, sampling system entries present in the heading line.
- Only one NMFS area per page. NMFS area filled in?
- Each species must be on a separate set of pages with separate page numbering (1 through whatever, for each species).
- No comments or numbers in "total no. of specimens" or "catalogue date" or "remarks" section opposite the data. These are for otolith or scale readers only.
- All specimens have a haul number, a specimen number, a sex, a length, and a weight.
- No duplicate specimen numbers for the same species.
- No otolith or scale number is skipped without a note as to why.
- Lengths must also be recorded on the 7US if you indicated a "Y" in the "Form 7?" column.
- Weights out to two decimal places. Do include trailing zeros!
- Specimen numbers must match the otolith vial numbers.

Form 10US: If a marine mammal was preying on catch, being fed, or was caught, killed, harassed, or deterred, there must be an entry on the 10AUS. If you are turning in a photo or have specimen data, you have to have an entry on 10BUS. On the 10AUS (interaction data), describe in detail the circumstances around the incident, features used in identification and any other pertinent information. On the 10BUS (specimen data), be sure to write a species description that is complete and can be used to identify the animal, methods of measurements, sexing criteria, and extent of injuries. If a marine mammal bone (clean of flesh) is caught, make an entry on the 10AUS only. All sightings of marine mammals (with no interaction) should be on Form 11US, not on the 10US.

Form 11US:

- Make sure that you have filled in all the boxes without shading.

- ☞ Write a detailed description of the identifying characteristics you saw for the first sighting of each species listed on 11US, for each contract. Descriptions of behavior, color patterns, size and drawings (however rough) are all essential to verify your mammal identifications.

CMA and CMB: Catch messages should be checked on a regular basis while at sea. Failing to do so can cause a lot of problems and delay the debriefing process. Read the instructions carefully and follow them. Check for these potential errors:

- ☞ Total pages (in the upper right corner) are consecutive numbers of all the pages of CMA and CMB **together** for that vessel. They are in order by week, with CMA followed by the corresponding CMB for that week. There may be more than one set of forms within a week if the hauls are separated by region, the processor delivering to, or a catcher-processor vessel acting both as a mothership and a trawler.
- ☞ All columns of entry are "zero filled" if no species of a report group were seen (weights, numbers and % retained).

CMA Form Check:

- ☞ Species are recorded under the correct report group (BSAI, GOA, WOC).
- ☞ All the report groups must be listed in the *same order* across the page on each page (or transmission) of CMA for a week, region and processor. Catcher-only observers with more than one transmission per report week have to especially watch for this.
- ☞ Species weights are transcribed exactly (i.e.--in kg, **no rounding**) from the 3US and correctly summed for report groups that include more than one species.
- ☞ Only one sample weight can be recorded on the CMA (i.e.--two different sample weights on the 3US). Prohibited weights that are not part of the sample on CMA should only be recorded on the CMB.
- ☞ Percentage retained is entered for every report group found, for each haul.
- ☞ The sum of the species group weights adds up to the sample weight (check your math!)
- ☞ For all whole and partial haul samples, make sure that the basket sample for the predominant species on Form 3US is extrapolated correctly on the CMA.

CMB Form Check:

- ☞ ALL prohibited species groups must have entries of sample weight (seen or not). If no species are seen for a particular prohibited group, zero fill the only weight and number.
- ☞ Sample weight for each prohibited species group must be in metric tons and carried out to three decimal places. Cross check these numbers with Form 3US.
- ☞ TRAWLERS ONLY: "MM CODE" column must be filled in. Only "freshly dead" or "lethally removed" mammals should be listed here. Otherwise, enter "NU" for all hauls. Longline and pot observers should leave this column blank.

All changes to the CMA and CMB forms must be circled or written in blue pencil.

Salmon Scale Collection: If you have salmon scales, you will need to match the weight data on the 9US to the weights on the 3US. Numbers of salmon by species and sex on 7US should match the 3US for that haul, or be a subsample of those fish. The lengths on your form 9US should be equal to or a subset of the lengths on your form 7US for the same species in the same haul. All of the salmon lengths on form 9US should be present on the 7US.

Otolith collection: If you collected otoliths, be sure that the haul numbers for the otolith collection correspond to the hauls on your 7US. If you took your otoliths from outside your length frequency sample you will need to talk to a debriefer about how it should be handled.

Final Note: Remember that the amount of time spent in debriefing depends largely upon you. Take the time to check your data carefully while at sea. If you take the time to make sure your data is neat, complete, and correct before turning it in, you will save everyone time later on. Debriefing is an essential part of your work and is a critical process to ensure the accuracy and validity of your hard work at sea.

RATING CRITERIA

	UNSUCCESSFUL	MEETS EXPECTATION	EXCEPTIONAL
GENERAL COMMENTS	This is a level of performance, while demonstrating some positive contributions, shows notable deficiencies. Problems with quality, quantity, and/or timeliness are too frequent or too serious to ignore. Performance is inconsistent and problems caused by deficiencies may result in unusable data. All data and reports are not ready at the time of the debriefing interview. When requested, the observer refuses to complete additional documentation (questionnaires, affidavits, reports, etc).	This is a level of good, sound performance. The quality of the observer's work is that of a fully competent observer. The performance represents a level of accomplishment expected of the great majority of observers. The data and reports are complete at the time of the debriefing interview. When requested the observer is willing to complete additional documentation (affidavits, reports, etc) that is adequate to initiate a case file.	This is a level of high-quality performance. The quality of the observer's work substantially exceeds expectations. The accuracy and thoroughness of the observer's work are exceptionally reliable. The data and reports are complete at the time of the debriefing interview. When requested the observer is willing to complete additional documentation (affidavits, reports, etc) that is well-written, detailed, and well-organized.
SAMPLING METHODS	Observer's work demonstrates that they have conceptual mistakes that effects the reliability of their data.	The observer has sampled following the guidelines in the manual. The observer is able to solve most basic problems by referring to the manual, but depends upon NMFS to solve those not specifically addressed in the manual.	The observer has sampled following the guidelines in the manual. If any problems arise, immediate communications with NMFS are made concerning the observer's proposed solution.
DATA RECORDING AND CATCH MESSAGES	Large numbers of math errors and/or mismatches between forms. Errors are of a critical nature impacting the management of the fishery.	Moderate number of math errors, but few mismatches between forms. Errors are of a minor nature, not affecting the use of the data.	Few, if any, math errors or mismatches between forms. The observer has obviously double-checked their work. Errors are of a minor nature, not affecting the use of the data.

REPORTS AND DOCUMENTATION	Brief and general with few specifics or details. Calculations are poorly labeled or not recorded at all. Documentation is insufficient to pursue compliance-related issues.	Concise, but contain all necessary information. Calculations are labeled, easy to follow, legible, and complete. Compliance-related documentation is adequate to initiate a case file.	Calculations, daily notes, and reports are all well-documented. Anything unusual in the catch or sampling methodology is recorded. Compliance-related documentation is well-written, detailed, and well-organized.
SPECIES IDENTIFICATION	Forms and/or verbal descriptions incomplete, incorrect, or missing.	Forms are completed for all major species to the extent that identifications can be verified.	Forms are completed for all major species to the extent that identifications can be verified.
PROBLEM SOLVING	Observer was unable to effectively solve problems that arose on their vessel and/or they never notified NMFS of the problems affecting their work. Observer fails to recognize compliance issues which affect the reliability of their data.	With assistance from NMFS personnel, the observer was able to solve all problems that arose. The observer recognizes and attempts to address compliance-related issues which affect the reliability of their data.	Working with vessel personnel, the observer was able to solve all problems that arose. Solutions are approved by NMFS before implementing and demonstrates the observer's understanding of sampling theory and the use of the data. The observer recognizes, addresses, and notifies NMFS of compliance-related issues which affect the reliability of their data.

DECERTIFICATION

Decertification is something most observers need not worry about. It is reserved for extreme cases, and each case is considered individually. Decertification may be based on a single incident or on a combination of many factors. Conduct, attitude, professionalism, and even common sense all come into the picture when decertification is a possibility. If you conduct yourself in a professional manner, make an honest effort, and remember that you are hired to do biological sampling, *decertification is not something that should be a concern to you.*

This is a summary of the observer decertification procedures as outlined in 50 CFR §679.5(j). This summary is not complete, nor is it quoted verbatim from federal regulations or law. This summary has been simplified. If you would like a copy of the regulations concerning the Observer Program or have any questions about the procedure, please contact Bob Maier, (206) 526-4197

§679.2 Definitions.

"Adequate evidence" means information sufficient to support the reasonable belief that a particular act or omission has occurred.

"Civil judgment" means a judgment or finding of a civil offense by any court of competent jurisdiction.

"Conviction" means a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of nolo contendere.

"Decertification," as used in §679.50(j), means action taken by a decertifying official under §679.50(j)(7) to revoke indefinitely certification of observers under this section, an observer whose certification is so revoked is decertified.

"Decertifying official" means a designee authorized by the Regional Director to impose decertification.

"Indictment" means indictment for a criminal offense. An information or other filing by competent authority charging a criminal offense must be given the same effect as an indictment.

"Legal proceedings" means any civil judicial proceeding to which the Government is a party or any criminal proceeding. The term includes appeals from such proceedings.

"NMFS investigator" means a designee authorized by the Regional Director to conduct investigations under this section.

"Observer" means any individual that is awarded NMFS certification to serve as an observer under this part, is employed by an observer contractor for the purpose of providing observer services to vessels and shoreside processors under this part, and is acting within the scope of his/her employment.

"Preponderance of the evidence" means proof by information that, compared with that opposing it, leads to the conclusion that the fact at issue is more probably true than not.

"Suspending official" means a designee authorized by the Regional Director to impose suspension.

"Suspension," as used in §679.50, means action taken by a suspending official under §679.50(j) to suspend certification of observers temporarily until a final decision is made with respect to decertification.

§679.50(j)(1) Applicability.

This paragraph sets forth the procedures for suspension and decertification of observers under this section.

§679.50(j)(2) Policy.

(i) NMFS must certify responsible and qualified observers only. Suspension and decertification are discretionary actions that, taken in accordance with this section, are appropriate means to effectuate this policy.

(ii) The serious nature of suspension and decertification requires that these actions be taken only in the public interest for the promotion of fishery conservation and management and not for purposes of punishment. NMFS may impose suspension or decertification only for the causes and in accordance with the procedures set forth in this section.

(iii) In addition to suspension and decertification, observers who violate provisions of this part may be subject to penalties, fines, and other sanctions as authorized by law.

§679.50(j)(3) Public availability of suspension or decertification records.

Public availability of suspension or decertification records will depend upon the provisions of the Freedom of Information Act and other applicable law.

§679.50(j)(4) Effect and timing of suspension or decertification.

(i) Observers decertified or suspended must not provide services prescribed by this section to vessels and shoreside processors.

(ii) Suspension and decertification actions may be combined and imposed simultaneously.

§679.50(j)(5) Suspension.

(i) General.

(a) The suspending official may, in the public interest, suspend observers for any of the causes in (j)(5)(ii) of this section, using the procedures in paragraph (j)(5)(iii) of this section.

(b) Suspension may be imposed on the basis of adequate evidence, pending the completion of investigation or legal proceedings, when NMFS determines that immediate action is necessary. In assessing the adequacy of the evidence, the suspending official should consider how much information is available, how credible it is given the circumstances, whether or not important allegations are corroborated, and what inferences can reasonably be drawn as a result.

(ii) Causes for suspension.

(a) The suspending official may suspend observers upon a determination, based upon adequate evidence, that the observers committed any acts or omissions constituting a cause for decertification under paragraph (j)(6)(ii) of this section, or

(b) Upon indictment for any of the causes for decertification in (j)(6)(ii)(a) of this section.

(iii) Procedures.

(a) *Review.* The suspending official must review all available evidence and must promptly determine whether or not to proceed with suspension. The suspending official may refer the matter to the NMFS investigator for further investigation, or to the decertifying officer.

(b) *Notice of suspension.* When observers are suspended, they must be immediately advised personally or by certified mail, return receipt requested, at the last known residence --

(1) That they have been suspended and that the suspension is based on an indictment or other adequate evidence that the observer has committed acts or omissions constituting grounds for suspension under (j)(5)(ii) of this section. Such acts or omissions may be described in terms sufficient to place the observer on notice without disclosing NMFS' evidence.
(2) That the suspension is for a temporary period pending the completion of an investigation and such decertification proceedings as may ensue.
(3) Of the cause(s) relied upon under (j)(5)(ii) of this section for imposing suspension.
(4) Of the effect of the suspension.
(5) That, within 30 days after receipt of the notice, the observer may submit, in writing, documentary evidence and argument in opposition to the suspension, including any additional specific documentary evidence that raises a genuine dispute over the material facts.
(6) That additional proceedings to determine disputed material facts will be conducted unless: (*i*) the action is based on an indictment or (*ii*) a determination is made, on the basis of NOAA General Counsel advice, that the substantial interests of the government in pending or contemplated legal proceedings based on the same facts as the suspension would be prejudiced.

(c) *Dispute.* For suspensions not based on an indictment, if NMFS determines that the observers' submission in opposition raises a genuine dispute over facts material to the suspension and if no determination has been made, on the basis of NOAA General Counsel advice, that substantial interests of the government in pending or contemplated legal proceedings based on the same facts as the suspension would be prejudiced, the suspending official:

(1) Must afford the observer an opportunity to submit additional documentary evidence upon a showing that such documentary evidence was unavailable during the 30-day period following receipt of the notice of suspension.
(2) May, at his or her sole discretion, afford the observer an opportunity to appear in person, present witnesses, and confront any person NMFS presents. The suspending official must make an audio tape of the proceedings and make a copy available at cost to the observer upon request, unless the observer and NMFS, by mutual agreement, waive the requirement for an audio tape.

(d) *Suspending official's decision.*

(1) The suspending official's decision must be based on all the information in the administrative record, including any submission made by observers on action based on an indictment: (*i*) in which the observer submission does not raise a genuine dispute over material facts, or (*ii*) in which additional proceedings to determine disputed material facts have been denied on the basis of NOAA General Counsel advice.
(2) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact must be prepared. The suspending official must base the decision on the facts as found, together with any information and argument submitted by the observer and any other information in the administrative record.
(3) The suspending official may refer matters involving disputed material facts to another official for findings of fact. The suspending official may reject any such findings, in whole or in part.
(4) The suspending official's decision must be made after the conclusion of the proceedings with respect to disputed facts.
(5) Prompt written notice of the suspending official's decision to affirm, modify or terminate the notice of suspension issued under this paragraph (j)(5) shall be served on the observer, personally or by certified mail, return receipt requested, at the last known residence.

(e) *Period of suspension.*

(1) Suspension is for a temporary period pending the completion of investigation and any ensuing legal proceedings or decertification proceedings, including any administrative review under paragraph (j)(7) of this section, unless sooner terminated by the suspending official or as provided in this paragraph (j). If suspension is in effect, the decertifying official will expedite any related decertification proceedings.
(2) If legal proceedings or decertification proceedings are not initiated within 12 months after the date of the suspension notice, the suspension must be terminated.

§679.50(j)(6) Decertification.

(i) General. The decertifying official may, in the public interest, decertify an observer for any of the causes in paragraph (j)(6)(ii) in this section using the procedures in paragraph (j)(6)(iii) of this section. The existence of a cause for decertification, does not necessarily require that the observer be decertified; the seriousness of the acts or omissions and any mitigating factors should be considered in making any decertification decision. The existence or nonexistence of any mitigating factors is not necessarily determinative of an observer's present fitness. Accordingly, if a cause for decertification exists, the observer has the burden of demonstrating, to the satisfaction of the decertifying official, present fitness and that decertification is not necessary.

(ii) Causes for decertification.

(a) *Observers.*
(1) The decertifying official may decertify an observer for a conviction of or civil judgment for the following: (*i*) Commission of fraud or other violation in connection with obtaining or

attempting to obtain certification, or in performing the duties of observers as prescribed by NMFS; (*ii*) Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; or (*iii*) Commission of any other offense indicating a lack of integrity or honesty that seriously and directly affects the present fitness of observers.

(2) The decertifying official may decertify an observer, based upon a preponderance of the evidence, upon a determination that the observer has: (*i*) Failed to satisfactorily perform the duties of observers as prescribed by NMFS; or (*ii*) Failed to abide by the standards of conduct for observers as prescribed under regulation.

(iii) Procedures.

(a) *Investigation and referral.* NMFS personnel shall promptly report to the NMFS investigator matters appropriate for further investigation. The NMFS investigator must investigate matters so referred and submit the investigative material to the decertifying official or, if appropriate, to the suspending official.

(b) *Review.* The decertifying official must review all available evidence and must promptly determine whether or not to proceed with decertification. The decertifying official may refer the matter to the NMFS investigator for further investigation or, if appropriate, to the suspending official.

(c) *Notice of proposed decertification.* If the decertifying official determines to proceed with decertification, he or she must serve a notice of proposed decertification upon an observer, personally or by certified mail, return receipt requested, at the last known residence, advising:

(1) That decertification is being considered.

(2) Of the reasons for the proposed decertification in terms sufficient to put the observer on notice of the conduct or transaction(s) upon which it is based.

(3) Of the cause(s) relied upon under (j)(6)(ii) of this section for proposing decertification.

(4) That, within 30 days after receipt of the notice, the observer may submit, in writing, documentary evidence and argument in opposition to the proposed decertification, including any additional specific documentary evidence that raises a genuine dispute over the material facts.

(5) Of NMFS' procedures governing decertification decision making.

(6) Of the effect of the issuance of the notice of proposed decertification.

(7) Of the potential effect of an actual decertification.

(d) *Dispute.* In actions not based upon a conviction or civil judgment, if it is found that the observer's submissions raise a genuine dispute over facts material to the proposed decertification, the decertifying official:

(1) Must afford the observer an opportunity to submit additional documentary evidence upon a showing that such documentary evidence was unavailable during the 30-day period following receipt of the notice of proposed decertification.

(2) May, at his or her sole discretion, afford the observer an opportunity to appear in person, present witnesses, and confront any person NMFS presents. The decertifying official must make an audio tape of the proceedings and make a copy available at cost to the observer upon

request, unless the observer and NMFS, by mutual agreement, waive the requirement for an audio tape.

(e) *Decertifying official's decision.*

(1) In actions based upon a conviction or judgment, or in which there is no genuine dispute over material facts, the decertifying official must make a decision on the basis of all the information in the administrative record, including any submission made by the observer. The decision must be made after receipt of any timely information and argument submitted by the observer.
(2) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact must be prepared. The decertifying official must base the decision on the facts as found, together with any information and argument submitted by the observer and any other information in the administrative record.
(3) The decertifying official may refer matters involving disputed material facts to another official for findings of fact. The decertifying official may reject any such findings, in whole or in part.
(4) The decertifying official's decision must be made after the conclusion of the proceedings with respect to disputed facts.
(5) In any action in which the proposed decertification is not based upon a conviction or civil judgment, the cause for decertification may be established by a preponderance of the evidence.

(f) *Notice of decertifying official's decision.*

(1) If the decertifying official decides to impose decertification, the observer must be given prompt notice personally or by certified mail, return receipt requested, at the last known residence. Such notice must: (*i*) Refer to the notice of proposed decertification. (*ii*) Specify the reasons for decertification. (*iii*) Advise that the decertification is effective immediately, unless the decertifying official determines that there is a compelling reason for maintaining certification for a specified period under conditions and restrictions necessary and appropriate to protect the public interest or promote fishery conservation and management and states the reasons in the notice.
(2) If decertification is not imposed, the decertifying official must promptly notify the observer, by certified mail, return receipt requested, at the last known residence.

(iv) Period of decertification.

(a) Decertification must be in force indefinitely or until rescinded.
(b) The decertifying official may rescind decertification, upon the observer's request, supported by documentation, for reasons such as:

(1) Newly discovered material evidence;
(2) Reversal of the conviction or civil judgment upon which the decertification was based;
(3) Elimination of other causes for which the decertification was imposed; or
(4) Other reasons the decertifying official deems appropriate.

§679.50(j)(7) Administrative review of suspension or decertification

(i) Observers may petition for review of a suspension decision issued under paragraph (j)(5)(iii) of this section or a decertification decision issued under paragraph (j)(6)(iii) of this section within 30 days after the date the decision was served. The petition must be addressed to the appeals officer identified in the notice of suspension or decertification. Any petitioned suspension will remain in effect pending the appeals officer's written decision to affirm, modify or terminate the suspension.

(ii) Administrative review is discretionary. Petitions for discretionary review may be filed only upon one or more of the following grounds:

(a) A finding of material fact is clearly erroneous based upon the administrative record;
(b) A substantial and important question of policy or discretion is involved; or
(c) A prejudicial error has occurred.

(iii) If the appeals officer declines review based on the written petition, the observer must be immediately advised of the decision to decline review personally or by certified mail, return receipt requested, at the last known residence.

(iv) If the appeals officer grants review based on the written petition, he or she may request further written explanation from the observer, or the decertifying officer or suspending officer. The appeals officer will then render a written decision to affirm, modify or terminate the suspension or decertification or return the matter to the suspending or decertifying official for further findings. The appeals officer must base the decision on the administrative records compiled under paragraphs (j)(5) or (j)(6) of this section, as appropriate. The appeals officer will serve the decision on the observer personally or by certified mail, return receipt requested, at the last known residence.

(v) An appeals officer's decision imposing suspension or decertification or an unpetitioned suspending or decertifying official's decision is the final administrative decision of the U.S. Department of Commerce.

REGULATORY COMPLIANCE AND THE OBSERVER

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THE OBSERVER'S ROLE IN MONITORING COMPLIANCE WITH FISHERIES REGULATIONS

Fishery management comprises two main elements: (1) understanding the fisheries stocks, and (2) controlling human interaction with those stocks. As an observer your primary duties revolve around the collection of harvest data used in stock assessments. However, as an observer you also have a role in monitoring compliance with fishing regulations. This role is diverse, ranging from identification and collection of information on vessel-specific problems to collecting data used to understand fleet wide behavior and the effectiveness of management programs. As an observer, you have no formal enforcement authority. Your role is to observe vessel adherence to specific regulations. This role should not be taken lightly, nor should you act impulsively and without regard to the impact on your ability to collect management data.

The regulation summary in combination with your training should provide you with enough information for you to identify potential violations, address problem situations if they arise, and adequately document events. The following regulations are relevant to your work as an observer:

* Commercial groundfish regulations which are used to implement the Fisheries Management Plans of the North Pacific Groundfish fisheries in the Gulf of Alaska, and the Bering Sea and Aleutian Island areas.

* Regulations overseeing interactions between marine mammals and the commercial groundfish fleet.

* Regulations pertaining to safety standards that vessels carrying observers are required to adhere to.

* Marine pollution regulations that are directly related to protected and endangered species that interact with the North Pacific Groundfish Fishery.

Several regulations specifically prohibit actions that interfere with your personal safety and your right to conduct your required work. You need to be capable of recognizing situations and behavior that directly affect you and your safety. In addition you must have a clear understanding of how to resolve and report such incidences. The purpose of the following section is to provide reference material concerning the regulations, and guidelines for documenting and reporting potential violations of the regulations.

OVERVIEW OF GROUNDFISH FISHING REGULATIONS

When the Magnuson Fishery Conservation and Management Act (Magnuson Act) was passed, it gave the Department of Commerce the authority to regulate fisheries resources that are found in the Exclusive Economic Zone (EEZ). These resources were to be managed at a regional level by the National Marine Fisheries Service and Fisheries Management Councils. The Fisheries Management Councils include representatives of state and federal fisheries agencies, industry, and academia.

The North Pacific Fishery Management Council (Council) consists of representatives from the states of Alaska, Washington, and Oregon and has jurisdiction over the fisheries within the 900,000 square mile EEZ off Alaska. The Council is primarily responsible for maintaining the Bering Sea/Aleutian Islands, and the Gulf of Alaska Fisheries Management Plans (FMP's). Annual responsibilities of the Council include, determining annual Optimum Yield (OY) and Total Allowable Catch (TAC) for each management area, and allocating the available harvest to each user group. FMP's contain a great deal of information on the biological status of the commercially important stocks, and the condition of the fishery (landings, gear, fishing grounds, processing, markets, etc.). The FMP's identify problems in a fishery and propose management measures in the form of fishing regulations that will correct the problems. Once the FMP is in place, NMFS and the council are required to monitor the fisheries resources to determine if the goals of the plan are being met and to make changes as necessary.

The FMP for the Bering Sea/Aleutian Islands, and the Gulf of Alaska contain many conventional fishery regulations that seek to conserve groundfish stocks, and protect traditional halibut, herring, crab, and salmon fisheries. When an FMP, amendment, regulatory action or emergency action has gone through the regulatory process and is published in the *Federal Register*, the management measures become federal regulation. These regulations and other related laws are primarily enforced by the NMFS Office of Enforcement. The Office of Enforcement is assisted in this task by the U.S. Coast Guard, cooperating state troopers, and other federal agents.

The Alaska Regional office of NMFS is primarily responsible for policy development and in-season harvest management. Policy development includes working with the Council to amend the FMP's, and with various divisions of the agency to develop implementation policy and management regulations. During FMP amendment the regional office staff generates required Environmental Assessments and Regulatory Impact Reviews. These reviews examine the problem, alternative plans of action, and their impact to industry, the public, the resource, and the government agency. Public news releases regarding openings, closures, and regulatory changes are also the responsibility of the Alaska Regional office.

In addition to policy development, the regional office is responsible for within-season management monitoring of harvest statistics to determine how much of the allocation of each species has been taken, and when each fishery should close. A critical element in the management of groundfish fisheries is the collection and analysis of data on harvesting. This includes estimations of catch volume, species composition, age and size distributions of catch, volume and species of discards, fishing effort, etc. Three primary methods are used by the Alaska Regional Office to obtain

necessary harvest data for groundfish fisheries: (1) fish receipts filled out at the dock or processing plant, (2) logbooks and production reports completed by captains at sea, and (3) dock-side and at sea biological sampling of fish, along with observations of fishing operations by observers.

NMFS is required by the Magnuson Act to carry out a comprehensive program of fishery research to obtain information. Research programs are designed to gather knowledge and statistical information on fishery conservation and management, on economics of the fisheries, and on biological interdependence of fisheries or stocks. Other matters bearing on the abundance and availability of fish are also studied such as the impact of pollution on fish and the impact of wetland and estuarine degradation. The Alaska Fisheries Science Center is the research branch of NMFS responsible for conducting fisheries research in the federal waters off Alaska.

The Observer Program provides a major role in gathering fisheries harvest and biological data used for stock assessment and management. It also is irreplaceable in assessing marine mammal interactions, and in gathering information on vessel compliance with fisheries regulations. As competition in the fishery intensifies, proper management of the resource becomes crucial. An important component of effective management is the ability to monitor for regulatory compliance.

OBSERVER PROGRAM'S PARTIAL SUMMARY OF FEDERAL GROUNDFISH FISHING REGULATIONS FOR THE U.S. EEZ OFF ALASKA

Prepared November 1996 by:
Observer Program Staff

INTRODUCTION

This summary of regulations is intended to provide observers with a working knowledge of regulations as they apply to groundfish observer duties. Regulations presented in the Code of Federal Regulations (*50 CFR 600 and 679*) *which implement the Fisheries Management Plans for the* Gulf of Alaska, and the Bering Sea and Aleutian Islands areas have been simplified and reorganized for observer convenience. **This is not a complete summary, nor is it quoted verbatim from federal law.** For additional information on these regulations and information of recent changes contact the following National Marine Fisheries Service (NMFS) offices.

NMFS, Alaska Regional Office
P.O. Box 21668
Juneau, AK 99802-1668
Tel: 907-586-7228
Fax: 907-586-7131

NMFS, Office of Enforcement, Alaska Region
P.O. Box 21767
Juneau, AK 99802-1668
Tel: 907-586-7225
Fax: 907-586-7313 (general information)
Fax: *907-586-7200 (IFQ)*

In many cases, copies of the various CFR's are available in local libraries, and State or Federal Court Buildings. Supplementary changes to regulations will be available at offices of the National Marine Fisheries Service. Substantive supplementary changes to groundfish, marine mammal, safety, and marine pollution regulations will be published in the Federal Register. Current information on news releases, fishery closures, restricted area maps and regulations may also be obtained through the Alaska Regional Office. To aid the public in accessing this information, the Alaska Regional Office provides public access at the following INTERNET address, **http://161.55.184.53/akr-home.htm**. To further assist fishermen, the National Marine Fisheries Service prints reference manuals on Recordkeeping and Reporting Requirements for Groundfish *fisheries in Alaska.*

This summary does not supersede, amend, or detract from federal regulations or law as printed in the Federal Register or the Code of Federal Regulations. This summary does not, nor is it intended to create any rights, substantive or procedural -- enforceable at law by any party in any matter, civil or criminal -- and it may not be relied on for any such purpose.

THIS SUMMARY IS FOR GENERAL INFORMATIONAL PURPOSES ONLY.

SCOPE OF REGULATIONS - §679.1

This summary contains fishing regulations implementing the FMP's for the federal groundfish fisheries of the Gulf of Alaska and Bering Sea and Aleutian Islands areas. These regulations are codified in Title 50 of the Code of Federal Regulations, Part 679 and in Title 16 of the United States Code Annotated, Chapter 38. This summary does not address U.S. commercial fishing for halibut, salmon, king and Tanner crab with the exception of incidental bycatch while fishing for groundfish. It also does not cover commercial fishing for scallops. Regulations governing halibut fishing are codified in 50 CFR, Part 301. Federal regulations governing salmon fishing are codified in 50 CFR, Parts 210 and 674. Commercial groundfish fishing within Alaska State waters (0-3 nautical miles offshore) and internal waters of the State of Alaska is managed by the Alaska Department of Fish and Game. Regulations governing such fisheries can be obtained from the Alaska Department of Fish and Game.

DEFINITIONS §679.2

1. GEOGRAPHIC DEFINITIONS

ALEUTIAN ISLANDS SUBAREA The portion of the Bering Sea/Aleutian Island management area south of 55° N. latitude and west of 170° W. longitude.

The Eastern Aleutian District (statistical area 541)
The Central Aleutian District (statistical area 542)
The Western Aleutian District (statistical area 543)

BERING SEA AND ALEUTIAN ISLAND MANAGEMENT AREA (BSAI) is the portion of the EEZ in the Bering Sea north of the Aleutian Island chain, and that portion of the EEZ in the North Pacific Ocean that is adjacent to the Aleutian Islands and west of 170°00' W. longitude.

Bering Sea Subarea (statistical areas 508, 509, 512, 513, 514, 516, 517, 518, 519, 521, 523, 524, 530)
Bogoslof district (statistical area 518)

BERING SEA SUBAREA is that portion of the BSAI exclusive of the Aleutian Islands subarea.

BYCATCH LIMITATION ZONES

Bycatch limitation zone 1 means BSAI statistical areas 508, 509, 512, and 516.
Bycatch limitation zone 2 means BSAI statistical areas 513, 517, and 521.

CONVENTION WATERS means all waters off Alaska in halibut regulatory areas 2C, 3A, 3B, 4A, 4B, 4C, 4D, and 4E.

DONUT HOLE The waters of the Central Bering Sea seaward of the outer boundary of the U.S. EEZ and seaward of the outer boundary of the Russian Federation. This area can be found in the Catch Message section of this manual (statistical area 550).

EXCLUSIVE ECONOMIC ZONE (EEZ) is the area adjacent to the United States which encompasses all waters from the seaward boundary of each of the coastal states to a line on which each point is 200 nautical miles. Federally managed waters are found between 3 - 200 nautical miles offshore.

GULF OF ALASKA (GOA) is that portion of the EEZ of the North Pacific Ocean exclusive of the Bering Sea, between 132 °40' W. longitude and 170°00' W. longitude seaward of the State of Alaska.

REPORTING AREA means the relevant Bering Sea/Aleutian Islands, and Gulf of Alaska statistical areas and all state waters between the shore and any inshore boundary of that statistical area.

REGULATORY AREA refers to three areas of the EEZ in the Gulf of Alaska. These areas are the Eastern, Central, and Western and can be found in the Catch Message section of this manual.

REGULATORY DISTRICT refers to two districts of the Eastern Regulatory area of the Gulf of Alaska. These areas are 1) Southeast Outside district (statistical area 650), and 2) West Yakutat district (statistical area 640). A map containing these areas can be found in the Catch Message section of this manual.

STATISTICAL AREAS Any one of the following 14 geographical units in the Bering Sea/Aleutian Island management area: 508, 509, 512, 513, 514, 516, 517, 518, 519, 521, 523, 524, 530, 541, 542, and 543. Or, any one of the following five geographical units in the Gulf of Alaska management area: 610, 620, 621, 631, 630, 640, and 650. (Refer to the maps in manual section 6.)

2. GENERAL DEFINITIONS

ADF&G means the State of Alaska Department of Fish and Game.

ALASKA LOCAL TIME (A.l.t.) means the current Alaska time, either daylight savings time or standard time.

AUTHORIZED OFFICER

a) Any commissioned, warrant, or petty officer of the U.S. Coast Guard;

b) Any special agent or fisheries enforcement officer of NMFS;

c) Any officer designated by the head of any Federal or State agency which has entered into an agreement with the secretary and Commandant of the U.S. Coast Guard to enforce the provisions of the Magnuson Act, i.e.: Alaska State Troopers from the ADF&G Office of Protection;

d) Any U.S. Coast Guard personnel accompanying and acting under the direction of any commissioned, warrant, or petty officer of the U.S. Coast Guard.

BREAST LINE means the rope or wire running along the forward edges of the side panels of a net, or along the forward edge of the side rope in a rope trawl (see figure 2, following).

CATCH or TAKE includes, but is not limited to, any activity which results in killing any fish or bringing any live fish on board.

COMMUNITY DEVELOPMENT PLAN (CDP) (applicable through Dec. 31, 1998) means a business plan for the development of a specific Western Alaska community or group of communities under the CDQ Program..

COMMUNITY DEVELOPMENT QUOTA (CDQ) (applicable through Dec. 31, 1998) means a percentage of the CDQ reserve for a particular fish species that is allocated to a CDP.

COMMUNITY DEVELOPMENT QUOTA RESERVE (CDQ Reserve) (applicable through Dec. 31, 1998) means a percentage of the TAC for a particular management area for pollock, halibut, or hook-and-line sablefish that has been set aside for purposes of the CDQ program.

DAILY REPORTING PERIOD OR DAY is the period from midnight (0001 hours) until the following midnight (2400 hours) using Alaska local time (A.l.t.).

FISH PRODUCT WEIGHT means the weight of the fish product in pounds or to at least the nearest hundredth of a metric ton (0.01 mt). Fish product weight is based upon the number of production units and the weight of those units. Production units include pans, cartons, blocks, trays, cans, bags, and individual fresh or frozen fish. The weight of a production unit is the average weight of representative samples and may include additives, but not packaging. Any allowance for water added cannot exceed 5 percent of the gross product weight (fish, additives, and water). NMFS may use the weight of the production units, to determine net weight, and to calculate round-weight equivalents.

FISHING, OR TO FISH means any activity, other than scientific research conducted by a scientific research vessel, which involves:

(1) The catching, taking or harvesting of fish.

(2) The attempted catching, taking or harvesting of fish;

(3) Any other activity which can reasonably be expected to result in the catching, taking or harvesting of fish; or

(4) Any operations at sea in support of, or in preparation for, any activity described in subparagraphs (1), (2), or (3) above.

FISHING CIRCLE means the circumference of a trawl, intersecting the center point on the fishing line and perpendicular to the long axis of a trawl.

FISHING DAY means a 24-hour period, from 0001 hours, Alaska local time (A.l.t.), through 2400 hours, ALT, in which fishing gear is retrieved and groundfish are retained. Days during which a vessel only delivers unsorted codends to a processor are not fishing days.

FISHING LINE means a length of chain or wire rope in the bottom front end of a trawl to which the webbing or lead ropes are attached (see figure 2).

FISHING TRIP means (with respect to subpart E of Part 679) one of the following time periods:

(1) For a vessel used to process groundfish or a catcher vessel used to deliver groundfish to a mothership,--a weekly reporting period, during which one or more fishing days occur.

(2) For a catcher vessel used to deliver groundfish to other than a mothership,--the time period during which one or more fishing days occur, that starts on the day when fishing gear is first deployed and ends the day the vessel offloads groundfish, returns to an Alaskan port, or leaves the EEZ off Alaska and adjacent waters of the State of Alaska.

FISHING VESSEL means any vessel, boat, or other craft which is used for, equipped to be used for, or of a type that is normally used for:

(1) Fishing; or

(2) Aiding or assisting one or more vessels at sea in the performance of any activity relating to fishing, including, but not limited to, preparation, supply, storage, refrigeration, transportation, or processing.

FISHING YEAR the period of time beginning at 0001 hours, Alaska local time, (A.l.t.), on January 1, and ending at 2400 hours, A.l.t., on December 31.

FOOT ROPE means a chain or wire rope attached to the bottom front end of a trawl and attached to the fishing line (see figure 2).

GROUNDFISH means pollock, Pacific cod, any species of flatfish, any species of flounder and sole, Pacific Ocean Perch, thornyhead rockfish, other rockfish, sablefish, Atka mackerel, squid, and octopus. It includes all other marine invertebrates except shrimp, scallops, snails, king crab, Tanner crab, Dungeness crab, horsehair crab, lyre crab, coral, and clams. Also included are all other finfish except salmonids, steelhead trout, Pacific herring, and Pacific halibut.

HARVESTING or TO HARVEST means the catching and retaining of any fish.

HOOK & LINE means a stationary, buoyed, and anchored line with hooks attached, or the taking of fish by means of such a device.

INSHORE COMPONENT (applicable through December 31, 1998) means the following three categories of the U.S. groundfish fishery that process pollock harvested in a directed fishery for pollock in the GOA or BSAI, or Pacific cod harvested in a directed fishery for Pacific cod in the GOA, or both:

(1) Shoreside processing operations.

(2) Vessels less than 125 ft (38.1 m) in length overall (LOA), that process no more than 126 mt per week in round-weight equivalents of an aggregate amount of those fish.

(3) Vessels that process those fish at a single geographic location in Alaska State waters during a fishing year. For purposes of this definition, NMFS will determine the single geographic location in a fishing year for an individual processor from the geographic coordinates the vessel operator reports on the check-in report (679.5(h)) when that vessel first engages in processing those fish.

JIG means a single, non-buoyed, non-anchored line with hooks attached, or the taking of fish by means of such a device.

LANDING means offloading fish.

LENGTH OVERALL (LOA) of a vessel means the horizontal distance, rounded to the nearest foot, between the foremost part of the stem and the aftermost part of the stern, excluding bowsprits, rudders, outboard motor brackets, and similar fittings or attachments.

LONGLINE means a stationary, buoyed, and anchored line with hooks or two or more groundfish pots attached, or the taking of fish by means of such device.

LONGLINE POT means a stationary, buoyed, and anchored line with two or more pots attached, or the taking of fish by means of such a device.

MOTHERSHIP (with respect to subpart E of Part 679) means a processor vessel that receives and processes groundfish from other vessels and is not used for, or equipped to be used for, catching groundfish.

NET-SOUNDER DEVICE means a sensor used to determine the depth from the water surface at which a fishing net is operating.

NONPELAGIC TRAWL means a trawl other than a pelagic trawl.

OFFSHORE COMPONENT (applicable through December 31, 1998) means all vessels not included in the definition of "inshore component" that process pollock caught in directed fisheries for pollock in the GOA or BSAI, or Pacific cod caught in directed fisheries for Pacific cod in the GOA, or both.

PELAGIC TRAWL means a trawl that:

(1) Has no discs, bobbins, or rollers;

(2) Has no chafe protection gear attached to the foot rope or fishing line;

(3) Except for small mesh allowed under the following paragraphs of this definition;

(i) Has no mesh tied to the fishing line, headrope, and breast lines with less than 20 inches (50.8 cm) between knots, and has no stretched mesh size of less than 60 inches (152.4 cm) aft from all points on the fishing line, head rope, and breast lines and extending past the fishing circle for a distance equal to or greater than one-half the vessel's length overall (LOA); or

(ii) Has no parallel lines spaced closer than 64 inches (162.6 cm), from all points on the fishing line, headrope, and breast lines and extending aft to a section of mesh, with no stretched mesh size of less than 60 inches (152.4 cm), extending aft for a distance equal to or greater than one-half the vessel's LOA;

(4) Has no stretched mesh size less than 15 inches (38.1 cm) aft of the mesh described above for a distance equal to or greater than one-half the vessel's LOA;

(5) Contains no configuration intended to reduce the stretched mesh sizes described in paragraphs (3) and (4) of this definition;

(6) Has no flotation other than floats capable of providing up to 200 pounds (90.7 kg) of buoyancy to accommodate the use of a net-sounder device; (note: floats on or in the codend are permitted.)

(7) Has no more than one fishing line and one foot rope for a total of no more than two weighted lines on the bottom of the trawl between the wing tip and the fishing circle;

(8) Has no metallic component except for connectors (e.g., hammerlocks or swivels) or a net-sounder device aft of the fishing circle and forward of any mesh greater than 5.5 inches (14.0 cm) stretched measure;

(9) May have small mesh within 32 feet (9.8 m) of the center of the headrope as needed for attaching instrumentation (e.g., net-sounder device); and

(10) May have weights on the wing tips.

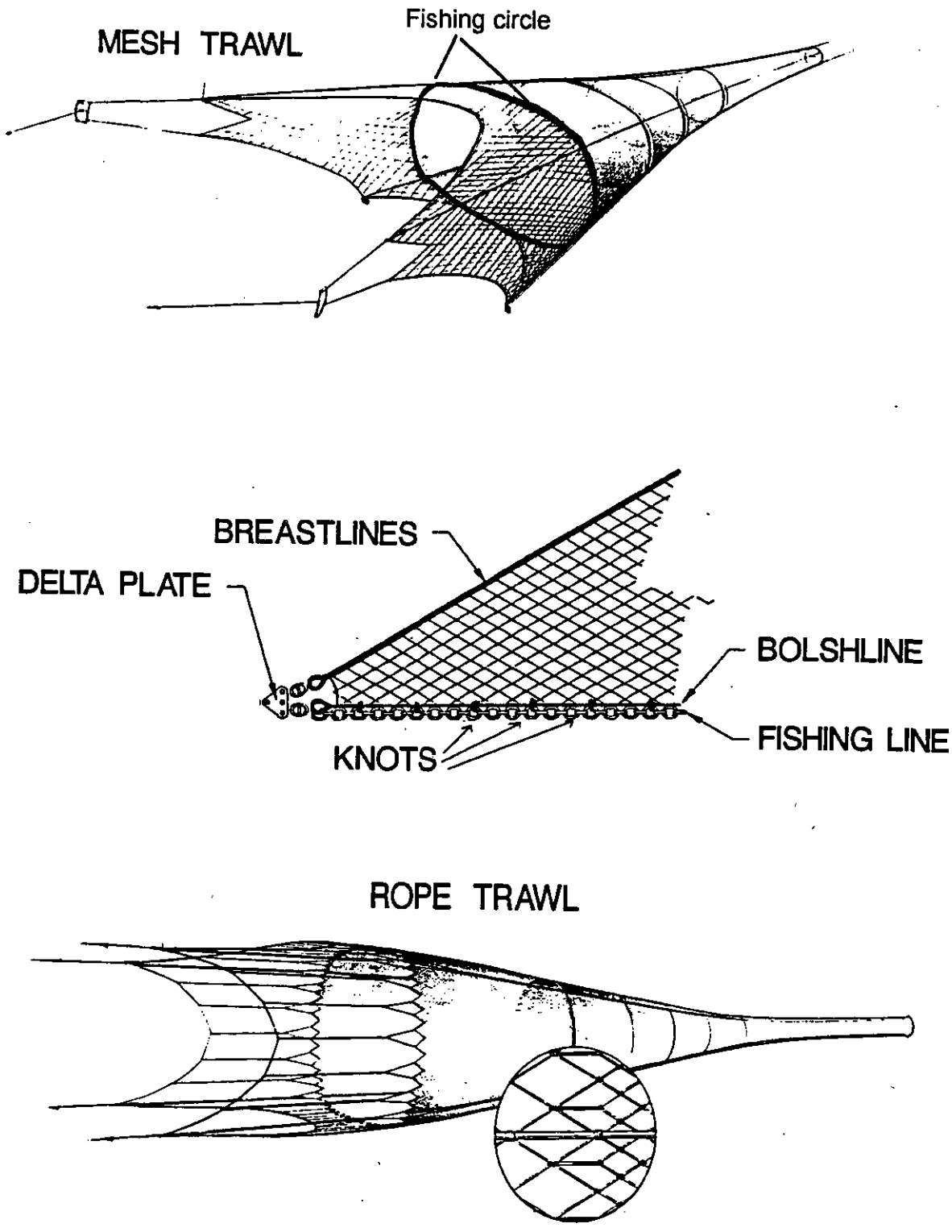

MESH TRAWL
Fishing circle
BREASTLINES
DELTA PLATE
BOLSHLINE
FISHING LINE
KNOTS
ROPE TRAWL

Figure 2

POT-AND-LINE means a stationary, buoyed line with a single pot attached, or the taking of fish by means of such a device.

PROCESSING or TO PROCESS means the preparation of fish to render it suitable for human consumption, industrial uses, or long-term storage, including but not limited to cooking, canning, smoking, salting, drying, freezing, and rendering into meal or oil, but does not mean icing or bleeding. Heading and gutting without additional preparation , such as freezing, is not processing under this definition.

PROCESSOR VESSEL means, unless otherwise restricted, any vessel that has been issued a Federal groundfish vessel permit and that can be used for processing groundfish.

QUARTER OR QUARTERLY REPORTING PERIOD means one of four successive 3-month periods, which begin at 0001 hours, Alaska local time (A.l.t.), on the first day of each quarter, and end at 2400 hours, A.l.t. on the last day of each quarter, as follows:

(1) 1st quarter: January 1 through March 31.
(2) 2nd quarter: April 1 through June 30.
(3) 3rd quarter: July 1 through September 30.
(4) 4th quarter: October 1 through December 31.

ROUND WEIGHT OR ROUND-WEIGHT EQUIVALENT is the weight of groundfish calculated by dividing the weight of the primary product made from that groundfish by the standard product recovery rate for that primary product as listed in regulation, or if not listed, the weight of groundfish calculated by dividing the weight of a primary product by the standard product recovery rate as determined using the best available evidence on a case by case basis.

STRETCHED MESH SIZE means the distance between opposite knots of a four-sided mesh when opposite knots are pulled tautly to remove slack.

TRAWL means a conical-shaped net that is towed through the water for catching fish or other organisms. The net accumulates its catch in the closed, small end (usually called the cod end). The definition includes, but is not limited to, Danish and Scottish seines and otter trawls.

VESSEL unless otherwise restricted, includes catcher vessels and processor vessels.

WEEKLY REPORTING PERIOD means a time period that begins at 0001 hours, Alaska local time (A.l.t), Sunday morning (except during the first week of each year, when it starts on January 1) and ends at 2400 hours, A.l.t., the following Saturday night (except during the last week of each year, when it ends on December 31).

WING TIP means the point where adjacent breast lines intersect or where a breast line intersects with the fishing line (see figure 2).

PERMITS - §679.4

No vessel may harvest or process groundfish in the BSAI or GOA management areas without first obtaining a federal fisheries permit. Each vessel must carry the permit on board and must present it for inspection upon the request of an authorized officer. Groundfish permits are not transferable, nor should they intentionally be altered or mutilated. They are obtained free of charge from the NMFS Office of Enforcement in Juneau, Alaska and are valid for one fishing year (January 1- December 31) and must be renewed annually.

When a vessel owner submits an application for a permit the following information is to be provided:

* Owner's name, address, and telephone number.
* ADF&G vessel number.
* U.S. Coast Guard documentation, or Alaska registration number.
* Name and Home Port of vessel.
* Type of gear used.
* Length and net tonnage of the vessel.
* Telephone, fax and COMSAT (satellite communication) number used on board.
* Names of operators and/or managers of the vessel.
* Vessel operations category (catcher vessel, catcher/processor, mothership, tender vessel, or support vessel.)

If information required during the permit application process changes, written notification must be provided to the Regional Director within 30 days, with one exception. Changes in mode of operation such as harvesting or support operations must be notified to the Director prior to engaging in a new operation.

Under the conditions of the groundfish permits, no person may use a vessel for which a BSAI or GOA groundfish permit was issued to catch or possess fish that were caught in the Donut Hole during the fishing year for which the permit was issued. If a permit is surrendered in accordance with the guidelines provided by the Alaska Regional Director a vessel may be used to catch or possess fish caught from the Donut Hole.

RECORDKEEPING REQUIREMENTS FOR ALL VESSELS AND SHORESIDE PROCESSORS - §679.5

GENERAL INFORMATION

The operator of any catcher vessel, (catcher vessels less than 60ft in length are exempt) mothership, catcher/processor, or tender vessel, that is five net tons or larger, and is required to have a Federal fisheries permit, and the manager of any shoreside processor, mothership, or buying station that receives groundfish from vessels required to have a Federal fisheries permit, are each responsible for compliance with the applicable recordkeeping, reporting, logbook and notice requirements summarized in this section. This includes the maintenance of timely and accurate records, reports, and logbooks. Such information is to be maintained in a legible manner, and in English. All reporting requirements are based on Alaska local time (A.l.t.). In addition, the owners of the vessel or shoreside processing facility must ensure that the operator or manager complies with these requirements, and is jointly responsible for compliance with these regulations. Except where otherwise stated, this section applies to all vessels required to have a Federal groundfish fishing permit, and to all processor vessels and shoreside processing facilities that receive groundfish.

AVAILABILITY FOR INSPECTION

The operator of a vessel and the manager of a shoreside processing facility must make the original copy of any record, report or logbook required under this section immediately available upon the request of an authorized officer or observer any time during which the record, report, or logbook is required to be maintained.

SUBMISSION OF RECORDS AND REPORTS TO THE ALASKA FISHERIES SCIENCE CENTER.

Records and reports which are required to be submitted to the Alaska Fisheries Science Center should be sent to the following address:

National Marine Fisheries Service
Alaska Fisheries Science Center
Logbook Program
7600 Sand Point Way NE , Building 4,
Seattle, WA 98115-0070.

SUBMISSION OF RECORDS AND REPORTS TO THE REGIONAL DIRECTOR.

Records and reports which are required to be submitted to the Regional Director should be sent to the following address:

NMFS, Alaska Regional Office
P.O. Box 21668
Juneau, AK 99802-1668
Tel: 907-586-7228

LOGBOOKS

GENERAL

If any catcher vessel, (catcher vessels less than 60 ft in length are exempt) catcher processor, or mothership, five net tons or larger, and any shoreside processing facility, floating processor, or buying station that is required to have a Federal groundfish permit, processes groundfish from any reporting area in the Gulf of Alaska or the Bering Sea/Aleutian Islands during the fishing year, they are required to maintain all prescribed groundfish logbooks. These logbooks are prescribed by the Regional Director and are provided to the operator of a vessel and the manager of a shoreside processing facility. The following groundfish logbooks are currently in use:

1) Daily Fishing Logbooks (DFL)

2) Daily Cumulative Production Logbooks (DCPL)

3) Product Transfer Logbooks.

Maintenance of the prescribed groundfish logbooks and compliance with the recordkeeping and reporting requirements is the responsibility of the vessel operator or the manager of the shoreside processing facility. Such information is to be maintained in a legible, timely, and accurate manner; in English; if handwritten, in indelible ink; if computer-generated, a printed, paper copy; and based on Alaska local time (A.l.t.). No person, other than an authorized officer may remove any original page of any logbook. In addition, no person may alter or change any entry or record in a logbook except that an inaccurate or incorrect entry or record may be corrected by lining out the original and inserting the correction, provided that the original entry or record remains legible. The owners of the vessel or shoreside processing facility must ensure that the operator or manager complies with these requirements, and is jointly responsible for compliance with these regulations.

RETENTION OF LOGBOOKS

* Original copies of all required logbooks must be retained on board the vessel or within the processing facility until the end of the fishing year and for as long after the end of the fishing year as fish or fish products recorded in the logbook are retained on board the vessel, or at the processing facility.

* The original (white) copy of all logbooks and a paper copy of all required reports and forms must be retained for three years after the end of the fishing year during which the records were made.

* The operator or manager of a buying station must retain the pink copy of all DCLs for three years after the end of the fishing year during which the records were made.

DAILY FISHING LOGBOOK (DFL)

The operator of each catcher/processor and catcher vessel harvesting groundfish from any reporting area in the GOA or the BSAI must maintain on board a daily fishing log of the effort and catch information of the vessel. Daily effort entries are required for each day of a fishing trip, from the day a vessel leaves an Alaskan port or enters the EEZ off Alaska until a vessel returns to port or leaves the EEZ off Alaska. Daily entries are not required for those days when the fishing vessel stays in port. Catcher vessels will receive a logbook that identifies only effort and catch information. However, catcher/processor vessels will be provided with a Daily Fishing Logbook that also functions as a Daily Cumulative Production Logbook.

CONTENTS OF DAILY FISHING LOGBOOKS

The daily fishing log must record the following effort information on a daily basis:

* The date.
* The vessel's name and ADF&G number.
* Reporting area where activity was conducted.
* The gear type used.
* The operator's signature.
* Whether an observer was on board the vessel.
* The number of individuals in the crew.
* Daily discard amounts by groundfish species or species group. These weights are to be recorded to the nearest tenth of a metric ton (.01 mt).
* Daily discard amounts of prohibited species.

DEFINITIONS OF FISHING TRIP

For the purposes of the Daily Fishing Log, the following definitions apply to a fishing trip:

* For vessels that offload groundfish on a daily basis, a fishing trip is defined as a day.
* For vessels that deliver groundfish on a less frequent schedule, a fishing trip is defined as the period between offloadings of groundfish catch.

DISCARD INFORMATION

For each fishing trip, discard information must include the following:

* A species code for each discarded species.
* Total amount of discards during a fishing trip, by species code, from the previous day. This is a cumulative number, obtained by carrying the discards from the previous day forward. The total discard number returns to zero at the beginning of each trip.
* Total discarded amount from the current harvesting day.
* Updated cumulative discarded amount for the fishing trip.

EFFORT AND CATCH DATA

The following information must be recorded for each haul or set:

* Haul or set number--must be a consecutive number starting from one. Consecutive numbering can be on a daily, trip, or yearly basis.

* Beginning time and position.
    * Trawlers - when gear reaches fishing level.
    * Other gear types - when first pot, jig, or hooks enter the water.
* The average sea depth - to the nearest fathom or meter.
* Average gear depth - to the nearest fathom or meter.
* End time (date if different from beginning date) and position.
    * Trawlers - when retrieval of trawl cables begins.
    * Other gear types - when last pot, jig, or hooks leave the water.
* Duration of set or trawl.
* For longline or single pot gear - the number of skates or pots per set, and the average number of hooks or pots.
* Round weight of Groundfish caught (whether retained or not).
* Intended target species.

OFFLOADS

On days that catcher vessels offload groundfish to a processor, the processors name, the ADF&G processor code, and the ADF&G fish ticket number must be recorded.

MAINTENANCE OF THE DAILY FISHING LOG

Within two hours after the haul is retrieved, the set or haul number, time, position and estimated groundfish catch weight must be recorded in the prescribed logbook. The remaining information described under the Effort and Catch data section, must be recorded by noon of the following day.

Discard information must be recorded in the Daily Fishing Logbook before the vessel's catch is off-loaded. Daily discard information for each day since the previous off-load must be provided to the processor receiving the catch. The processor must record this discard information in the Daily Cumulative Production Logbook and in the weekly production report.

SUBMISSION OF THE DAILY FISHING LOG

Quarterly submission. The operator of a catcher or catcher/processor vessel must submit a copy of the Daily Fishing Logbook on a quarterly basis to the Alaska Fisheries Science Center. The copy of the Daily Fishing Logbook for fishing activities conducted during the first quarter must be submitted by May 1 of that year; for the second quarter, by August 1 of that year; for the third quarter, by November 1 of that year; and for the fourth quarter, by February 1 of the following year.

DAILY CUMULATIVE PRODUCTION LOGBOOK (DCPL)

The operator of a processor vessel and the manager of a shoreside processing facility that receives or processes groundfish from any reporting area in the GOA or the BSAI must maintain on the processor vessel, or within the processing facility, a Daily Cumulative Production Logbook (DCPL) of estimated catch receipt (if applicable), species discard amounts, and retained groundfish product information as described in the following section. Daily entries are required for each day a processor vessel or facility receives or processes groundfish.

CONTENTS OF THE DAILY CUMULATIVE PRODUCTION LOGBOOK

* Page number - Consecutively numbered beginning with one on the first day the processor vessel or processing facility conducted any fishing or processing activity. A separate page must be used for each day's entries. Separate pages should be completed for each gear type and each area.
* The date.
* The name of the processing vessel or facility.
* The ADF&G vessel number or the ADF&G processor code.
* Reporting area.
* Gear type: pelagic, non-pelagic, trawl, hook and line, jig/troll, or pot.
* Whether an observer was on board the processing vessel or at the shoreside processing facility.
* Operator's signature.
* Number of crew.
* Round weight of each groundfish species discarded to the nearest 0.1 mt. Prohibited species should be recorded by number except herring which should be recorded to the nearest 0.1 mt. The information should include the amounts of discard reported to the processor by the catcher vessel.
* The total cumulative discards for the week.
* Daily product amounts by species or species group and product type.
* The total cumulative product amounts for the week.

MOTHERSHIPS

The following information must be recorded for each groundfish set or haul received by a mothership:

* ADF&G fish ticket number.
* Time that transfer of set or codend is completed.
* Position of mothership when set or codend were received.
* Name and ADF&G number of catcher vessel.
* Estimated total weight of catch or codend.

SHORESIDE PROCESSORS

* The ADF&G fish ticket number.
* Time that offloading was completed.
* The name and ADF&G number of the delivery vessel.
* The estimated total round weight of groundfish in catch.

MAINTENANCE OF DAILY CUMULATIVE PRODUCTION LOGBOOKS

Information concerning the catch receipt number or State of Alaska fish ticket number, time of receipt, the name of the delivering vessel and, for a mothership processor vessel, the position of that vessel and the estimated catch receipt weight, must be recorded in the Daily Cumulative Production Logbook within 2 hours after the set, codend or catch is received. All other information required in the Daily Cumulative Production Logbook as described in this section must be recorded by noon of the day following the day the catch receipt or production occurred. Information concerning product amounts must be recorded in the Daily Cumulative Production Logbook by noon of the day following the processing of the product regardless of when the set, codend or catch is received.

SUBMISSION OF THE DAILY CUMULATIVE PRODUCTION LOGBOOK

The operator of a processor vessel or manager of a shoreside processing facility must submit a copy of the daily cumulative production logbook on a quarterly basis to the Alaska Fisheries Science Center. The copy of the Daily Cumulative Production Logbook for activities conducted during the first quarter must be submitted by May 1 of that year; for the second quarter, by August 1 of that year; for the third quarter, by November 1 of that year; and for the fourth quarter, by February 1 of the following year.

PRODUCT TRANSFER LOGBOOKS

The operator of each processor vessel and the manager of each shoreside processing facility must record, in a separate transfer log, each loading, offloading, shipment, or receipt of any processed groundfish product, including quantities transferred or off loaded outside the EEZ, within any state's territorial waters, or within the internal waters of any state or at any shoreside facility. Product transfer information must be recorded in the product transfer log within twelve hours of the completion of the transfer.

The transfer logbook must have a record of the following information:

* The page number: This number must be consecutive beginning with page one for the first transfer occurring after the start of the fishing year and continuing throughout the logbook for the remainder of the fishing year.

* The time, date and location: This information must include the time and date when the transfer began and the time and date when it is completed. If the product transfer logbook is maintained for a processor vessel, this information must include the location of the transfer. If the processor vessel is at sea, the location of the transfer must be specified in geographic coordinates. If the processor vessel is in port, the location of the transfer must be specified by identifying that port.

* Identification information: When product transfer logbook is maintained for a processor vessel, the identification information must include the vessel's name, the Federal permit number, the ADF&G vessel number and radio call sign. When the product transfer logbook

is maintained for a shoreside processing facility, the identification information must include the name of the facility, the location of the facility, and the ADF&G Processor Code number.

* Company representative information: Company representative information must include the name of a person representing the processor vessel or facility, the telephone number for that person, and either a telex or facsimile number for that person.

* Transfer information: The transfer information must include the type of transfer involved and must specify whether the transfer is a shipment or offloading or whether it is a receipt or loading.

* Second party information: Second party information must include information concerning the other parties involved in the transfer including: the name, Federal permit number, radio call sign of any vessel involved, the name of any shipping agent involved, and the name and location of any processing facility involved. If the transfer involves a shipment, the second party information must include the destination of the carrier or vessel receiving the fish product.

* The fish product weight of each product transferred, including species and product-type codes, total number of production units transferred, and the estimated weight of each production unit type.

SUBMISSION OF PRODUCTION

An operator of a processor vessel and a manager of a shoreside processing facility must submit a copy of the product transfer logbook to the Regional Director for each week when any product transfer activity occurred. Copies of the product transfer logbooks must be received by the Regional Director within one week after the week the transfer occurred.

REPORTING REQUIREMENTS FOR PROCESSING VESSELS AND PLANTS - §679.5

The operator or manger of any processing vessel or shoreside processor of the United States that harvests or processes groundfish caught from any reporting area in the GOA or the BSAI must, in addition to the other requirements of this section, comply with the following requirements:

ALASKA GROUNDFISH CHECK-IN/CHECK-OUT NOTICES

* Requirements. Before a processing vessel begins any fishing activity or receives any groundfish in the GOA or the BSAI reporting areas, the operator of the processing vessel must provide a check-in notice to the Regional Director. When any processing vessel completes any fishing activity or receipt of groundfish in any GOA and BSAI reporting area, the operator of the processing vessel must provide a check-out notice to the Regional Director. When any shoreside processing facility completes receipt of groundfish from any GOA or BSAI reporting area, the manager of the processing facility must provide a check-

out notice to the Regional Director. The check-in/check- out notices must be provided by means and in the manner prescribed by Regional Director.

The notice of check-in or check-out must include the following information:

* The processor vessel's name
* Radio call sign and,
* if applicable, Federal groundfish permit number; or the shoreside processor's name and ADF&G processor code number.
* Time and date information.

  If the notice concerns the commencement of fishing activity or the receipt of groundfish by a processor vessel, this information must include the time (to the nearest hour, ALT) and date of when these activities will begin.

  If the notice concerns the completion of fishing activities or the receipt of groundfish by a processor, this information must include the time (to the nearest hour, ALT) and date when these activities ceased.

  If the notice concerns the completion of groundfish receipts by a shoreside processing facility, this information must include the date when this activity ceased.

* Processor Vessel Location.

  The reporting area and the position in geographic coordinates where the fishing activity or receipt of groundfish is expected to occur or has occurred.

WEEKLY PRODUCTION REPORTS

PROCESSOR VESSELS

The operator of a processor vessel which conducts fishing activity in, or receives groundfish from, any GOA or BSAI reporting area must submit weekly production reports. Weekly production reports are required from a processor vessel beginning from the start date specified in the check-in notice and ending after all groundfish and fish products prepared with any groundfish harvested from any GOA or BSAI reporting area are off loaded. Weekly production reports are required during this period even if no groundfish are harvested, received, or processed during a particular week. Weekly production reports for such weeks should specify zero amounts harvested, received, or produced.

SHORESIDE PROCESSORS

The manager of a shoreside processing facility that receives groundfish from any GOA or BSAI reporting area must submit weekly production reports beginning with the first week of a fishing year that groundfish is received by the facility and continuing until the end of the year or until the date specified in a check-out notice. Weekly production reports are required during this period even if no groundfish are harvested, received, or processed during a particular week. Weekly production reports for such weeks should specify zero amounts received or produced.

Weekly production reports must have a separate page for each gear type used and each page must include the following information:

* The name of the person submitting the report
* A telephone number, and either a facsimile or telex number for that person.
* Identification information:
    * The name and radio call sign for a processor vessel.
    * The plant name for a shoreside processing facility.
* Federal permit number or ADF&G processor code, whichever is applicable.
* The end date of the weekly reporting period.
* The gear type used to harvest the groundfish catch or catch receipt (pelagic trawl, non-pelagic trawl, hook and line, jig/troll, or pot gear).
* The reporting area or areas from which groundfish was harvested and retained during the weekly reporting period, with the reporting area(s) specified for each groundfish species or species group.
* The number of days when fishing activities were conducted and when fish were received.
* The total estimated catch weight or catch receipt for each reporting area to the nearest metric ton (mt).
* The fish product weight of each product produced during the weekly reporting period, including species and product-type codes, for each groundfish species or species group for which a total allowable catch (TAC) is specified. The one exception is within the category "other species." This group must be reported by the species or species group. All weights in the Weekly Production Report must be reported to at least the nearest 0.1 mt.
* The amount of each groundfish species, species group, or prohibited species listed, which is discarded in related fishing operations during the weekly reporting period.

SUBMISSION OF WEEKLY PRODUCTION REPORTS

The weekly production reports must be submitted to the Regional Director. Weekly production reports must be received by the Regional Director within 48 hours after the end of the applicable weekly reporting period.

DAILY PRODUCTION REPORT

When requested to do so by the Regional Director, processor vessels and shoreside processing facilities that conduct fishing activity in or receive groundfish from any GOA or BSAI reporting area must submit Daily Production Reports

The Daily Production Reports must include the following information:

* The name of the representative submitting the report,
* The telephone number of the submitter, and either a facsimile or telex number for that person.

* Identification information.
    Processor vessels must include:
        * The name,
        * radio call sign, and
        * Federal permit number of that vessel.
    Shoreside processing facility must include:
        * The name, and
        * The ADF&G processor code number of the plant.
* The gear type used to harvest the groundfish catch or catch receipt
        * Pelagic trawl,
        * Non-pelagic trawl,
        * Hook-and-line,
        * Pot,
        * Jig/troll
        * Other.
* The date(s) of groundfish harvest or receipt.
* For each day, the report must include groundfish catch for each species or species group listed by area(s).
* The fish product weight of each product produced during a day, including species and product-type codes. Each groundfish species or species group, except the "other species" category must be reported by TAC species or species group.
* The amount of each groundfish species or species group that is discarded in related fishing operations during a day.

SUBMISSION OF DAILY PRODUCTION REPORTS

Daily Production Reports must be submitted to the Regional Director through the means and in the manner prescribed by the Regional Director.

GENERAL PROHIBITIONS - §600.725, §679.7

IT IS UNLAWFUL FOR ANY PERSON TO :

* Fish for groundfish in the BSAI or GOA without a valid permit.

* Forcibly assault, resist, impede, intimidate, or interfere with an observer.

* Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or other sorting or discarding of catch before sampling.

* Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.

* Prohibit or bar by command, impediment, threat, coercion, or by refusal of reasonable assistance, an observer from collecting samples, conducting product recovery rate determinations, making observations, or otherwise performing the observer's duties.

* Harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile, or offensive environment.

* Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

* Conduct any fishing contrary to a notice of inseason adjustment. These include:
    * Closure, extension, or opening of a fishery
    * Closures of statistical areas or portions of statistical areas
    * Modification of allowable gear
    * Adjustment of Total Allowable Catch and Prohibited Species Limits (caps)

* Retain quantities of pollock roe that are greater than that which is defined in the general limitation section titled "Summary of the Roe Stripping Regulation."

* Exceed the bycatch rate standard for red king crab or halibut as specified by the Program to Reduce Prohibited Species, also called the Vessel Incentive Program.

* Deploy trawl, longline, single pot and line, or jig gear where directed fishing for, or retention of groundfish by vessels using that gear is prohibited.

* Operate a vessel in more than one "inshore component" category. These categories include:
    * All shoreside processor operations
    * All processing vessels that average less than 18mt per week of processed GOA cod and pollock, and are less than 125 feet.
    * All processor vessels that process at a single geographic location during a year.

* Operate a vessel in both the "inshore " and "offshore component" of a BSAI or GOA directed pollock fishery during the same fishing year.

* Operate a vessel in both he "inshore " and "offshore component" of a GOA directed Pacific cod fishery during the same fishing year.

* Use a vessel for which a BSAI or GOA groundfish permit was issued to catch, process, or possess fish that were caught in the Donut Hole during the fishing year for which the permit was issued.

* Use a vessel to fish with trawl gear in areas of BSAI Zone 1 that are closed to trawl gear unless NMFS authorizes this after consultation with the Council.

* Use a vessel to fish with trawl gear in areas of BSAI Zone 1 that are closed to trawl gear without fully complying with a scientific data collection and monitoring program.

* With respect to halibut caught while using hook-and-line gear to fish for groundfish, the following actions are prohibited:
    * Fail to release the halibut outboard a vessel's rails;
    * Release the **halibut** by any means other than one of the following **careful release** methods:
        * Cutting the gangion;
        * Positioning the gaff on the hook and twisting the hook from the halibut;
        * Straightening the hook by using the gaff to catch the bend of the hook and bracing the gaff against the vessel or any gear attached to the vessel;
    * Puncture the halibut with a gaff or other device; or

    * Allow the halibut to contact the vessel, if such contact causes, or is capable of causing, the halibut to be stripped from the hook.

* Have on board, at any particular time, 20 or more crab of any species which have a width of more than 1.5 inches (38 millimeters) at the widest dimension, caught with trawl gear during the following situations:
    * BSAI - When directed fishing for pollock with nonpelagic trawl gear is prohibited.
    * GOA - When directed fishing for groundfish, except by vessels using **pelagic trawl** gear for pollock, is prohibited.

* Discard any salmon taken incidental in a BSAI or GOA directed groundfish fishery by vessels using trawl gear until notified by a NMFS-certified observer that the number of salmon has been determined and the collection of any scientific data or biological samples has been completed. This regulation is known as **Salmon Retention**.

ENFORCEMENT - §600.7 § 600.8

Groundfish regulations may be enforced by authorized officers of the United States Coast Guard, Special Agents of the National Marine Fisheries Service, deputized officers of the Alaska Department of Public Safety, Fish & Wildlife Protection Division, or the Alaska Department of Fish & Game. The operator of, or any other person aboard a fishing vessel must comply with instructions and signals issued by an authorized officer to stop the vessel and to facilitate safe boarding and inspection of the vessel, its gear, equipment, fishing records, and catch. Please note that groundfish observers are not authorized enforcement officers.

IT IS UNLAWFUL FOR ANY PERSON TO :

* Fail to comply immediately with enforcement and boarding procedures.

* Refuse to permit an authorized enforcement official to board a fishing vessel for the purpose of conducting any search or inspection in connection with the enforcement of groundfish regulations.

* Dispose of fish or parts thereof or other matter in any manner, after any communication or signal from an authorized officer, or after the approach by an authorized officer or an enforcement vessel.

* Forcibly, assault, resist, oppose, impede, intimidate, or interfere with any authorized enforcement officer in the conduct of any search or inspection of a vessel.

* Interfere with, delay, or prevent by any means, the apprehension of another person, knowing that such person has committed any act prohibited by the Magnuson Act.

* Resist a lawful arrest.

NOTICES OF CLOSURE

Notices of closures are issued by NMFS when it is determined that the total allowable catch for any species category in any regulatory area or district has been or will be reached. The notice will prohibit directed fishing for that species or declare such species prohibited in all or part of the area or district. During the time that such notice is in effect, the operator of every vessel must minimize the catch of that species in the area or district affected.

Inseason adjustments are issued by NMFS when it is determined that it is necessary to prevent overfishing or to rectify incorrectly specified harvest limits. An inseason adjustment may close or extend a season in all or part of an area or district, modify the allowable gear to be used in all or part of a area or district, and/or adjust the total allowable catch limit.

Notices of closures and inseason adjustment will, in addition to being published in the Federal Register, normally be released to the public news media and are posted on the NMFS computer bulletin board. [http://161.55.184.53/akr-home.htm]

PROHIBITED SPECIES - §679.21

Retention of prohibited species is unlawful unless authorized by other applicable law, including the regulations of the International Pacific Halibut Commission.

Prohibited species include:

* Pacific salmon (All species.)
* steelhead trout
* halibut
* Pacific herring
* Tanner crab (All species)
* king crab (All species)
* Any groundfish species in any area where the total allowable catch of that species is zero or any groundfish species declared prohibited by a notice of closure.

The operator of each vessel must sort its catch as soon as possible after retrieval of the gear and return all prohibited species or part thereof to the sea immediately with a minimum of injury regardless of its condition, after allowing sampling by an observer. Observer sampling includes when salmon are to be retained for counting and the collection of biological data. It shall be presumed that any prohibited species found on board a vessel subject to these regulations was caught and retained in violation of these regulations.

SALMON RETENTION REGULATIONS - §679.21(c)

The operator of a vessel and the manager of a shoreside processing operation in a directed BSAI groundfish fishery by vessels using trawl gear must not discard any incidentally taken salmon until the salmon has been enumerated by a NMFS-certified observer, and the collection of any scientific data or biological samples from the salmon has been completed. Exceptions to this regulation include mothership processing vessels and shoreside processing plants that are exempt from obtaining observer coverage.

* Operators of vessels carrying observers onboard and whose fishing operations allow for sorting of groundfish catch for salmon must retain all salmon bycatch from each haul in a separate bin or other location that allows an observer free and unobstructed physical access to the salmon to count each fish and collect any scientific data or biological samples. Salmon from different hauls must be retained separately in a manner that identifies the haul from which the salmon were taken.

* Operators of vessels not carrying observers onboard or whose fishing operations do not allow for sorting of groundfish catch for salmon must ice, freeze, or store in a refrigerated saltwater tank all salmon taken as bycatch in trawl operations for delivery to the processor receiving the vessel's groundfish catch.

* Processors receiving groundfish harvested in a directed fishery for groundfish using trawl gear must retain all salmon delivered by each trawl vessel during a weekly reporting period in separate bins marked with the vessel's name and ADF&G fish ticket number(s) for each delivery until a NMFS-certified observer has counted each salmon and collected any scientific data or biological samples from the salmon delivered to the processor by that vessel. Processors without an observer present must store whole salmon in an iced or frozen

state until an observer is available to count each fish. Salmon must be stored at a location that allows an observer free and unobstructed physical access to each salmon.

* Mothership processor vessels and shoreside processing facilities that are exempt from obtaining observer coverage during a month under § 679.50(c) are exempt from mandatory retention of salmon under this paragraph .

* Operators of vessels and managers of shoreside processing operations that are required to retain salmon must designate and identify to the NMFS-certified observer onboard the vessel or at the shoreside operation a crew person or employee to be responsible for sorting, retention, and storage of salmon consistent with this paragraph. Upon the request of the NMFS-certified observer, the designated crew person or employee also is responsible for counting salmon and taking biological samples from retained salmon under the direction of the observer.

* Salmon must be returned to Federal waters as soon as is practicable, with a minimum of injury, regardless of condition, following notice by a NMFS-certified observer that the number of salmon has been determined and the collection of any scientific data or biological samples has been completed.

ROE STRIPPING REGULATIONS - §679.20(g)

Pollock roe retained onboard a vessel at any time during a fishing trip must not exceed seven percent of the total round-weight equivalent of pollock, as calculated from the primary pollock product onboard the vessel during the same fishing trip as defined below. Determinations of allowable retention of pollock roe will be based on the amounts of pollock harvested, received, or processed during a single fishing trip. Pollock or pollock products from previous fishing trips may not be used to determine the allowable retention of pollock roe for that vessel.

1. For purposes of this regulation, only one primary product per fish, other than roe, may be used to calculate the round-weight equivalent. The primary product must be distinguished from ancillary products in the daily cumulative production logbook. Ancillary products are those such as meal, heads, internal organs, pectoral girdles, or any other products which may be made from the same fish as the primary product.

2. Only the following product types and standard product recovery rates may be used to calculate round-weight equivalents for pollock for purposes of this subparagraph:

Product code	Product description	Standard product recovery rate
07	Headed and gutted, western cut	.65
08	Headed and gutted, eastern cut	.56
10	Headed and gutted, without tail	.50
20	Fillets with skin & ribs	.35
21	Fillets with skin on, no ribs	.30
22	Fillets with ribs no skin	.30
23	Fillets, skinless, boneless	.21
24	Deep skin fillets	.13
30	Surimi	.16
31	Mince	.22
32	Meal	.17

3. A vessel is engaged in a fishing trip when commencing or resuming the harvesting, receiving, or processing of pollock until: the transfer or offloading of any pollock or pollock product, the vessel leaves the subarea or district where the fishing activity commenced, or the end of a weekly reporting period, whichever comes first.

4. To calculate the amount of pollock roe that can be retained onboard during a fishing trip, first calculate the round-weight equivalent by dividing the total amount of primary product onboard by the appropriate product-recovery rate. To determine the amount of pollock roe that can be retained during the same fishing trip, multiply the round-weight equivalent by 0.07. The result is the maximum amount of pollock roe that can be onboard during that trip. Pollock roe retained onboard from previous fishing trips cannot be counted.

If two or more products, other than roe, are made from different fish, then round-weight equivalents are calculated separately for each product. Round-weight equivalents are then added together, and the sum multiplied by 0.07 to determine the maximum amount of pollock roe that can be retained onboard a vessel during a fishing trip. However, if two or more products, other than roe, are made from the same fish, then the maximum amount of pollock roe that can be retained during a fishing trip is determined from the primary product.

GROUNDFISH OBSERVER PROGRAM - §679.50

(Applicable through December 31, 1997)

GENERAL

Operators of vessels possessing a Federal fisheries permit under § 679.4(b)(1) and processors that possess a Federal processor permit under § 679.4(f)(1), must comply with this section. The owner of a fishing vessel subject to this part or a processor subject to this part must ensure that the operator or manager complies with this section and is jointly and severally liable for such compliance. Observer coverage requirements specified under this section are in addition to observer coverage requirements specified at § 679.32(c) for vessel operators and processors participating in CDQ fisheries.

OBSERVER REQUIREMENTS FOR VESSELS

Motherships: A mothership of any length that processes, 1,000 mt or more in round weight or round-weight equivalent of groundfish during a calendar month is required to have an observer aboard the vessel each day it receives or processes groundfish during that month. A mothership of any length that processes from 500 mt to 1,000 mt in round weight or round-weight equivalent of groundfish during a calendar month is required to have an observer aboard the vessel at least 30 percent of the days it receives or processes groundfish during that month. Each mothership that receives pollock harvested by catcher vessels in the catcher vessel operational area during the second pollock season that starts on September 1, is required to have a second observer aboard, for each day of the second pollock season until the chum salmon savings area is closed, or until October 15, whichever occurs first.

Catcher/processors or catcher vessels: All vessels of 125 feet length overall (LOA) or longer are required to carry an observer at all times when participating in the groundfish fishery, except for a vessel fishing with pot gear for groundfish. Vessels from 60 to 124 feet LOA and vessels fishing for groundfish with pot gear will be required to carry certified observers during 30 percent of its fishing days in each calendar quarter of the year in which they fish more than 3 days. Vessels under 60 feet LOA must carry an observer if required by the Regional Director. Each 30% coverage vessel (vessels from 60 to 124 feet LOA and each vessel fishing for groundfish with pot gear) that participates for more than 3 days in a calendar quarter in a directed groundfish fishery must carry an observer during at least one fishing trip in that calendar quarter for each groundfish fishery category. Vessels fishing with hook-and-line gear must carry an observer during one fishing trip in the Eastern Regulatory Area of the Gulf of Alaska during each calendar quarter the vessel participates in a directed groundfish fishery in the Eastern Regulatory Area.

OBSERVER REQUIREMENTS FOR SHORESIDE PROCESSING PLANTS

Shoreside processing facilities that process 1,000 mt or more, in round weight or round weight equivalents, of groundfish during a calendar month are required to have a NMFS certified observer present at the facility each day it receives or processes groundfish during that month. A shoreside processing facility that processes 500 mt to 1,000 mt, in round weight or round weight equivalents, of groundfish during a calendar month is required to have an NMFS certified observer present at the facility at least 30 percent of the days it receives or processes groundfish during that month. Facilities which receive less than 500 mt during a calendar month are not required to have an observer. A shoreside processing facility that offloads pollock at more than one location on the same dock and has distinct and separate equipment at each location to process those pollock and that receives pollock harvested by catcher vessels in the catcher vessel operational area during the second pollock season that starts on September 1, is required to have an observer, in addition to the observer required above, at each location where pollock is offloaded, for each day of the second pollock season until the chum salmon savings area is closed or October 15, whichever occurs first.

VESSEL RESPONSIBILITIES

An operator of a vessel required to carry one or more observers must:

(i) Accommodations and food.

* Provide at no cost to observers or the United States, accommodations and food on the vessel for the observer(s) that are equivalent to those provided for officers, engineers, foremen, deck-bosses or other management level personnel of the vessel.

(ii) Safe conditions.

* Maintain safe conditions on the vessel for the protection of the observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

* Have on board:
  (1) A valid Commercial Fishing Vessel Safety Decal issued within the past 2 years that certifies compliance with regulations found in 33 CFR Chapter I and 46 CFR Chapter I;
  (2) A certificate of compliance issued pursuant to 46 CFR 28.710; or
  (3) A valid certificate of inspection pursuant to 46 U.S.C. 3311.

(iii) Transmission of data.
Facilitate transmission of observer data by:

* Allowing observers to use the vessel's communication equipment and personnel, on request for entry, transmission, and receipt of work-related messages, at no cost to the observers or the United States.

* Ensuring that each mothership that is required to have a second observer aboard, is equipped with INMARSAT Standard A satellite communication capabilities and cc:Mail remote. The operator of each mothership shall also make available for the observer's use the following equipment compatible therewith and having the ability to operate the NMFS-supplied data entry software program: A personal computer with 486 or greater capacity processing chip, a DOS 3.0, or a successor version of DOS with 10 megabytes free hard disk storage, and 8 megabytes RAM. The operator of the mothership is responsible for obtaining the NMFS-supplied data entry software and for ensuring that all software and hardware required for observers to enter and transmit data is fully functional and operational.

(iv) Vessel position.
* Allow observers access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

(v) Access.
* Allow observers free and unobstructed access to, the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

(vi) Prior notification.
* Notify observers at least 15 minutes before fish are brought on board, or fish and fish products are transferred from the vessel, to allow sampling the catch or observing the transfer, unless the observers specifically request not to be notified.

(vii) Records.
* Allow observers to inspect and copy the vessel's daily fishing logbook, daily cumulative production logbook, product transfer forms, and any other logbook or document required by regulations. Observers are also allowed to inspect and copy printouts or tallies of scale weights, scale calibration records, bin sensor readouts, and production records.

(viii) Assistance.

* Provide all other reasonable assistance to enable observers to carry out their duties, including, but not limited to, assisting observers in measuring decks, codends, and holding bins; providing the observers with a safe work area adjacent to the sampling collection site; when requested by observers, assisting in collecting bycatch, assisting in collecting and carrying baskets of fish; and allowing observers to determine the sex of fish when this procedure will not decrease the value of a significant portion of the catch.

(ix) Transfer at sea.

* Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.
* Notify observers at least 3 hours before observers are transferred, such that the observer can collect personal belongings, equipment, and scientific papers.
* Provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.
* Provide an experienced crew member to assist observers in the small boat or raft in which any transfer is made.

SHORESIDE PROCESSOR RESPONSIBILITIES

The manager of the shoreside processor facility must:

(i) Safe conditions.

* Maintain safe conditions at the shoreside processing facility for the protection of observers by adhering to all applicable rules, regulations, or statutes pertaining to safe operation and maintenance of the processing facility.

(ii) Operations information.

* Notify the observers, as requested, of the planned facility operations and expected receipt of groundfish prior to the receipt of those fish.

(iii) Transmission of data.

* Allow observers to use the shoreside processor's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observers or the United States.

* Ensure that each shoreside processor that is required to have an additional observer, makes available to the observer the following equipment or equipment compatible therewith: A personal computer with a 486 or greater capacity processing chip with at least a 9600-baud modem and a telephone line. The personal computer must be equipped with a mouse, Windows version 3.1, or a program having the ability to operate the NMFS-supplied data entry software program, 10 megabytes free hard disk storage, and 8 megabytes RAM. The manager of the shoreside processor is responsible for obtaining the NMFS-supplied data entry software and for ensuring that all software and hardware required for observers to enter and transmit data is fully functional and operational.

(iv) Access.

* Allow observers free and unobstructed access to the shoreside processor's holding bins, processing areas, freezer spaces, weight scales, warehouses, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

(v) Document access.

* Allow observers to inspect and copy the shoreside processor's Daily Cumulative Production Logbook, transfer logbook, and any other logbook or document required by regulations; printouts or tallies of scale weights; scale calibration records; bin sensor readouts; and production records.

(vi) Assistance.

* Provide all other reasonable assistance to enable the observer to carry out his or her duties, including, but not limited to, assisting the observer in moving and weighing totes of fish, cooperating with product recovery tests, and providing a secure place to store baskets and sampling gear.

GENERAL PROHIBITIONS §679.7(g)

It is unlawful for any person to do any of the following:

* Forcibly assault, resist, oppose, impede, intimidate, or interfere with an observer.

* Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or other sorting or discarding any catch before sampling.

* Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.

* Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer collecting samples, conducting product recovery rate determinations, making observations, or otherwise performing the observer's duties.

* Harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile, or offensive environment. In determining whether conduct constitutes harassment, the totality of the circumstances, including the nature of the conduct and the context in which it occurred, will be considered. The determination of the legality of a particular action will be made from the facts on a case-by-case basis.

* Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including, but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to storage of the finished product.

* Fish for or process fish without observer coverage required under §679 Subpart E.

SEASONS - §679.23

1. Fishing for groundfish in the Gulf of Alaska, Bering Sea, and Aleutian Islands is authorized from 0001 hours Alaska local time (A.l.t.), January 1, through 2400 hours, A.l.t., December 31, subject to other provisions of this part, except as provided in paragraphs (3) through (6) of this section.

2. The time of all openings and closures of fishing seasons, other than the beginning and end of the calendar fishing year, is 1200 hours, A.l.t.

3. Notwithstanding other provisions of this part, fishing for groundfish with trawl gear in the BSAI and GOA is prohibited from 0001 hours, A.l.t., January 1, through 1200 hours, A.l.t., January 20.

4. GOA Pollock: Subject to other provisions of this part, directed fishing for pollock in the Western and Central Gulf Regulatory Areas is authorized from January 1 to April 1, June 1 to July 1, and September. 1 to December 31.

5. Directed fishing for arrowtooth flounder and Greenland turbot in the BSAI is authorized from 1200 hours, A.l.t., May 1, through 2400 hours, A.l.t., December 31, subject to other provisions of this part.

GEAR LIMITATIONS - §679.24

MARKING OF LONGLINE GEAR

All longline marker buoys carried aboard or used by any vessel regulated under this part shall be marked with the following:

* The vessel's name; and
* The vessel's Federal fisheries permit number; or
* The vessel's registration number.

The required markings are to be in characters at least four inches high by one-half inch wide, in a contrasting color, and visible above the water line. These markings are to be maintained in good condition, so they are clearly visible.

GROUNDFISH POTS REQUIREMENTS

Each pot used to fish for groundfish must be equipped with a biodegradable panel at least 18 inches in length that is parallel to, and within 6 inches of, the bottom of the pot, and which is sewn up with untreated cotton thread of no larger size than No.30. Each pot used to fish for groundfish must also be equipped with rigid tunnel openings that are no wider than 9 inches and no higher than 9 inches, or soft tunnel openings with dimensions that are no wider than 9 inches.

GEAR AND AREA RESTRICTIONS FOR THE GULF OF ALASKA - §679.22(b)

PELAGIC TRAWL RESTRICTION

No person may trawl in waters of the EEZ within the following areas in the vicinity of Kodiak Island from a vessel having any trawl other than a pelagic trawl, either attached or on board.

Alitak Flats, Towers, Marmot Flats Areas For general location see the map below. For the exact coordinates please see the Commercial Fishing Regulations for U.S. Fishermen Fishing for Groundfish in the EEZ in the Gulf of Alaska.

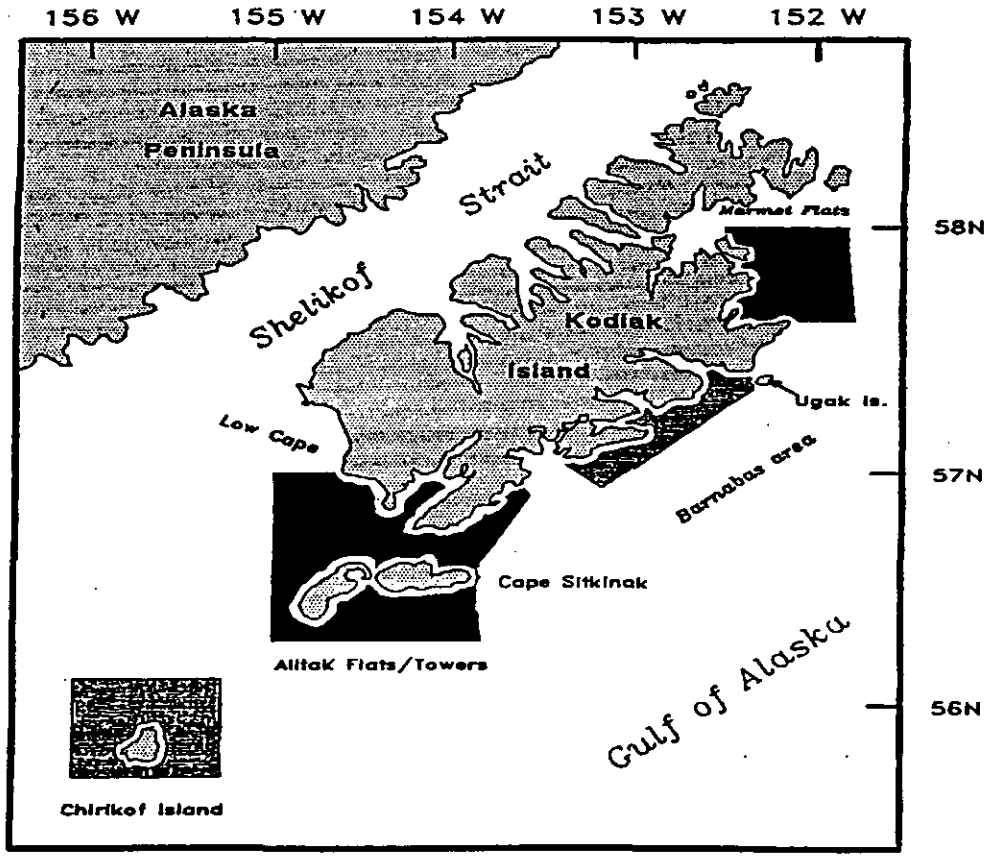


Figure 4 View of restricted areas in the vicinity of Kodiak Island.

From February 15 to June 15, no person may trawl in any of the following areas in the vicinity of Kodiak Island from a vessel having any trawl other than a pelagic trawl either attached or on board:

> Chirikof Island and Barnabas Areas: For general location see map above. For the exact coordinates please see the Commercial Fishing Regulations for U.S. Fishermen Fishing for Groundfish in the EEZ in the Gulf of Alaska.

Each person trawling in any area limited to pelagic trawling under of this section must maintain in working order on that trawl, a properly functioning, recording net-sounder device and must retain all net-sounder recordings aboard the fishing vessel during the fishing year. No person trawling in any area limited to pelagic trawling under this section will allow the footrope of that trawl to be in contract with the seabed for more than ten percent of the period of any tow, as indicated by the net-sounder device.

GEAR AND AREA RESTRICTIONS FOR THE BERING SEA AND ALEUTIAN ISLANDS - §679.22(a)

No fishing with trawl gear is allowed at any time in statistical area 512 except as described in the following paragraph.

Fishing for Pacific cod with trawl gear may be allowed in that portion of area 512 that lies south of a straight line connecting the coordinates 56°43' N latitude, 160°00' W longitude and 56°00' N latitude, 162°00' W longitude, provided that such fishing is in compliance with a scientific data collection and monitoring program, established by the Regional Director.

No fishing with trawl gear is allowed at any time in that part of area 516 during the period March 15 through June 15 except as described in the following paragraph.

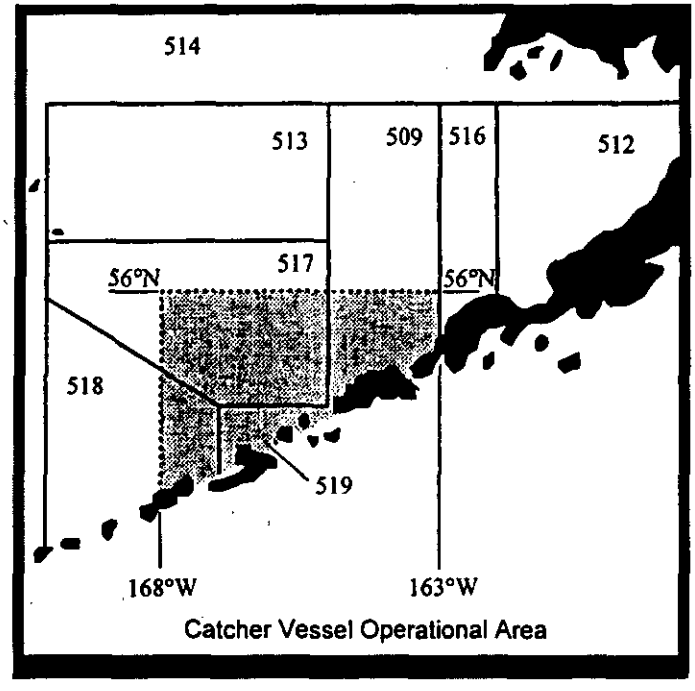
During the period March 15 through June 15, fishing for Pacific cod with trawl gear may be allowed in that portion of area 516 that lies south of a straight line connecting the coordinates 55°38' N latitude, 163°00' W longitude, and 56°00' N latitude, 162°00' W longitude provided that such fishing is conducted in full compliance with a scientific data collection and monitoring programs established by the Regional Director.

ROUND ISLAND AND THE TWINS

From April 1 through September 30 of any fishing year, vessels are prohibited from fishing between 3 and 12 miles seaward of the baseline used to measure the territorial sea around islands named Round Island and Twins as shown on National Ocean Survey Chart 16315, and around Cape Pierce (58°33' N latitude, 161°43' W longitude).

CATCHER VESSEL OPERATIONAL AREA

Processor vessels in the "offshore component" of the groundfish fishery may not catch pollock in excess of the directed fishing standard for pollock during the second seasonal allowance of pollock in the Bering Sea subarea south of 56°00' N and between 163°00' and 168°00' W longitude. (See diagram below.)



Processor vessels in the "offshore component" that do not catch groundfish but process pollock that is caught in a directed fishery for pollock by catcher vessels, may operate within this area to process the second seasonal allowance of pollock.

Offshore processor vessels that catch or process groundfish in directed fisheries for species other than pollock may operate within this area.

Offshore processor vessels are prohibited from conducting directed fishing for pollock in the CVOA unless they are operating under a Community Development Program approved by NMFS.

CHUM SALMON SAVINGS AREA

Trawling is prohibited from August 1 through August 31 in the area defined by straight lines connecting the following coordinates in the order listed:

56°00' N 167°00' W
56°00' N 165°00' W
55°30' N 165°00' W
55°30' N 164°00' W
55°00' N 164°00' W
55°00' N 167°00' W
56°00' N 167°00' W

When the Regional Director determines that 42,000 non-chinook salmon have been caught by vessels using trawl gear during the time period of August 15 through October 14 in the CVOA, NMFS will prohibit fishing with trawl gear for the period of September 1 through October 14 in the Chum Savings Area.

PROGRAM TO REDUCE PROHIBITED SPECIES BYCATCH RATES - §679.21

While participating in BSAI and GOA trawl fisheries, a vessel's bycatch rate at the end of a fishing month shall not exceed bycatch rate standards referenced in this section. This program which is also known as the Vessel Incentive Program is based on observed data. For the purposes of this program, observed data refers to data collected by observers who are certified under the NMFS Observer Program.

BYCATCH RATES FOR HALIBUT AND RED KING CRAB

* The bycatch rate for halibut is the ratio of the total round weight of halibut, in kilograms, to the total round weight, in metric tons, of allocated groundfish species.
* The bycatch rate for red king crab is the ratio of the number of red king crab to the total round weight, in metric tons, of allocated groundfish species.

FISHING MONTH

* Fishing month refers to a time period based on weekly reporting periods and is as follows: Each fishing month begins on the first day of the first weekly reporting period that has at least 4 days in the associated calendar month. Fishing month ends on the last day of the last weekly reporting period that has at least 4 days in that same calendar month. Dates of each fishing month are announced in the Federal Register.

VESSEL INCENTIVE PROGRAM FISHERIES

Bycatch rate standards are set by fishery. Please note that these target categories are unique to the Vessel Incentive Program. They are not necessarily consistent with targeting categories that are defined for directed fisheries or for prohibited species allocations.

Bering Sea and Aleutian Island Region

* Mid-water pollock
* Yellowfin sole
* Bottom pollock
* Other Trawl -- all other fishing with trawl gear that does not qualify as mid-water pollock, yellowfin sole, or bottom pollock.

Gulf of Alaska

* Mid-water pollock
* Other Trawl -- all other fishing with trawl gear that does not qualify as mid-water pollock.

BYCATCH RATE STANDARDS

Establishment of bycatch rate standards-- Prior to January 1 and July 1 of each year, the Regional Director will publish a notice in the Federal Register specifying bycatch rate standards for the fisheries identified above that will be in effect for specified seasons within the 6-month periods of January 1 through June 30 and July 1 through December 31, respectively. Bycatch rate standards will remain in effect until revised by a notice in the Federal Register. The Regional Director may adjust bycatch rate standards as frequently as he considers appropriate. Bycatch rate standards for a fishery and adjustments to such standards will be based on the following information and considerations:

* The previous year's average observed bycatch rates for that fishery;
* Immediately preceding season's average observed bycatch rates for that fishery;
* The bycatch allowances and associated fishery closures.
* Anticipated groundfish harvests for that fishery;
* Anticipated seasonal distribution of fishing effort for groundfish; and
* Other information and criteria deemed relevant by the Regional Director.

Bycatch rate standards or adjustments to such standards specified under this section will not take effect until the Secretary has published the proposed bycatch rate standards or adjustments to such standards in the Federal Register for public comment for a period of 30 days unless the Secretary finds for good cause that such notice and public comment are impracticable, unnecessary, or contrary to the public interest.

VESSEL BYCATCH RATES

For the purposes of this program observed data collected for each haul sampled during a day will include the date, position (Federal reporting area) where trawl gear was retrieved, total round weight of groundfish (mt) sampled by species or species group, total round weight of halibut, in kilograms, and total numbers of red king crab that were in the portion of the haul that was sampled.

OBSERVER SAMPLING PROCEDURES

* NMFS will randomly predetermine the hauls to be sampled by an observer during the time the observer is on a vessel.

* An observer will:
    * take samples at random from throughout the haul,
    * take samples prior to sorting of the haul by crew for processing or discarding of the catch.
    * sample a minimum of 100 kilograms of fish from each haul sampled.
    * report to NMFS, on at least a weekly basis, the data for sampled hauls.
    * allow the vessel operator to see all observed data that the observer submits to NMFS. Observed data was defined earlier for this section and is the CMA, CMB, 2US, and 3US data.

BYCATCH RATE CALCULATIONS

At the end of each fishing month during which an observer sampled at least 50 percent of a vessel's total number of trawl hauls retrieved (as recorded in the vessel's daily logbook), the Regional Director will calculate the vessel's bycatch rate. This bycatch rate is based on observed data for each fishery (as described previously in this section) to which the vessel was assigned for any weekly reporting period during that fishing month. Only observed data that has been checked, verified, and analyzed by NMFS will be used to calculate vessel bycatch rates for purposes of this section.

The halibut bycatch rate of a vessel for a fishery during a fishing month is a ratio of halibut to groundfish that is calculated by using the total round weight of halibut, in kilograms (for red king crab or chinook salmon bycatch rate, the total number is used) in samples during all weekly reporting periods in which the vessel was assigned to that fishery and the total round weight of the groundfish in metric tons in samples taken during all such periods.

COMPLIANCE WITH BYCATCH RATE STANDARDS

A vessel has exceeded a bycatch rate standard for a fishery if the vessel's bycatch rate for a fishing month exceeds the bycatch rate standard established for that fishery.

WESTERN ALASKA COMMUNITY DEVELOPMENT PROGRAM - CDQ § 679 Subpart C

CDQ RECORDKEEPING

In addition to all other recordkeeping and reporting requirements, operators of all vessels fishing CDQ's must record all CDQ catch, including all groundfish species and prohibited species caught, taken or harvested in the tow or set. Such data is to be recorded in the Daily Fishing Logbook, and the Daily Cumulative Production Logbook for processor vessels. A separate page must be used for CDQ catch, and the CDQ identification number must be clearly written on the sheet. The manager of a shoreside processing facility and the operator of a processor vessel must record all CDQ receipts, including receipts of all groundfish species and prohibited species caught, taken or harvested in the tow or set, on a Weekly Production Report sheet. A separate page must be used for CDQ catch, and the CDQ identification number must be clearly written on the sheet.

OBSERVER COVERAGE REQUIREMENTS

Vessel operators and processors participating in CDQ fisheries must comply with the following requirements for observer coverage:

* Each shoreside processing operation must have one NMFS certified observer present at all times while receiving and processing groundfish harvested under a CDQ.
* More than one observer can be required by the Regional Director if:
* The CDQ delivery schedule requires an observer to be on duty more than 12 hours in a 24 hour period.
* Simultaneous deliveries by more than one vessel cannot be monitored by one observer.
* One observer is not capable of adequately monitoring CDQ deliveries.
* Each Processor vessel must have two NMFS certified observers at all times while groundfish harvested under a CDQ is harvested, processed, or received from another vessel.
* Each catcher vessel delivering sorted groundfish harvested under a CDQ must have a NMFS certified observer onboard at all times while the vessel is participating in a CDQ fishery, regardless of vessel length.

EQUIPMENT AND OPERATIONAL REQUIREMENTS

Shoreside Processing Facilities:

* Groundfish harvested in the CDQ fisheries must be recorded and weighed on a scale certified by the State of Alaska. Such a scale must measure catch weights at all times to at least 95% accuracy, as determined by a NMFS certified observer or authorized officer. The scale and scale display must be simultaneously visible by the observer.
* Observers must be provided access to the scale used to weigh groundfish landings.
* Printouts of scale measurements of each delivery must be made available to observers and be maintained in the shoreside processing operation office for as long after the fishing year as product from fish harvested during that year are retained in the shoreside processing operation.

* The manager of each shoreside processing facility must notify the observer(s) of the offload schedule of each CDQ groundfish delivery at least 1 hour prior to offloading. This is necessary to provide the observer an opportunity to monitor the weighing of the entire delivery.

Vessel Requirements:

* Each processor vessel participating in the CDQ fishery must estimate the total weight of groundfish catch by the specified volumetric procedures, or must weight the catch prior to sorting.

VOLUMETRIC ESTIMATES

* Bins for volumetric estimates must:
  * be accurately measured and permanently marked in 10 cm intervals on all sides of the bins.
  * must have markings that are visible and readable from outside the bin.
  * have adequate lighting to allow markings to be read from outside the bin.
  * Prior to harvesting or receiving CDQ groundfish a certified table must be submitted to the Observer Program that indicates the volume of each bin in cubic meters for each 10cm increment. All bin certification documentation must be dated and signed by the certifier.
  * Vessel operators must notify observers prior to any removal or addition of fish from each bin used for volumetric measurements of catch. Such notice is to be made in such a manner that allows an observer to take bin volume measurements prior to fish being removed from or added to a bin.
  * Once a volumetric measurement has been taken additional fish may not be added to the bin until at least half the original volume has been removed. Fish may not be removed from or added to a bin used for volumetric measurements of catch until an observer indicates that bin volume measurements have been completed and any samples of catch required by the observer have been taken.
  * Fish from separate hauls or deliveries from separate harvesting vessels may not be mixed in any bin used for volumetric measurements.

SCALE ESTIMATES

* Any scale used on a processor vessel to weigh groundfish harvested in the CDQ fisheries must measure catch weights to at least 95% accuracy at all times as determined by a NMFS certified observer or authorized officer. The scale must be equipped with a motion compensation device to account for vessel acceleration, roll, pitch, and vibration movement. The scale and scale display must be visible by the observer simultaneously.
* Printouts of scale measurements of each weight must be made available to the observer and be maintained on board the vessel for the duration of the fishing year or for as long after a fishing year as products from fish harvested during that year are retained aboard the vessel.

CONTACT POINTS

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Anchorage, Alaska 99513
(907) 271-5006

Homer
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Homer, AK. 99603
(907)235-2337, FAX: (907)235-2209

Yakutat
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Yakutat, AK
(907) 784-3613, FAX: 907-784-3615

North Pacific Fishery Management Council, Anchorage (907) 271-2809
NMFS Bulletin Board (907) 586-7259
Bulletin Board assistance (907) 586-7229

REGULATIONS ON MARINE MAMMALS

Prepared by Observer Program Staff, 1995

REGULATIONS CONCERNING TAKING OF MARINE MAMMALS
(Excerpts taken from 50 CFR 216 and 229)

Definitions (§216.3)

Marine mammals means those specimens of the following orders, which are morphologically adapted to the marine environment, and whether alive or dead, and any parts thereof, including but not limited to, any raw dressed or dyed fur or skin: Cetacea (whales and porpoises), Pinnipedia (seals and sea lions), other than walrus.

Take means to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill, any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; or the negligent or intentional operation of aircraft or vessel, feeding or attempting to feed a marine mammal in the wild, or the doing of other negligent or intentional acts which result in the disturbing or molesting of a marine mammal.

Feeding is defined as "offering, giving, or attempting to give food or non-food items to marine mammals in the wild. It includes operating a vessel or providing other platforms from which feeding is conducted or supported. It does not include the routine discard of bycatch during fishing operations or the routine discharge of waste or fish byproducts from fish processing plants or other platforms if the discharge is otherwise legal and is incidental to operation of the activity."
Prohibited taking. (§216.11)

Except as noted below, it is unlawful for:
(1) Any person, vessel, or conveyance subject to the jurisdiction of United States to take any marine mammal on the high seas, and
(2) Any person, vessel, or conveyance to take any marine mammal in waters under the jurisdiction of United States.

Prohibited uses, possession, transportation, and sales (§216.13)

It is unlawful for:

(1) Any person to use any port, harbor, or other place under the jurisdiction of the United States for any purpose in any way connected with a prohibited taking or unlawful importation of any marine mammal or marine mammal product; or

(2) Any person subject to the jurisdiction of the United States to possess any marine mammal taken in violation of the Marine Mammal Act or these regulations, or to transport, sell, or offer for sale any such marine mammal or any marine mammal product made from any such mammal.

(3) Any person subject to the jurisdiction of the United States to use in a commercial fishery, any means or method of fishing in contravention of regulations and limitations issued by the Secretary of Commerce for that fishery to achieve the purposes of this Act.

Collection of certain marine mammal parts (§216.26)

(1) Any bones, teeth or ivory of any dead marine mammal may be collected from a beach or from land within ¼ of a mile of the ocean. The term *ocean* includes bays and estuaries. **NOTE: Walrus are managed by the State of Alaska and have management regulations that apply to the retention of their body parts. Observers often ask if they can keep walrus tusks that come up in the gear. Observers should not keep tusks or any other part of a walrus that are retrieved in commercial fishing gear.**

(2) Marine mammal parts so collected may be retained if registered within 30 days with an agent of NMFS, or an agent of the Bureau of Sport Fisheries and Wildlife.

Prohibitions (§229.4)

Except as noted below, it is unlawful to take any marine mammal incidental to commercial fishing operations.

In addition, it is unlawful to (1) take any California sea otter; or (2) Intentionally lethally take any Steller sealion, any Alaskan sea otter, any cetacean, any depleted species (including the Pribilof Island population of Northern fur seal), or any endangered or threatened marine mammal. If the use of firearms or other means to deter marine mammals results in an injury or mortality of a marine mammal, the taking is presumed to be intentional lethal taking.

MARINE MAMMAL FISHERY INTERACTION REGULATIONS

(§ 229 -This new regime replaces the Interim Exemption for Commercial Fisheries and is effective as of January 1, 1996. The following information is based on the proposed rule)

(1) Marine mammals killed during fishing operations which are readily accessible to crew members must be brought aboard the vessel for biological processing, if feasible and if requested by the observer. Marine mammals designated as biological specimens by the observer must be retained in cold storage aboard the vessel, if feasible, until retrieved by authorized personnel of NMFS.

(2) Any marine mammal incidentally taken must be immediately returned to the sea with a minimum of further injury and may only be retained if authorized by an observer, by condition of the Exemption Certificate, or by a scientific research permit that is in possession of the operator.

* New Authorization Process:

Fishers participating in Category I fisheries would be required to register with NMFS and display a current decal. Annual registration fees may be charged for authorization issuance.

* New Fishery Classification Criteria and Proposed List of Fisheries:
Commercial are classified according to their annual impact on marine mammal stocks, as defined by the number of serious injuries and mortalities relative to the stocks Potential Biological Removal (PBR). The status of all marine mammal stocks in U.S. waters, and each stock's serious injury and mortality rate relative to PBR, has been reviewed by NMFS biologists and other marine mammal scientists. A proposed list of fisheries has been developed, classifying fisheries according to the following criteria.

Category I — A commercial fishery that is, by itself, responsible for the annual removal of 50% or more of any stock's **PBR (Potential Biological Removal)**.

Category II — A commercial fishery that is, collectively with other fisheries, responsible for the annual removal of more than 10% of any marine mammal stock's PBR level and is by itself responsible for the annual removal of between 1% and 50% exclusively, of the PBR level for any stock.

Category III — A fishery that, collectively with other fisheries, is responsible for less than or equal to 10 percent of any marine mammal stock's PBR; **or** a fishery that, by itself, is responsible for less than or equal to 1 percent of that stock's PBR.

(Category II to Category III include Bering Sea and Aleutian Island groundfish trawl fisheries,)

* New Fishing Reporting Requirements:
All fishers, regardless of category, would be required to submit a report to NMFS within 48 hours after the end of the fishing trip if they have incidentally injured or killed a marine mammal in the course of commercial fishing operations. Intentional lethal taking of marine mammals is prohibited, except if imminently necessary in self defense or to save the life of another person in immediate danger. NMFS is developing easy-to-use computer scanning reports for use in reporting injuries and mortalities.

REGULATIONS CONCERNING STELLER SEA LIONS
(excerpts from §672.24 and §675.24)

New regulations now apply to all human activities, including commercial fishing, near Steller (northern) sea lions at-sea and near some of the islands where they breed.

1. Shooting at or near any Steller sea lion for any reason is now prohibited in U.S. waters. Fishermen may still use other means which do not result in injury or death to the animal to deter sea lions from interfering with their gear.

2. ***Fishing vessels are not permitted to enter within 3 nautical miles of Steller sealion rookery sites (locations where pups are born) west of 150 ° W longitude. Trawling cannot be conducted within 10 nautical miles of Steller sealion rookery sites during any part of the***

year. Trawling cannot be conducted with 20 nautical miles of the rookeries on Akun, Akutan, Sea Lion Rock, Ugamak Seguam, and Agligadak rookeries from January 20 to April 15.

This section does not prohibit a vessel in transit from passing through the following straits, narrows, or passageways, if the vessel proceeds in a continuous transit and maintains a minimum of 1 nautical mile from the rookery site. The listing of a strait, narrows or passageway does not indicate that the area is safe for navigation. The areas are as follows:

Rookery	Straits, Narrows, Or Pass
Akutan Island	Akutan Pass between Cape Morgan and Unalga Island
Clubbing Rocks	Between Clubbing Rocks and Cherni Island
Outer Island	Wildcat Pass between Rabbit and Ragged Islands

Longline and pot vessels may fish within the 10 and 20 mile boundaries, but may not enter inside of three nautical miles. A table describing these rookeries is included on the next two pages. More detailed maps or additional clarification are available from the National Marine Fisheries Service in Juneau.

3. The Secretary of Commerce is now empowered to place observers on any fishing vessel in order to monitor the accidental capture of sea lions in fishing gear. No more than 675 sea lions may be killed accidentally each year during fishing operations west of 141° W longitude.

4. Violations of laws protecting Steller sea lions are subject to severe civil and criminal penalties including vessel forfeiture, fines of up to $25,000, and imprisonment for up to one year for each violation.

These changes are due to the designation of the Steller sea lion as threatened throughout its range under the Endangered Species Act on April 5, 1990. This designation is based on declines of 63% since 1985 and 82% since 1960 in observed counts on certain Alaskan rookeries, that are in the primary range of the species.

These closures are intended to further reduce any effects that groundfish trawling may have on the Steller sea lions, particularly to their foraging success. The 10 nautical mile closure is base on the average distance traveled by foraging female Steller sea lions during the summer reproductive period. Maintenance of the buffer zones in the non-breeding season is primarily intended to protect juvenile sea lions. Juvenile sea lions are likely to be the most susceptible to prey depletion, since they are less adept predators than adults. These young animals are also less likely to swim far from their rookery of birth, particularly during their first year. Thus, nearshore zones proximal to rookeries are likely to be important feeding areas throughout the year.

ISLAND NAME	FROM	TO	NOAA CHART	NOTES
Sea Lion Rocks	55°28.0N 163°12.0W		16520	whole island
Bogoslof I.	53°56.0N 168°02.0W		16500	whole island
Yunaska I.	52°41.0N 168°02.0W	52°42.0N 170°38.5W	16500	NE end
Seguam I.	52°21.0N 172°33.0W	52°21.0N 172°35.0W	16480	N coast, Saddleridge Pt.
Agligadak I.	52°05.5N 172°54.0W		16480	whole island
Kasatochi I.	52°10.5N 175°29.0W	52°10.0N 175°31.5W	16480	N half of island
Adak I.	51°36.5N 176°59.0W	51°38.0N 176°59.5W	16460	SW point, Cape Yakak
Gramp Rock	51°29.0N 178°20.5W		16460	whole island
Tag I.	51°33.5N 178°34.5W		16460	whole island
Ulak I.	51°20.0N 178°57.0W	51°18.5N 178°59.5W	16460	SE corner, Hasgox Pt.
Semisopochnoi	51°58.5N 179°45.5E	51°57.0N 179°46.0E	16440	E quadrant, Pochnoi Pt.
Semisopochnoi	52°01.5N 179°39.0E	52°01.5N 179°37.5E	16440	N quadrant, Petrel Pt.
Amchitka I.	51°21.5N 179°25.0E	51°22.5N 179°28.0E	16440	East Cape
Amchitka I.	51°32.5N 178°49.5E		16440	Column Rocks
Ayugadak Pt.	51°45.5N 178°24.5E		16440	SE coast of Rat I.
Kiska I.	51°52.5N 177°13.0E	51°53.0N 177°12.0E	16440	Cape At. Stephen
Kiska I.	51°57.5N 177°21.0E	51°56.5N 177°20.0E	16440	W central, Lief Cove
Outer I.	59°20.5N 150°23.0W	59°21.0N 150°24.5W	16013	S quadrant
Sugarloaf I.	58°53.0N 152°02.0W		16013	whole island
Marmot I.	58°14.5N 151°47.5W	58°10.0N 151°51.0W	16013	SE quadrant
Chirikof I.	55°45.5N 155°39.5W	55°45.5N 155°43.0W	16013	S quadrant

ISLAND NAME	FROM	TO	NOAA CHART	NOTES
Chowiet I.	56°00.5N 156°41.5W	56°00.5N 156°42.0W	16013	S quadrant
Atkins I.	55°03.5N 159°18.5W		16540	whole island
Chernabura I.	54°47.5N 159°31.0W	54°45.5N 159°33.5W	16540	SE corner
Pinnacle Rocks	54°46.0N 161°46.0W		16540	whole island
Clubbing Rocks - South	54°42.0N 162°26.5W			
Clubbing Rocks - North	54°43.0N 162°26.5W		16540	whole island
Ugamak I.	54°14.0N 164°48.0W	54°13.0N 164°48.0W	16520	E end of island
Akun I.	54°18.0N 165°32.5W	54°18.0N 165°31.5W	16520	Billings Head Bight
Akutan I.	54°03.5N 166°00.0W	54°05.5N 166°05.0W	16520	SW corner, Cape Morgan
Ogchul I.	53°00.0N 168°24.0W		16500	whole island
Walrus I.	57°11.0N 169°56.0W		16380	
Buldir I.	52°20.5N 175°57.0E	52°23.5N 175°51.0E	16420	
Agattu I.	52°24.0N 173°21.5E		16420	
Agattu I.	52°23.5N 173°43.5E	52°22.0N 173°41.0E	16420	
Attu I.	52°57.5N 172°31.5E	52°54.5N 172°28.5E	16420	
Adugak I.	52°55.0N 169°10.5W		16500	whole island

NOTE: If only <u>one</u> set of geographic coordinates is listed, the site extends around the entire shoreline of the island at mean lower low water; if <u>two</u> sets of coordinates are listed, then the site extends in a clockwise direction from the first set of geographic coordinates along the shoreline at mean lower low water to the second set of coordinates. The fishery closure area extends from 10 nautical miles from mean lower low water.

MARINE POLLUTION (MARPOL) REGULATIONS

Prepared by Observer Program Staff 1995

The International Convention for the Prevention of Pollution From Ships (MARPOL) and five annexes are international agreements that were designed to halt at-sea disposal of wastes. MARPOL Annex V specifically prohibits the at-sea disposal of all plastics. It also eliminates the discharge of other types of vessel-generated garbage to specific distances from land. The at-sea disposal restrictions apply to commercial and publicly owned vessels of all sizes and classes.

Vessels complying with MARPOL Annex V have three options for dealing with wastes. 1) Non-plastics can be disposed of at sea within the legal restrictions, 2) they can incinerate wastes onboard the vessel, or 3) they can hold the wastes for shoreside disposal at port. Even though MARPOL has been in place since 1988 some individual vessel operators and crew have chosen to ignore MARPOL restrictions.

Plastic debris has been a concern of the NMFS since the early 1980's. Studies conducted in the North Pacific have linked debris generated by commercial ground fishing vessels with detrimental impacts to fish, seabirds, and marine mammals. Fur seals, and Steller sealions have been shown to be vulnerable to entanglement in netting, rope, and packing strap discards. Entanglement in debris is thought to contribute to mortality of individuals through starvation, suffocation, infection in resulting wounds, exhaustion, bleeding, drowning, and possibly increased predation. Studies conducted by the NMFS, National Marine Mammal Laboratory indicate entanglement may be contributing to the decline in northern fur seal population. In addition to entanglement in netting and plastic wastes, other species are also affected by ingestion. Stomach analysis of some seabirds and fish have found undigestible plastics.

VESSEL OPERATOR OBLIGATIONS

PLACARDS

(1) The regulations require U.S. recreational and other U.S. vessel operators, if their vessel is 26 feet or more in length, to affix one or more placards to their vessel. These placards warn against the discharge of plastic and other forms of garbage within the navigable waters of the United States, and specify discharge restrictions beyond three miles from shore, as outlined later. The placard must also note that State and local regulations may further restrict the disposal of garbage.

(2) Operators shall ensure that one or more placards are displayed in prominent locations and in sufficient numbers so that they can be observed and read by the crew and passengers. These locations might include embarkations points, food service areas, galleys, garbage handling spaces, and common deck spaces frequented by passengers and crew.

(3) Each placard must be at least 9 inches wide and 4 inches high, made of durable material, and lettered with letters at least 1/8 inch high.

WASTE MANAGEMENT PLANS

(1) The regulations require U.S. recreational and other U.S. vessel operators, if their vessel is 40 feet or more in length and engaged in commerce or equipped with a galley and berthing, to carry a Waste Management Plan if the vessel operates, or is certified to operate, beyond three nautical miles from shore.

(2) The Waste Management Plan must be in writing and describe procedures for collecting, processing, storing, and properly disposing of garbage in a way that will not violate the requirements shown on the following table. It must also designate the person who is in charge of carrying out the plan.

MARINA OBLIGATIONS

Ports and terminals that conduct business with a commercial vessel must be capable of receiving garbage from the vessel when it docks. Recreational boating facilities, capable of providing wharfage or other services for ten or more recreational vessels, must also provide adequate garbage reception facilities for any vessel that routinely calls. If a marina or terminal does not want to be directly involved in garbage collection and disposal, local firms may be retained to provided the service at the marina or terminal. Vessels must be conducting business with the facility or marina in order to qualify for the service. Terminals and marinas would not be expected to provide reception services to a vessel whose sole reason for docking was to offload its garbage. The marina or terminal can charge vessel operators reasonable fees for providing the reception service.

ENFORCEMENT

The U.S. Coast Guard is responsible for enforcement of Annex V.

REPORTING VIOLATIONS

Vessels denied the ability to offload their garbage wastes at marinas or other terminals should contact the closest U.S. Coast Guard Captain of The Port or Marine Safety Office (see list below). Any US citizen may report observations of dumping in violation of Annex V at these same offices. **NOTE: Observers wishing to report a potential MARPOL V violation can complete a questionnaire during the debriefing process.**

Commanding Officer U.S. Coast Guard Marine Safety Office Federal Building & U.S. 222 W 7th MC #17 Anchorage, AK 99513 (907) 271-5137	Commanding Officer U.S. Coast Guard Marine Safety Office Courthouse 6 P.O. Box 486 Valdez, AK 99686 (907) 950-3861	Commanding Officer U.S. Coast Guard Marine Safety Office 2760 Sherwood Lane, Suite 2A Juneau, AK 99801 (907) 586-7344	Commanding Officer U.S. Coast Guard Marine Safety Office 1519 Alaska Way S Bldg. 1Pier 36 Seattle, WA 98134 (206) 286-5550

MATERIALS THAT CAN NOT BE DISCARDED

PLASTIC includes but is not limited to: plastic bags, Styrofoam cups and lids, six pack holders, stirrers, straws, milk jugs, egg cartons, synthetic fishing lines, ropes, line, and bio or photo-degradable plastics

GARBAGE means paper, rags, glass, metal, crockery (generated in living spaces aboard the vessel--what we normally call trash), and all kinds of food, maintenance and cargo-associated waste. "Garbage" does not include fresh fish or fish parts, dishwater, and gray water.

DUNNAGE is material used to block and brace cargo, and is considered a cargo-associated waste.

INSIDE 3 MILE

PLASTICS
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT
ANY GARBAGE EXCEPT DISHWATER/GRAYWATER/FRESH FISH PARTS

3 TO 12 MILES

PLASTICS
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT
ANY GARBAGE LARGER THAN ONE SQUARE INCH

12 TO 25 MILES

PLASTIC
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT

OUTSIDE 25 MILES

PLASTIC

DISHWATER means the liquid residue from the manual or automatic washing of dishes and cooking utensils which have been pre-cleaned to the extent that any food particles adhering to them would not normally interfere with the operation of automatic dishwashers.

GRAYWATER means drainage from a dishwasher, shower, laundry bath, and washbasin, and does not include drainage from toilets, urinals, hospitals, and cargo spaces.

CHECKLIST OF OBSERVER SAFETY CONCERNS

1. **Safety inspection decal** - Vessels taking observers are to maintain safe conditions for the protection of observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel. They must have on board a Commercial Fishing Vessel Safety Examination decal certifying that they have been inspected. Check the decal to see that it was issued within the last two years.

2. **Survival craft** - Locate life rafts. Are you assigned to a particular one? Is there enough life raft capacity for every person on board, including the observer? Are the rafts Coast Guard approved? Check service dates, if possible.

3. **Immersion suits/life preservers** - Where are immersion (survival) suits and life preservers (PFDs) located? Are there enough for every person on board? Are the immersion suits Coast Guard approved? Are immersion suits and/or PFDs accessible to everyone at all times?

4. **Life rings** - Is this vessel equipped with life rings? Is there more than one? Are they in accessible locations on deck? Are they labeled with the vessel name?

5. **Flares** - Where are the flares located? Are they parachute flares (as required)? Are they Coast Guard approved? Check the expiration date. Does this vessel also have approved smoke signals?

6. **EPIRBs** - Where is the Emergency Position Indicating Radio Beacon (EPIRB)? Is there more than one? Does the vessel have a FCC Category I (float free, automatically activated) 406 MHz EPIRB?

7. **Fire extinguishers** - Where are fire extinguishers located? Are they accessible? Check the inspection tags - are they up to date? Check the gauges - are they charged and ready to use? Are they of an appropriate type for the area in which they are located (for example, Class A extinguisher in a storage area or living quarters, Class B extinguisher in the galley or engine room, Class C on the bridge)?

8. **First aid** - Does the vessel have a first aid reference book on board? Is there a medicine chest (first aid kit) of suitable size for the number of crew and type of vessel? Is it in an accessible location? Has anyone in the crew had formal first aid training?

9. **Navigation** - Is the vessel equipped with a magnetic steering compass? If so, there should also be a compass deviation card located near the steering station. When was the deviation last checked? Deviation is the difference between what the compass should read, according to the chart, and what it actually reads. Deviation of a magnetic compass is influenced by nearby electronic and/or metallic equipment, any nearby magnetic device, and the vessel's heading.

10. **Radios** - Does the vessel have at least one operating radio (VHF or single-side band) over which the vessel could transmit a mayday call or an automatically generated alarm?

11. Are emergency instructions for each of the following posted in conspicuous locations?

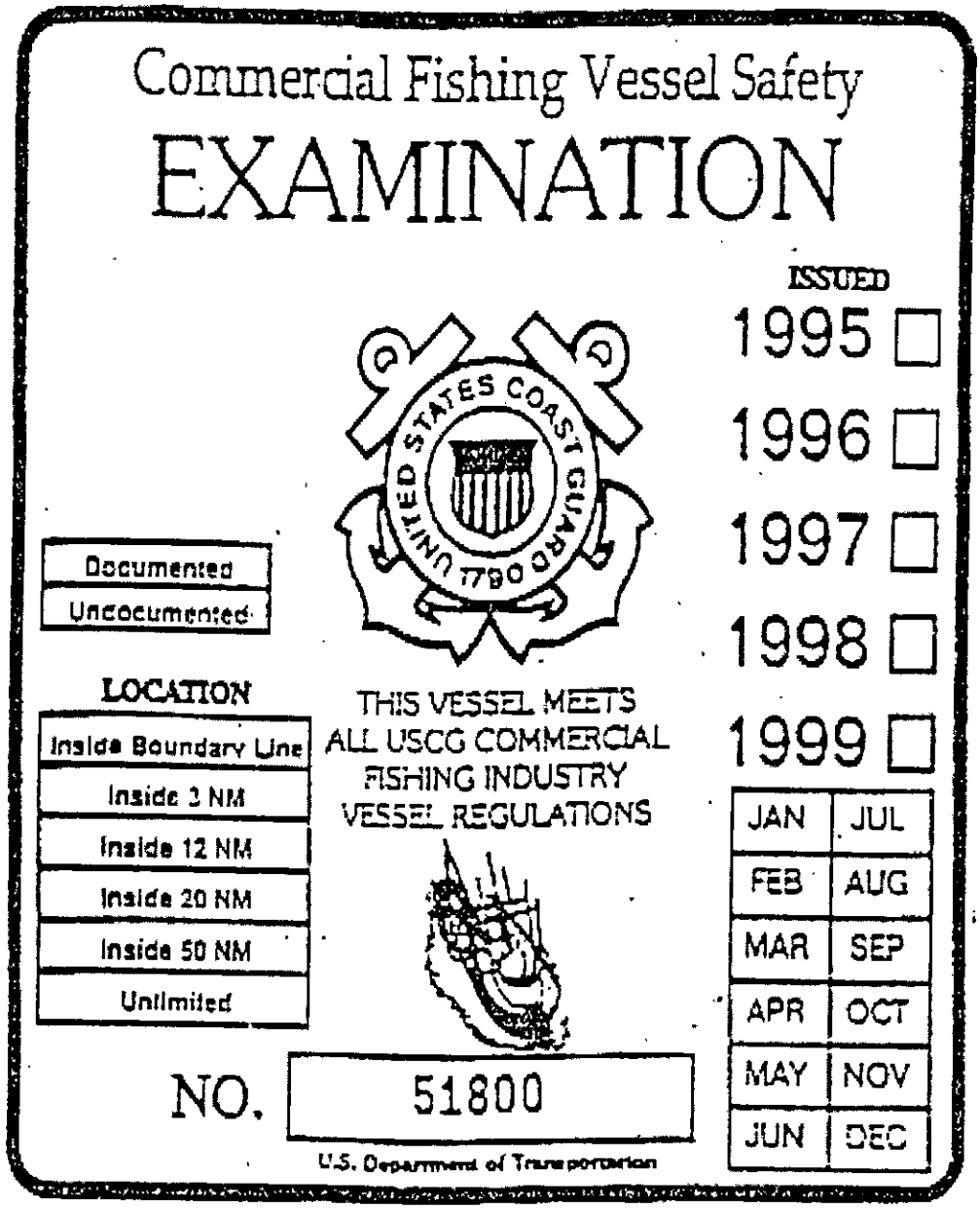
__ survival craft embarkation stations
__ survival craft assignments
__ fire/emergency/abandon ship signals
__ immersion (survival) suit locations and donning instructions
__ procedures for making a distress call
__ essential actions required of each person in an emergency
__ procedures for rough weather at sea
__ procedures for anchoring
__ procedures for recovering a person overboard
__ procedures for fighting a fire

12. Did the skipper ensure that you were given a safety orientation explaining the following emergency instructions before the vessel left port?

__ survival craft embarkation stations
__ survival craft assignments
__ fire/emergency/abandon ship signals
__ immersion suit locations and donning instructions
__ procedures for making a distress call
__ essential actions required of each person in an emergency
__ procedures for rough weather at sea
__ procedures for anchoring
__ procedures for recovering a person overboard
__ procedures for fighting a fire

13. As you walk through the vessel, make yourself aware of potentially hazardous areas. Identify the watertight doors, both on the interior of the vessel and to the outside - can they be secured in case of heavy weather or other emergencies? Are any hatches or passageways blocked or difficult to get to? Ask the skipper if the general alarm works. If he says it does, ask if he would be willing to test it for you so that you can hear what it sounds like.

Look at the deck equipment - are there leaky hydraulic hoses? Are lines badly frayed or worn? Are crane hooks secured out of the way? Is any extra equipment on deck, such as extra nets or hardware, tied down? Keeping in mind that even the best boats have an amount of rust, look for a lot of worn away paint and rust flakes. This is an indication of how well the vessel has been maintained. Don't be fooled by a comfortable interior or state of the art electronics. These things may have been purchased at the expense of good, regular maintenance.



Look for this decal which certifies that the vessel has had the required Coast Guard safety inspection.

SAFETY REGULATIONS FOR COMMERCIAL FISHING VESSELS

Prepared by Observer Program Staff 1995

Introduction

This summary of the regulations is not complete, nor quoted verbatim from federal law. It is a summary of various Code of Federal Regulations, simplified for the use of NMFS Observers. For further details, or to inspect a copy of the official codified regulations, consult the United States Coast Guard at the following locations: Washington/Oregon (206) 442-5233; Alaska (907) 586-7783.

Subpart A-General Provisions

0§28.30 Applicability

(a)Except as provided in paragraph (b) of this section, this part is applicable to all United States flag vessels not inspected under this chapter that are commercial fishing vessels, fish processing, or fish tender vessels. This includes vessels documented under the provisions of subchapter G of this chapter and vessels numbered by a state or the Coast Guard under provisions of subchapter S of this chapter. Certain regulations in this part apply only to limited categories of vessels. Specific applicability statements are provided at the beginning of those regulations.

(b)This part does not apply to small boat or auxiliary craft that is deployed from a fishing industry vessel for the purpose of handling fishing gear.

§28.50 Definition of terms used in this part.

Accommodations include mess room, lounge, sitting room, recreation room, quarters, toilet space, or shower room.

Approved means approved by the Commandant unless otherwise stated.

Boundary Lines means the lines set forth in 46 CFR part 7. In general, they follow the trend of the seaward high water shorelines and cross entrances to small bays, inlets and rivers from headlands to headlands..

Coastal waters means coastal waters as defined in 33 CFR 175.105. Generally includes the territorial seas - from the shoreline out to three miles.

Cold Water means water where the monthly mean low water temperature is normally 59°F (15 °C) or less.

Commandant means the Commandant of the Coast Guard or an authorized representative of the Commandant Of the Coast Guard.

Commercial fishing industry vessel means a fishing vessel, fish tender vessel, or a fish processing vessel.

Currently corrected means corrected with changes contained in all Notice to Mariners published by the Defense Mapping Agency Hydrographic/ Topographic Center.

Custom engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed for a specific space requiring individual calculations for the extinguishing agent volume, flow rate, and piping, among other factors, for the space.

Documented vessel means a vessel for which a Certificate of Documentation has been issued under the provisions of 46 CFR part 67. A vessel registered through the U.S. Coast Guard federal documentation system is said to be "documented". Federal documentation serves as proof of a vessel's nationality and with a fishing permit entitles the vessel to fish in the EEZ.

Fish means finfish, mollusks, crustaceans, and all other forms of marine animal and plant life, except marine mammals and birds.

Fish processing vessel means a vessel that commercially prepares fish or fish products other than by gutting, decapitating, gilling, skinning, shucking, icing, freezing, or brine chilling.

Fish tender vessel means a vessel that commercially supplies, stores, refrigerates, or transports fish, fish products, or materials directly related to fishing or the preparation of fish to or from a fishing, fish processing or fish tender vessel or a fish processing facility.

Fishing vessel means a vessel that commercially engages in the catching, taking, or harvesting of fish or an activity that can reasonably be expected to result in the catching, taking, or harvesting of fish.

Gasoline as used in this part includes gasoline-alcohol blends and any other fuel having a flash point of 110 °F (43.3 °C) or lower.

Length means the length listed on the vessel's Certificate of Documentation or Certificate of Number.

Major conversion means a conversion of a vessel that-

(1) Substantially changes the dimensions or carrying capacity of the vessel;

(2) Changes the type of the vessel;

(3) Substantially prolongs the life of the vessel; or

(4) Otherwise so changes the vessel that it is essentially a new vessel, as determined by the Commandant.

Mile means a nautical mile.

North Pacific Area means all waters of the North Pacific Ocean and Bering Sea north of 48°30° north latitude including waters in contiguous bays, inlets, rivers, and sounds.

Open to the atmosphere means a space that has at least 15 square inches (9600 square millimeters) of open area directly exposed to the atmosphere for each cubic foot (0.0283 cubic meters) of net volume of the space.

Operating station means the principal steering station on the vessel from which the vessel is normally navigated.

Pre-engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed and tested to be suitable for installation as a complete unit in a space of a set volume, without modification, regardless of the vessel on which installed.

Similarly qualified organization means an organization which has been designated by the Commandant for the purpose of classing or examining commercial fishing industry vessels under the provisions of §28.76.

Switchboard means an electrical panel which receives power from a generator, battery, or other electrical power source and distributes power directly or indirectly to all equipment supplied by the power source.

Warm water means water where the monthly mean low water temperature is normally more than 59° F. (15° C.).

Watertight means designed and constructed to withstand a static head of water without any leakage, except that "watertight" for the purposes of electrical equipment means enclosed so that equipment does not leak when a stream of water from a hose with a nozzle one inch (25.4 millimeters) in diameter that delivers at least 65 gallons (246 liters) per minute is played on the enclosure from any direction from a distance of 10 feet (3 meters) for five minutes.

Weather deck means the uppermost deck exposed to the weather to which a weather tight sideshell extends.

Weather tight means that water will not penetrate into the unit in any sea condition.

§28.70 Approved equipment and material

Equipment and material that is required by this subchapter to be approved or of an approved type, must have been manufactured and approved in accordance with the design and testing requirements in Subchapter Q of this chapter or as otherwise specified by the U.S. Coast Guard Commandant.

Subpart B-Requirements For All Vessels

§28.110 Life preservers or other personal flotation devices.

(a) After November 15, 1991 each vessel must be equipped with at least one immersion suit, exposure suit, or wearable personal flotation device of the proper size for each individual on board as specified in the table below. Each commercial fishing industry vessel propelled by sail or a manned barge employed in commercial fishing activities must meet the requirements of this paragraph.

(b) Each wearable personal flotation device must be stowed so that it is readily accessible to the individual for whom it is intended, from both the individual's normal work station and berthing area. If there is no location accessible to both the work station and the berthing area, an appropriate device must be stowed in both locations.

Applicable waters	Vessel type	Devices required
Seaward of the *Boundary Line* and North of 32°	Documented vessels	Immersion suit or exposure suit
Coastal water or beyond *cold* waters	All vessels	Immersion suit or exposure suit

§28.115 Ring life buoys.

(a) Except as provided in paragraph (b) of this section, after November 15, 1991 each vessel must be equipped with either a throw able floatation device or a ring life buoy as specified in the table below. Ring life buoys must be marked with the vessels name in block capital letters and have reflective material.

(b) For each vessel less than 65 feet (19.8 meters) in length, an approved 20 inch (.51 meters) or larger ring life buoy which is in serviceable condition and which was installed on board before September 15, 1991 may be used to meet the requirements of paragraph (a) of this paragraph.

Vessel length	Device required
26 feet or more, but less than 65 feet	1 ring life buoy with a line of at least 60 feet attached ; orange; at least 24 inch size
65 feet or more	3 ring life buoys with a line of a least 90 feet attached; orange; at least 24 inch size

§28.120 Survival craft

Each vessel must carry the craft specified in the table below; the survival craft must be able to accommodate the total number of individuals on board.

Beyond 50 miles of coastline	All documented vessels	Inflatable life raft with SOLAS A pack
Cold water between 20 and 50 miles of coastline	All documented vessels	Inflatable liferaft with SOLAS B pack

§28.125 Stowage of survival craft

Each inflatable liferaft required to be equipped with SOLAS A or a SOLAS B equipment pack must be stowed so as to float free and automatically inflate in the event the vessel sinks. Each hydrostatic release unit used in a float free arrangement must be Coast Guard approved.

§28.135 Lifesaving equipment marking

Ring life buoys and EPIRBs must all be marked with vessel's name and retroreflective tape. Wearable personal floatation devices and exposure suits must be marked with the name of either the vessel, the owner of the device, or the individual to whom it is assigned and retroreflective tape.

§28.145 Distress signals

Each vessel must be equipped with the distress signals specified in following table.

Ocean, more than 50 miles from coastline.	3 parachute flares, hand flares, and 3 smoke signals: all approved for international waters.
Ocean, 3-50 miles from the coastline.	3 parachute flares, hand flares, and 3 smoke signals: all approved for international waters or U.S. waters.

§28.140 Operational readiness, maintenance, and inspection of lifesaving equipment

The master or individual in charge of a vessel must ensure that each item of lifesaving equipment must be in good working order, ready for immediate use, and readily accessible before the vessel leaves port and at all times when the vessel is operated. Inflatable life rafts, hydrostatic releases must be serviced annually by a facility specially approved by the Coast Guard. EPIRBs must be inspected and tested monthly; this can be done by the master or other knowledgeable individual. An escape route from a space where an individual may be employed or an accommodation space must not be obstructed.

§28.150 Emergency position indicating radio beacons (EPIRBs)

Each vessel must be equipped with an emergency position indicating beacon (EPIRB). All commercial fishing vessels with galley or crew berthing spaces that operate beyond coastal waters must carry a Category I 406-MHz EPIRB. This type of EPIRB is designed to float free and activate automatically. EPIRBs must be tested monthly.

§28.160 Portable fire extinguisher.

(a) Vessels from 40 to 65 feet are required to have three class B-I fire extinguisher aboard if they have no fixed fire fighting system. If they do have a fixed fire fighting system, they are required to two class B-I extinguisher.

(b) Each vessel 65 feet or more in length must be equipped with the minimum number, location, and type of portable fire extinguisher specified in the table below.

Space	Classification	Quantity and location
Safety areas, communicating corridors	A-II	1 in each main corridor not more 150 feet apart
Pilot house	C-I	2 in vicinity of exit
Service spaces, galleys	B-II or C-II	1 for each 2,500 ft² suitable for hazards involved
Paint lockers	B-II	1 outside space in vicinity of exit
Accessible baggage and storerooms	A-II	1 for each 2,500 ft² located in the vicinity of exits, either inside or outside the space
Work shops and similar spaces	A-II	1 outside the space in vicinity of exit
Machinery spaces; Internal combustion propelling machinery	B-II	1 for each 1,000 brake horsepower, but not less than 2 nor more than 6
Electric propulsion motors or generator unit of open type	C-II	1 for each propulsion motor generator unit
Auxiliary spaces	B-II	1 outside the space in the vicinity of exit
Internal combustion machinery	B-II	1 outside the space in the vicinity of exit
Electric emergency motors or generators	C-II	1 outside the space in the vicinity of exit

Every fire extinguisher is Classified by letter and by Roman numeral (such as B-II, A-III, C-I, etc.); the letter identifies the type of fire the contents will put out while the number refers to the size of the extinguisher. Size I is the smallest; size V is the largest. Sizes I and II are considered hand portable.

Classes of fires:
Class A fires are fuels by common combustibles - wood, paper or plastics.
Class B fires are fueled by oil, grease, gas or other substances that give off large amount of flammable vapors
Class C fires involve electric equipment, conductors, or appliances.

§28.165 Injury placard .

Each vessel must have posted in a highly visible location accessible to the crew a placard measuring at least 5 inches by 7 inches which reads:

Notice

Report All Injuries

United States law, 46 U.S. Code 10603, requires each seaman on a fishing vessel, fish processing vessel, or fish tender vessel to notify the master or individual in charge of the vessel or other agent of the employer regarding any illness, disability, or injury suffered by the seaman when in service to the vessel not later than seven days after the date on which the illness, disability, or injury arose.

Subpart C-Requirements for Documented Vessels That Operate Beyond the Boundary Lines or With More Than 16 Individuals On Board

§28.205 Fireman's outfits and self-contained breathing apparatus.

(a) Each vessel that operates with more than 49 individuals on board must be equipped with at least two fireman's outfits stowed in widely separated locations. A fireman's outfit must consist of one self-contained breathing apparatus with lifeline attached, one flashlight, a rigid helmet, boots, protective clothing, and one fire axe.

(b) Each vessel that uses ammonia as a refrigerant must be equipped at least two self-contained breathing apparatuses.

(c) At least one spare air bottle must be provided for each self-contained breathing apparatus. Each self-contained breathing apparatus must be approved MSHA and NIOSH, have as a minimum a 30 minute air supply, and a full faceplate.

§28.210 First aid equipment and training.

Each vessel must have on board a complete first aid manual and medicine chest of a size suitable for the number of individuals on board in a readily accessible location.

Each vessel must have on board the following certified people. The number of certified individuals is based on the total number of individuals aboard the vessel. An individual certified in both first aid and CPR will satisfy both of these requirements.

Number of individuals onboard the vessel	Numbers of individuals that must be certified in first aid and CPR.
more than 2 individuals	at least 1 individual certified in first aid at least 1 individual certified in CPR
more than 16 individuals	at least 2 individual certified in first aid at least 2 individual certified in CPR
more than 49 individuals	at least 4 individual certified in first aid at least 4 individual certified in CPR

§28.215 Guards for exposed hazards.

Each space on board a vessel must meet the requirements of this section:

(a) Suitable hand covers, guards, or railing must be installed in way of machinery which can cause injury to personnel, such as gearing, chain or belt drives, and rotating shafting. This is not meant to restrict necessary access to fishing equipment such as winches, drums, or gurdies.

(b) Each exhaust pipe from an internal combustion engine which is within reach of personnel must be insulated or otherwise guarded to prevent burns.

§28.225 Navigational Information.

(a) Each vessel must have at least the following navigational information on board:

(1) Marine charts of the area to be transited, published by the National Ocean Service, Defense Mapping Agency Hydrographic/Topographic Center, U.S. Army Corps of Engineers that-

(i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(ii) Are currently corrected.

(2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(i) U.S. Coast Pilot; and

(ii) Coast Guard Light List.

(3) For the area to be transited, the current edition of, or applicable current extract from, each of the following publications:

(i) Tide tables published by the National Ocean Service: and

(ii) Tidal current tables published by the National Ocean Service. or river current publication issued by the U.S. Army Corps of Engineers.

(b) Each vessel of 39.4 feet (12 meters) or more in length that operates shoreward of the COLREG Demarcation Lines must carry on board and maintain for ready reference a copy of the Inland Navigation Rules

§28.230 Compasses

Each vessel must be equipped with an operable magnetic steering compass with a compass deviation table at the operating station.

§28.235 Anchors and radar reflectors

(a) Each vessel must be fitted with an anchor(s) and chain(s), cable, or rope appropriate for the vessel and the waters of the intended voyage.

(b) Except for a vessel rigged with gear that provides a radar signature from a distance of 6 miles, each nonmetallic hull vessel must have a radar reflector.

§28.240 General alarm system

Each vessel with an accommodation space or a work space which is not adjacent to the operating station, must have an audible general alarm system with a contact-maker at the operating station suitable for notifying individuals on board in the event of an emergency. The general alarm must be capable of notifying an individual in any accommodation or work space where they may be normally employed. In a work space where background noise makes a general alarm system difficult to hear, a flashing red light must also be installed. Each general alarm bell and flashing red light must be identified with red lettering at least ½ inch high as follows: Attention General Alarm- When Alarm Sounds Go to Your Station. A general alarm must be tested prior to the operation of the vessel and at least once each week thereafter. A public address system or other means of alerting all individuals on board may be used in lieu of a general alarm system provided it complies with this paragraph and can be activated from the operating station.

§28.245 Communication equipment

(a) Each vessel must be equipped as follows:

(1) Each vessel must be equipped with VHF radiotelephone capable of transmitting and receiving on the frequency or frequencies within the 156-162 MHz band necessary to communicate with a public coast station or U.S. Coast Guard station serving the area in which the vessel is operating.

(2) Each vessel that operates more than 20 miles from the coastline, in addition to the VHF radiotelephone required above, must be equipped with a radiotelephone transceiver capable of transmitting and receiving on frequencies in the 2-4 MHz band necessary to communicate with public coast station or U.S. Coast Guard station serving the area in which the vessel is operating.

(3) Each vessel that operates more than 100 miles from the coastline, in addition to the communication equipment required above in this section must be equipped with a radiotelephone transceiver capable of transmitting and receiving on frequencies in the 2-25.5 MHz band necessary to communicate with a public coast station or U.S. Coast Guard station serving the area in which the vessel is operating.

(4) Each vessel that operates in waters contiguous to Alaska where no public coast station or U.S. Coast Guard station is within communications range of a VHF radio transceiver operating on the 156-162 MHz band or the 2-4 MHz band, in addition to the VHF radio communication equipment required by paragraph (a)(1) of this section, must be equipped with a radiotelephone transceiver capable of transmitting and receiving on frequencies in the 2-27.5 MHz band necessary to communicate with a public coast station or a U.S. Coast Guard station serving the area in which the vessel is operating.

(b) A single radio transceiver capable of meeting the requirements of paragraphs (a) (2) and (3), or paragraphs (a) (2), (3), and (4) of this section, is acceptable.

(c) Satellite communication capability with the system servicing the area in which the vessel is operating is acceptable as an alterative to the requirements of paragraphs (a)(2), (a)(3), or (a)(4) of this section.

(d) A cellular telephone capable communicating with a public coast station or a U.S. Coast Guard station serving the area in which the vessel is operating is acceptable as an alterative to the requirements of paragraphs (a)(2), (a)(3), or (a)(4) of this section.

(e) A radiotelephone transceiver installed on board a vessel before September 15, 1991, capable of transmitting and receiving on frequencies on the 4-20 MHz band may continue to be used to satisfy the requirements of paragraphs (a)(3) and (a)(4) of this section.

(f) The principle operating position of the communication equipment must be at the operating station.

(g) Communication equipment must be installed to ensure safe operation of the equipment and to facilitate repair, it must be protected against vibration, moisture, temperature, and excessive currents and voltages. It must be located so as to minimize the possibility of water intrusion from windows broken by heavy seas.

(h) Communication equipment must comply with the technical standards and operating requirements issued by the Federal Communications Commission.

(i) All communication equipment must be provided with an emergency source of power that complies with §28.375.

§28.250 High water alarms.

On a vessel 36 feet (11.8 meters) or more in length, a visual and audible alarm must be provided at the operating station to indicate high water level in each of the following normally unmanned spaces:

(a) A space with a through-hull fitting below the deepest load waterline, such as the lazarette;

(b) A machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from sea water piping within the space; and

(c) A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

§28.255 Bilge pumps, bilge piping, and dewatering systems.

(a) Each vessel must be equipped with a bilge pump and bilge piping capable of draining any watertight compartment, other than tanks and small buoyancy compartments, under all service conditions. Large spaces, such as engine rooms must be fitted with more than one suction line.

(b) In addition to the requirements of paragraph (a) of this section, a space used in the sorting or processing of fish in which water is used must be fitted with dewatering system capable of dewatering the space under normal conditions of list and trim at the same rate as water is introduced. Pumps used as part of the processing of fish do not count for meeting this requirement. The dewatering system must be interlocked with the pump(s) supplying water to the space, so that in the event of failure of the dewatering system, the water supply is inactivated.

(c) Except as provided by paragraph (f), of this section, each vessel 79 feet (24 meters) or more in length must be equipped with a fixed, self priming, powered, bilge pump connected to a bilge manifold.

(d) If a bilge pump required by paragraph (a) of this section is portable, it must be provided with a suitable suction hose of adequate length to reach the bilges of each watertight compartment it must serve and with a discharge hose of adequate length to ensure overboard discharge. A portable pump must be capable of dewatering each space it serves at a rate of at least 2 inches (51 millimeters) of water depth per minute.

(e) Except for a fire pump required by §28.315, a bilge pump may be used for other purposes.

(f) Except where an individual pump is provided for a separate space or for a portable pump, each individual bilge suction line must be led to a manifold. Each bilge suction line must be provided with a stop valve at the manifold and a check valve at some accessible point in the bilge line to prevent unintended flooding of a space.

(g) Each bilge suction line and dewatering system suction must be fitted with a suitable strainer to prevent clogging of the suction line. Strainers must have an open area of not less than three times the open area of the suction line.

§28.260 Electronic position fixing devices

Each vessel 79 feet (24 meters) or more in length must be equipped with an electronic position fixing device capable of providing accurate fixes for the area in which the vessel operates such as loran-C, Sat Nav, GPS, or similar devices.

§ 28.265 Emergency Instruction.

(a) Except as provided in paragraphs (b) and (c) of this section, each vessel must have emergency instructions posted in conspicuous locations accessible to the crew.

(b) The instruction identified in paragraphs (d)(6), (d)(7), (d)(8), and (d)(9) of this section, may be kept readily available as an alterative to posting.

(c) On a vessel which operates with less than 4 individuals on board, the emergency instructions may be kept readily available as an alternative to posting.

(d) The emergency instructions required by this section must identify at least the following information, as appropriate for the vessel:

(1) The survival craft embarkation stations aboard the vessel and the survival craft to which each individual is assigned;

(2) The fire and emergency signal and the abandon ship signal;

(3) If immersion suits are provided, the location of the suits and illustrated instructions on the method for donning the suits;

(4) Detailed procedures for making a distress call;

(5) Essential action that must be taken in an emergency by each individual, such as:

(i) Making a distress call.

(ii) Closing of hatches, airports, watertight doors, vents, scuppers, and valves for intake and discharge lines which penetrate the hull, stopping of fans and ventilation systems, and operation of all safety-equipment.

(iii) Preparing and launching of survival craft and rescue boats.

(iv) Fighting a fire.

(v) Mustering of personnel including-

(A) Seeing that they are properly dressed and have put on their life jackets or immersion suits; and

(B) Assembling personnel and directing them to their appointed stations.

(vi) Manning of fire parties assigned to deal with fires.

(vii) Special duties required for the operations of fire fighting equipment.

(6) The procedures for rough weather at sea, crossing hazardous bars, anchoring of the vessel, such as:

(i) Close all watertight and weather tight doors, hatches and airports to prevent taking water aboard or further flooding in the vessel.

(ii) Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.

(iii) Align fire pumps to use as bilge pumps, if possible.

(iv) Check all intake and discharge lines which penetrate the hull for leakage.

(v) Personnel should remain stationary and evenly distributed.

(vi) Personnel should don life jackets and immersion suits if the going becomes very rough, the vessel is about to cross a hazardous bar, or when otherwise instructed by the master or individual in charge of the vessel.

(7) Emergency instructions must identify (continued) the procedures for anchoring the vessel;

(8) The procedures to be used in the event an individual falls overboard, such as:
(i) Throw a ring life buoy as close to the individual as possible:
(ii) Post a lookout to keep the individual in the water in sight:
(iii) Launch the rescue boat and maneuver it to pick up the individual in the water,.
(iv) Have a crew member put on a life jacket or immersion suit, attach a safety line to a crew member, and have crew member standby to jump into the water to assist in recovering the individual in the water if necessary;
(v) if the individual overboard is not immediately located, notify the Coast Guard and other vessels in the vicinity: and
(vi) Continue searching until released by the Coast Guard.

(9) Procedures for fighting a fire, such as:
(i) Shut off air supply to the fire- close hatches, port, doors, ventilators, and similar openings.
(ii) Deenergize the electrical systems supplying the affected space, if possible.
(iii) Immediately use a portable fire extinguisher or use water for fires in ordinary combustible materials. Do not use water on electrical fires.
(iv) If the fire is in a machinery space, shut off the fuel supply and ventilation system and activate the fixed extinguishing system, if installed.
(v) Maneuver the vessel to minimize the effect of wind on the fire.
(vi) If unable to control the fire, immediately notify the Coast Guard and other vessels in the vicinity.
(vii) Move personnel away from the fire, have them put on life jackets, and if necessary, prepare to abandon the vessel.

§28.270 Instruction, drills, and safety orientation.

(a) Drills and instruction. The master or individual in charge of each vessel must ensure that drills are conducted and instruction is given to each individual on board at least once each month. Instruction may be provided in conjunction with drills or at other times and places provided it ensures that each individual is familiar with their duties and their responses to at least the following contingencies:
(1) Abandoning the vessel;
(2) Fighting a fire in different locations on board the vessel;
(3) Recovering an individual from the water;
(4) Minimizing the affects of unintentional flooding;
(5) Launching survival craft and recovering lifeboats and rescue boats;
(6) Donning immersion suits and other wearable personal flotation devices;
(7) Donning a fireman's outfit and a self-contained breathing apparatus, if the vessel is so equipped;
(8) Making a voice radio distress call and using visual distress signals;
(9) Activating the general alarm; and
(10) Reporting inoperative alarm systems and fire detection systems.

(b) Participation in drills. Drills must be conducted on board the vessel as if there were an actual emergency and must include participation by all individuals on board, breaking out and using emergency equipment, testing of all alarm and detection systems, donning protective clothing, and donning immersion suits, if the vessel is so equipped.

(d) The viewing of videotapes concerning at least the contingencies listed in paragraph (a) of this section, whether on board the vessel or not, followed by it discussion led by an individual familiar with these contingencies will satisfy the requirement for instruction but not the requirement for drills in paragraph (b) of this section or for the safety orientation in paragraph (e) or this section.

(e) *Safety orientation.* The master or individual in charge of a vessel must ensure that a safety orientation is given to each individual on that has not received the instruction and has not participated in the drills required by paragraph (a) of this section before the vessel may be operated.

(f) The safety orientation must explain the emergency instructions required by §28.265 and cover the specific evolution listed in paragraph (a) of this section.

§4.05-1 Casualty Reporting Requirements

The owner, agent master, or person in charge of a vessel involved a marine casualty shall give notice as soon as possible to the Coast Guard Marine Safety or Marine Inspection Office whenever the casualty involves any of the following:

(a) All accidental grounding and any intentional grounding which also meets any of the other reporting criteria or creates a hazard to navigation, the environment, or safety of the vessel;

(b) Loss of main propulsion or primary steering, or any associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel. Loss means that systems, component parts, sub-systems, or control systems do not perform the specified or required function;

(c) An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, or failure or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping system;

(d) Loss of life;

(e) Injury which requires professional medical treatment beyond first aid and, in the case of a person engaged or employed on board a vessel in commercial service, which renders the individual unfit to perform routine vessel duties.

(f) An occurrence not meeting any of the above criteria but resulting in damage to property in excess of damage to property in excess $25,000. Damage cost includes the cost of labor and material to restore the property to the service condition which existed prior to the casualty, but does not include the cost of salvage, cleaning, gas freeing, drydocking, or demurrage.

OBSERVER PROCEDURES DURING A COAST GUARD BOARDING

The Coast Guard makes periodic boardings of fishing vessels to inspect them for fisheries and safety violations. A NMFS Enforcement agent may also be present. As an observer there are certain things you should and shouldn't do. These instructions have been written as a guide should a boarding occur during your deployment.

It is important that you remain objective throughout the process and do not involve yourself beyond your capacity as an observer. Do not join in any discussions between boarding party members and vessel personnel. The Coast Guard or NMFS agent has certain objectives to accomplish in every boarding. If your assistance is not needed, keep out of their way.

When the Coast Guard boards your vessel, introduce yourself as soon as is practical. After that, let the boarding party know where you can be found if they wish to speak to you. If they do have questions or request your assistance, be cooperative.

Make sure your logbook and paperwork are in order in case the boarding party wishes to inspect them. As much as possible, avoid giving anyone your original forms or your logbook. Make copies as needed. If your vessel has no copy machine ask if copies can be made on board the Coast Guard vessel. If this is not a possibility, at least make handwritten copies.

If you have any information for the boarding officer or NMFS agent on suspected or actual violations, or other problems, arrange to speak with him or her in private. As much as possible, avoid speaking with boarding party members in front of the crew. If you are unable to hold a private conversation, write down any information you have and hand it to the boarding officer or NMFS agent. It is important that the boarding party knows about any violations you may have observed.

If you have no information for the boarding party but someone in the boarding party wishes to question you, find a private location for your conversation. On occasion, an uninformed boarding party member may ask you questions in front of vessel personnel. Should this happen, defer the questions until you can speak in private. If that doesn't work, ask if they will accept a written statement from you. The Observer Program staff does try to instruct the Coast Guard to avoid putting observers on the spot. If you are questioned in private, answer all questions completely and honestly. Your testimony is only one part of the whole investigation.

As most Coast Guard officers are not biologists, you may be of great assistance in identifying species of fish and invertebrates in bins, processing areas or freezer holds.

DO NOT INTERFERE WITH BOARDING PARTY DECISIONS. If you have strong objections to decisions made by the NMFS agent or the boarding officer, discuss your objections in private with the appropriate person or with the Observer Program staff in Dutch Harbor, Kodiak or Seattle. Do not write your objections to a Coast Guard decision in your logbook.

Your role in a Coast Guard boarding is as a source of objective information for the boarding party. The boarding party will conduct their own inspections and investigations, and they may or may not require your assistance. You should cooperate fully, and not hamper the investigation.

STEPS TO TAKE IF YOU SUSPECT A VIOLATION

Common sense and good judgement should prevail when you suspect that a violation has occurred on your vessel or at your plant. The actions you decide to take should depend upon the type of suspected violation, the circumstances under which it occurred, and the actions and attitudes of vessel or plant personnel. In any case there are certain steps you should take: 1)investigate; 2) advise; and 3) document. Contemporaneous documentation is very important. It should be taking place throughout the situation, from the time you first suspect the violation, through your investigation, and including any actions taken by you and/or vessel/plant personnel. Do not jeopardize your position on the vessel or at the plant by resorting to "cloak and dagger" techniques to obtain evidence. Investigation and documentation of a suspected violation should be done openly as part of your routine duties.

INVESTIGATE

Investigation may be necessary to find out if a violation has actually occurred. There are obvious cases in which investigation is not needed, such as witnessing a crew member throwing plastic bags overboard, but other suspected violations may not be so obvious. Depending on the type of suspected violation, you may need to double check your measurements, calculations, and methods, check scale calibrations, check production figures and logbook entries - BE THOROUGH. You should ask the captain, plant manager, or other vessel/plant personnel to clarify any questions you may have. By asking questions you may be able to determine that no violation has occurred. You should consider contacting Observer Program staff or NMFS Enforcement personnel to see if a particular action would be considered a violation.

ADVISE

Once you feel that a violation has taken place, it is usually best to talk to the captain or plant manager, and other individuals involved. (There may be overlap between the investigative and advisory phases, but documentation should be taking place throughout the whole process.) When you bring the suspected violation to the attention of vessel or plant personnel, you may be able to insure that it does not happen again. However, remember that it is not your position to advise vessel or plant personnel about fishing regulations. Suspected violations may be the result of misinterpretation of regulations, misunderstanding of observer work objectives, carelessness in record keeping, etc. For example, you might have witnessed crew members collecting prohibited species in a basket in order to discard them, not to take them to the cook.

You should discuss the suspected violation with the captain or plant manager whether or not he or she is aware of it. If vessel or plant workers are doing something without the knowledge of the captain or plant manager, you will be doing him or her a favor. Direct him or her to the appropriate authority if there are questions about regulations - do not give authoritative answers on your own. Your aim should be to keep vessel or plant personnel advised of suspected violations. It is up to

vessel or plant personnel to keep in compliance. As always, document all cases in which you advise personnel of suspected violations..

DOCUMENT

If you have reason to suspect that a violation has occurred, you must document your suspicions, along with any evidence, in your logbook. Memory of an event will fade with time, but a written report in a logbook will remain. Good documentation contributes to your credibility as a witness or author of an affidavit.

Your logbook entries should be chronological, and you should try to record observations as soon as possible after the event. If an event seems significant only in hindsight, record it when you remember it. Always include dates and times, especially if you are recording something long after it happened. Some suspicions will go no further than your logbook if you find nothing to substantiate them - that is fine.

All logbook entries of suspected violations should contain the following basic elements:

WHEN
WHERE
WHO
WHAT
WHY

WHEN: Identify the exact or approximate time of the suspected violation.

1. hour (local time)
2. day, month, year
3. haul/set/delivery number where appropriate (indicate if you are using your numbering system or the vessel/plant system)

WHERE:

1. Identify the ship's position or plant location at the time of the suspected violation.
   a. latitude/longitude, or town
   b. statistical reporting area (vessels)

If a vessel's exact position is not known, use the closest approximation from the following:

   c. last haul/set/delivery position
   d. noon position
   e. compass direction and distance to nearest point of land

2. Identify the location on the ship or at the plant where the suspected violation occurred. The location should be clearly identified so that no misidentification is possible.
   a. draw a diagram where applicable
   b. identify the area specifically (trawl deck, observer room, sorting conveyor, etc.)
   c. if the suspected violation was noticed in the vessel or plant logbook, indicate its location

WHO:

1. Identify the vessel or plant.
    a. vessel/plant name
    b. permit number
    c. vessel type

Identify the individuals involved in the suspected violation.

a. name(s)
b. position on vessel or at plant (captain, engineer, deckhand, etc.)
c. function or duties, especially if related to suspected violation
d. identify the individual(s) who is (are) in the primary position(s) of authority, if not already named. Include any information, including language capabilities, which may have had an effect on your ability to communicate.

WHAT:

Describe in narrative form the events concerning the suspected violation and the circumstances under which they occurred. If you do this immediately after the event the details will be easier to remember. Record everything, including what made you suspicious, what you discovered in the investigative stage, what you advised any personnel, their reactions to your advice or inquiry, and what happened (or didn't happen) as a result of your talk. Use direct quotes whenever possible. Record any further occurrences of the suspected violation.

Make certain you have gathered all the evidence that you feasibly can to convince an outside person that a violation actually occurred. Use copies of the logbooks, photographs where appropriate, and any other documents written by you and/or vessel or plant personnel. Make sure all evidence is dated.

WHY: (if known)

If possible, try to determine why the suspected violation occurred. If you use your own conclusions or opinions, identify them as such. Try to be as objective as possible.

Was the suspected violation committed intentionally or unintentionally? Violations are not always intentional, but whether they are or aren't may affect the severity of the punishment. The following are types of questions you may want to ask yourself:

1. Could it have been a careless mistake, such as a mathematical or transcription error in the logbook?

2 Were there unusual circumstances beyond the control of vessel or plant personnel which may have played a factor? This might include severe weather conditions, mechanical breakdowns, or injuries.

3. If you feel the suspected violation was intentional, on whose orders or with whose knowledge do you feel it was done, and why? State why you feel it was intentional, especially in cases

of interference with observers. Sometimes casual comments by crew members can give insight into the motive behind the commission of a suspected violation.

If the vessel or plant you are covering is charged with a violation, all parties concerned will have a legal right to inspect your logbook or any other evidence known to exist. It is important to make your entries factual and to avoid unfounded personal opinions. Do not use your logbook to "blow off steam". Statements such as "the captain acts and dresses like a slob" are irrelevant as to whether a fisheries violation has been committed. If you are requested to write an affidavit your job will be much easier if you have taken the time to document as outlined above. Also, if you have good documentation of a violation the case is more apt to be prosecuted.

In view of the importance of your logbook and other types of documentation, you should take special care to safeguard them against loss and tampering.

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TABLE OF EQUIVALENTS

1 inch = 2.540 centimeters (cm)
1 foot (ft) = .3048 meters = .1667 fathoms
1 fathom (f) = 6 feet = 1.829 meters

1 centimeter = 10 millimeters = .3937 inches
1 meter (m) = 100 cm = 3.2808 ft. = 0.5468 f
1000 m = 1 kilometer (km) = .6214 s. mile

1 liter = 1.0567 U.S. quarts

$F° = (1.8 \times C°) + 32$ $C° = 5/9(F° - 32)$

1 statute mile = 5280 feet = 1.609 kilometers = 0.86899 nautical miles = 880 fathoms
1 *nautical mile* = 1.15078 statute miles = 1 minute of latitude
= 1.852 kilometers = 1012.6859 fathoms = 1852 meters
1 fathom = 0.0009875 nautical miles = 0.0011364 statute miles

1 pound = 0.4536 kg 1 kg = 1000 grams = 2.2046 lb.

total catch wt. in lbs ÷ 2.2046 = total catch wt. in kilograms

1 metric ton = 1000 kg = 2204.6 lbs = 0.9842 long tons = 1.1023 short tons
1 short ton = 907.1847 kg = 2000 lbs = 0.8929 long tons = 0.9072 metric tons
1 long ton (British) = 1016.0469 kg = 2240 lbs = 1.1060 metric tons
= 1.12 short tons

CONVERTING POUNDS TO METRIC TONS

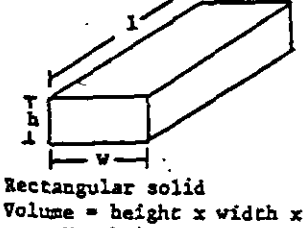
LBS	MT	LBS	MT
1000	0.4536	14000	6.3504
2000	0.9072	15000	6.8040
3000	1.3608	16000	7.2576
4000	1.8144	17000	7.7111
5000	2.2680	18000	8.1647
6000	2.7216	19000	8.6183
7000	3.1752	20000	9.0719
8000	3.6288	21000	9.5255
9000	4.0824	22000	9.9791
10000	4.5360	23000	10.4327
11000	4.9896	24000	10.8863
12000	5.4432	25000	11.3399
13000	5.8968	26000	11.7935

VOLUME AND PRODUCT FORMULAS

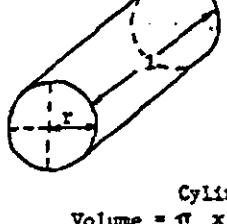
Number of Product Units x Average Unit Weight = Total Weight of Product
Product Weight ÷ Recovery Rate = Whole Weight of fish used to make the product
Product Weight x Conversion Factor = Whole or Fresh Weight of fish used for product

Area of a circle = πr^2 Circumference = $2\pi r$ ($\pi \approx 3.1416$)
Area of a square or rectangle = length x width
Area of a triangle = ½ base x height
Volume of a right angle cone = $1/3\pi r^2 h$
Length of the triangle hypotenuse "c" where a and b equal the length of the opposite two sides.

$$a^2 + b^2 = c^2 \quad and, \sqrt{c^2} = c$$

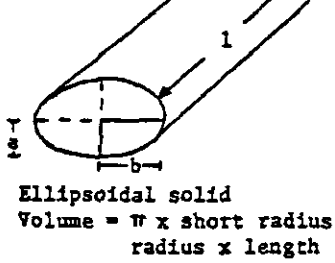


Rectangular solid
Volume = height x width x length
V = hwl

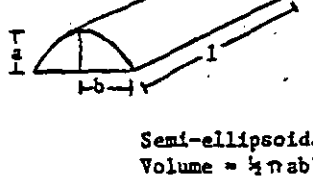


Cylinder
Volume = π x radius^2 x length
V = $\pi r^2 l$

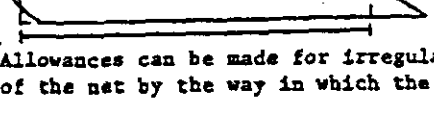
(π=3.1416)

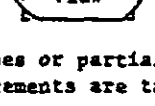


Ellipsoidal solid
Volume = π x short radius x long radius x length
V = π abl



Semi-ellipsoidal solid
Volume = ½ π abl
V = ½ π abl





(Allowances can be made for irregular shapes or partially filled portions of the net by the way in which the measurements are taken.)

HALIBUT LENGTH TO WEIGHT TABLE

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
10	.01	55	1.82	100	12.64
11	.01	56	1.93	101	13.05
12	.01	57	2.05	102	13.47
13	.02	58	2.16	103	13.91
14	.02	59	2.29	104	14.35
15	.03	60	2.41	105	14.80
16	.03	61	2.55	106	15.26
17	.04	62	2.69	107	15.73
18	.05	63	2.83	108	16.21
19	.06	64	2.98	109	16.71
20	.07	65	3.13	110	17.21
21	.08	66	3.29	111	17.72
22	.09	67	3.45	112	18.24
23	.11	68	3.62	113	18.77
24	.12	69	3.80	114	19.32
25	.14	70	3.98	115	19.87
26	.16	71	4.17	116	20.44
27	.18	72	4.36	117	21.01
28	.21	73	4.56	118	21.60
29	.23	74	4.76	119	22.20
30	.26	75	4.98	120	22.81
31	.28	76	5.19	121	23.43
32	.32	77	5.42	122	24.07
33	.35	78	5.65	123	24.71
34	.38	79	5.89	124	25.37
35	.42	80	6.13	125	26.04
36	.46	81	6.38	126	26.72
37	.50	82	6.64	127	27.41
38	.55	83	6.91	128	28.12
39	.60	84	7.18	129	28.83
40	.65	85	7.46	130	29.56
41	.72	86	7.75	131	30.31
42	.76	87	8.05	132	31.06
43	.82	88	8.35	133	31.83
44	.88	89	8.66	134	32.61
45	.95	90	8.98	135	33.41
46	1.02	91	9.31	136	34.22
47	1.10	92	9.64	137	35.04
48	1.17	93	9.99	138	35.87
49	1.25	94	10.34	139	36.72
50	1.34	95	10.70	140	37.59
51	1.43	96	11.07	141	38.46
52	1.52	97	11.45	142	39.35
53	1.62	98	11.83	143	40.26
54	1.72	99	12.23	144	41.18
				145	42.11

HALIBUT LENGTH TO WEIGHT TABLE

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
146	43.06	188	97.39	230	187.75
147	44.02	189	99.11	231	190.40
148	45.00	190	101.10	232	193.09
149	45.99	191	102.83	233	195.80
150	47.00	192	104.58	234	198.53
151	48.02	193	106.36	235	201.29
152	49.06	194	108.16	236	204.08
153	50.12	195	109.97	237	206.90
154	51.18	196	111.81	238	209.74
155	52.27	197	113.67	239	212.61
156	53.37	198	116.00	240	215.50
157	54.49	199	117.45	241	218.43
158	55.62	200	119.37	242	221.38
159	56.77	201	121.32	243	224.35
160	57.93	202	123.28	244	227.36
161	59.11	203	125.27	245	230.39
162	60.31	204	127.28	246	233.45
163	61.53	205	129.32	247	236.54
164	62.76	206	131.37	248	239.66
165	64.01	207	133.45	249	242.80
166	65.27	208	135.55	250	245.98
167	66.55	209	137.67		
168	67.83	210	139.82		
169	69.17	211	141.99		
170	70.51	212	144.18		
171	71.86	213	146.39		
172	73.23	214	148.63		
173	74.62	215	150.89		
174	76.02	216	153.18		
175	77.45	217	155.49		
176	78.89	218	157.82		
177	80.35	219	160.18		
178	81.83	220	162.56		
179	83.33	221	164.97		
180	84.85	222	167.40		
181	86.39	223	169.85		
182	87.94	224	172.33		
183	89.52	225	174.84		
184	91.11	226	177.37		
185	92.73	227	179.93		
186	94.36	228	182.51		
187	96.01	229	185.11		

Definition Of Halibut Condition
(Criteria are listed in priority order.)

Trawler and Pot Vessel Catches

Excellent - No sign of stress:

Fish closes operculum (gill cover) tightly for at least 5-10 seconds.
Muscle tone or physical activity is strong, jaw may be tightly clenched.
Injuries, if any, are minor: hemorrhaging on white side 5-10%; minor fin fraying; superficial nicks or cuts.
Gills are deep red.

Poor - Alive, but showing signs of stress:

Moderate injuries maybe present: hemorrhaging on white side approximately 25%; severe fin fraying; slight bleeding from fin edges; moderate abrasions or cuts.
Fish closes operculum weakly and not sustained.
Muscle tone or physical activity is weak: intermittent movement; may respond if stimulated; body appears limp.
Gills are deep to bright red.

Dead - No sign of life or, if alive, likely to die from severe injuries or suffocation:

Vital organs may be damaged: body or body cavity may be ripped open; severe skin lacerations; sediment in mouth, hemorrhaging on white side 50% or more.
Fish does not close operculum, jaw may be open.
No sign of muscle tone; physical activity absent or limited to fin ripples or twitches; little, if any, response to stimuli.
Severe bleeding may be occurring.
Gills may be red, pink, or white.

Longline Catches Only

Excellent - No sign of stress:

Hook injuries are minor (limited to the hook entrance/exit hole, torn lip) and located in the jaw or cheek.
Bleeding if present, is minor and limited to jaw area.
No penetration of the body by sand fleas (check eyes, fins, anus).
Muscle tone or physical activity is strong.
Gills are deep red.

Poor - Alive but showing signs of stress:

Hook injuries may be severe; broken jaw; punctured eye.
Vital organs are not injured.
Bleeding may be moderate but not from gills.
No penetration of the body by sand fleas (check eyes, fins, anus).
Muscle tone or physical activity is weak: intermittent movement; may respond if stimulated; body appears limp.
Gills are red.

Dead - No sign of life or, if alive, likely to die from severe injuries:

Vital organ(s) may be damaged: torn gills; gaff wound to head or body; jig injury to viscera; side of face torn loose or missing jaw.
Sand fleas have penetrated the body (they usually attack the eyes first, but also fins and anus).
Severe bleeding may occur, especially from the gills.
No sign of muscle tone; physical activity absent or limited to fin ripples or twitches.
Gill may be red, pink, or white.

PRODUCT RECOVERY RATE SAMPLING

A recovery rate represents the proportion of the organism that is used in the factory products. The recovery rate is also referred to as the "product recovery rate (PRR)" or the "recovery ratio". Recovery rates can be used in estimating the weight of a catch from the tonnage of products produced from that catch by using the following equation and then adding discard weight, if any.

$$\frac{\text{Product Weight}}{\text{Recovery Rate}} = \text{Whole Weight (before processing)}$$

Recovery rates are commonly expressed as a percent or as a ratio. Headed and gutted cod may have a recovery ratio of .62 to 1, or 62% recovery, while fish frozen whole would have a recovery ratio of 1.00 to 1, or 100% recovery. A **conversion factor** is a number which can be multiplied times the product weight to obtain the round weight (whole weight of the fish). A conversion factor **is always greater than 1** (for example, the conversion factor of surimi weight to pollock weight may be 6.67). To convert a conversion factor to a recovery rate, divide the number 1 by the conversion factor.

A wide range of recovery rates are used to describe the utilization of different species in a variety of products. The type of processing, the size of the fish, the area and season of the year, the experience of the processing crew, and the vessel type may all have a bearing on the recovery rate of a particular species. Since there is a need to update the recovery rates currently being used by data managers, observers are asked to record the rates used on their vessels, and if possible, to run tests to determine recovery rates on their own.

To determine your own recovery rates for particular products, you must observe the following procedures: First of all, you would obtain a sample (~ 50 fish for the first of three replications) of the fish that are waiting to be processed. **They should be sorted to species and be of the size and condition of those that are normally processed in one particular way.** For example, in order to obtain the recovery rate for roe from pollock, select a basket of roe-bearing, female pollock of the sizes normally used. However, within any species/size category, your sample should be taken at random. Weigh the sample of whole fish before processing, this would be called the "whole weight", "fresh weight" or "round weight". Have these fish processed by the factory crew as usual, then weigh the resulting product. The weight of the product divided by the weight of the fish before processing is the recovery ratio.

$$\frac{\text{Product Weight}}{\text{Fresh Weight}} = \text{Product Recovery Rate}$$

Actually there are two sampling approaches possible. In method A, as explained above, the observer collects a sample of fish, has those same fish processed and weighs the resultant product of those fish. This method is preferred over method B, particularly where the number of samples and the sample size (number of fish per sample) is limited. In method B, the observer weighs a sample of fish waiting to be processed for a particular product as before. The observer then collects products from the same **number** of fish but not necessarily the **same** fish. For example, if you weighed 60 fish in the round, destined for fillets, 120 fillets would need to be weighed. (The products weighed

should be from the same catch of fish.)

Method B approaches the accuracy of method A when samples are large and there are several repetitions. Method B has the advantage of being easier to perform (less interference with the processing line) and as product to be sampled cannot be predicted by the processors, intentional bias can be avoided. There is one acceptable variation on either Method A or B. In many factories, the factory manager will conduct their own product recovery testing. If they follow the same procedures described here, and you can witness (or assist with) the entire procedure and record the weights for yourself, this is an acceptable method of obtaining your data.

All observers are asked to conduct product recovery sampling tests if possible, and record their results on Form 8US. Product recovery tests should be done primarily on products made from the target species and done once per week or as time allows. Product recovery rate tests done on roe should be done on a daily basis if possible. Even if no product recovery sampling can be done by the observer, it would be very useful to at least record the rates used by the vessel or plant personnel. Be sure to inquire though, whether their rate is calculated with a denominator of the round weight of sorted fish as is ours. It would be very difficult for an observer to determine the PRR of such products as surimi and fish meal, so it is not expected. However, if the observer were able to run a test on the recovery rate of surimi, it would be very important to fully document the procedure in your logbook.

Each PRR test consists of three replications of 50 or more fish each for a total sample of approximately 150 fish. Though, if the target fish are large (greater than 55 cm) this number of fish will probably have to be less. On the Form 8US, record the sum of the sample (or round) weight of the fish from the three replications and under "product weight", record also the sum of the three weights of product.

If you are checking the accuracy of the product weight entries in the processor logs, counts of product and average unit weight should also be checked. Unit weights tests, if done, should be run twice per month or per cruise and each test should consist of weighing at least 10 units. The headings below should be used for your sampling and documentation.

Unit Type	No.of Units Sampled	Total Wt.	-	Container Wt.	=	Unit Wt.

Form 8US - Product Recovery Rates

This form is to be filled out with the product recovery rates that the ship or processing plant personnel are using, and the recovery rates that the observer has obtained through their own tests. Points to note about Form 8:

1. Enter the year and month (columns 10 - 13) in which the information was obtained and for which the data applied.

2. Likewise, enter the code for the area in which you collected your own recovery data and the area for which the vessel data applies.

3. Use a separate sheet for each area, month, vessel or plant sampled.

4. Write the name of the species or species group which is processed and its appropriate code (columns 17 - 19) from the species code list used for Form 3US. Observer-determined recovery data should be listed by each particular species, but figures supplied by vessel personnel are often applied to a group of species. "Unidentified fish" (code 901) may be used for the categories of fish and fish waste turned into fish meal and fish oil. Other possibly useful codes are flatfish unidentified (code 100), turbot unidentified (143), and rockfish unidentified (300).

5. Describe the product and enter the matching product code in columns 20 - 21 (see "List of Alaska Product Types" on a following page.) If in doubt of the appropriate code, draw a picture and take detailed notes describing the product. Discuss the unidentified product with the debriefer upon your return. Record only those products which were actually produced while you were aboard.

6. Indicate in column 22 whether the rates were determined by sampling Method A (products from the **same** fish are weighed after processing), or Method B (products from the same **number** of fish are weighed after processing).

7. Columns 23 - 29 are for the fresh weight of your sample fish before processing, to two decimal places, for each test you do. This weight can be in either pounds (LB) or kilograms (KG) which is indicated in columns 30 - 31.

8. Columns 32 - 38 are for the product weight, to two decimal places, for each test you do. This weight can be in either pounds (LB) or kilograms (KG) which is indicated in columns 39 - 40.

9. Enter, to two decimal places, the recovery ratio you calculate in columns 41 - 43 and the ratio used by the vessel or plant personnel in columns 44 - 46. If the vessel or plant personnel use different values based on area, time, size of fish, etc. then use the value they are using at the time you do PRR testing or data gathering.

FORM 8US - PRODUCT RECOVERY RATES

PAGE ____ OF ____

CRUISE NUMBER [1 | 2 | 3 | 4 | 5]   VESSEL CODE [6 | 7 | 8 | 9]   YEAR [10 | 11]   MONTH [12 | 13]   AREA [14 | 15 | 16]

1. Leading zeros in columns 12 only
2. List sample weights and product weights to nearest hundreth of a kilogram (example 48.30).
3. List % recovery (PRR) as decimal to the hundreths place (example .45).

SPECIES NAME	SPECIES CODE			DESCRIPTION OF PRODUCT	PRODUCT CODE		OBSERVER DATA						VESSEL DATA
							A/B	SAMPLE WEIGHT	LB/KG	PRODUCT WEIGHT	LB/KG	%RECOVERY	%RECOVERY
	17	18	19		20	21	22	23 - 29	30 - 31	32 - 38	39 - 40	41 - 43	44 - 46

PRODUCT TYPES AND CODES

Product Type Codes	Description
1	Whole fish/food fish (PRR = 1.00)
2	Whole bait fish (PRR = 1.00)
3	Bled only (throat, or isthmus, slit to allow blood to drain)
4	Gutted only
6	H & G, with roe
7	H & G, Western cut (head removed in front of pectoral girdle)
8	H & G, Eastern cut (head removed behind pectoral girdle)
10	H & G, tail removed
11	Kirimi (head, gut and tail removed by cuts perpendicular to spine)
12	Salted and split
13	"Wings" (On skates, side fins are cut off next to body)
14	Roe only (eggs, either loose or in sacs, or skeins)
15	Pectoral girdle only
16	Heads
17	Cheeks (opercular bone and muscles) or chins (lower jaw, muscles, flesh)
18	Chins (lower jaw, muscles and flesh)
19	Belly flaps (flesh in region of pelvic and pectoral fins)
20	Fillets with skin and ribs
21	Fillets with skin, no ribs
22	Fillets, with ribs, no skin
23	Fillets, skinless/boneless
24	Deep skin fillets
30	Surimi (paste from any of the fish flesh and additives)
31	Minced fish
32	Fish meal
33	Fish oil
34	Milt (in sacs, or testes)
35	Stomachs (includes all internal organs)
36	Octopus/squid mantles (flesh after removal of viscera and legs)
37	Butterfly (split, no backbone, head removed, fillets still attached)
95	Discards at plant. Floaters/shoreside in plant discard of whole groundfish and prohib.'s
96	Decomposed fish, previously caught fish which is caught again and discarded. (PRR 0.0)
98	Discards, at sea. Groundfish and prohibited sp. discarded by catcher vessels, c/p, and ms.
99	Dockside discard; discard after delivery and before processing.

NMFS PRODUCT RECOVERY RATES

Species code	Product Codes 3	4	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	30	31	32	33	36	37
110	.98	.85	.63	.57	.47	.44	-	.45	-	.05	.05	-	.05	-	.01	.45	.35	.25	.25	-	.15	.50	.17	-	-	.43
118	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
119	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
120	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
121	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	.11	-	.17	-	-	-
122	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
123	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
125	.98	.90	.80	.72	.65	.62	.48			.08						.32	.27	.27	.22				.17			
127	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	.18	-	.17	-	-	-
134	.98	.90	.80	.72	.65	.62	.48	-	-	.08	-	-	-	-	-	.32	.27	.27	.22	-	-	-	.17	-	-	-
139	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
141	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
143	.98	.88	.55	.60	.50	-	-	-	-	-	-	.20	.05	.05	.05	.40	.30	.35	.25	-	-	-	.17	-	-	-
144	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
160	.98	.88	-	.50	.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.17	-	-	-
168	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
169	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
172	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
173	.98	.88	-	.60	.50	-	-	-	-	-	-	.15	.05	.05	.10	.40	.30	.35	.25	-	-	-	.17	-	-	-
193	.98	.87	.67	.64	.61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.15	-	.17	-	-	-
270A	.98	.80	.70	.65	.56	.50	-	-	-	.04	-	.15	-	-	-	.35	.30	.30	.21	.13	.16	.22	.17	-	-	.43
270B	.98	.80	.70	.65	.56	.50	-	-	-	.04	-	.15	-	-	-	.35	.30	.30	.21	.13	.17	.22	.17	-	-	.43
510	.98	.82	-	.71	-	-	-	-	-	-	-	-	-	-	-	-	.38	-	-	-	-	-	.22	-	-	-
511	.98	.82	-	.71	-	-	-	-	-	-	-	-	-	-	-	-	.38	-	-	-	-	-	.22	-	-	-
516	.98	.89	-	.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.22	-	-	-
689	.98	.83	-	.72	-	-	-	-	-	-	-	-	-	-	-	-	.30	.30	.25	-	-	-	.17	-	-	-
700	.98	.90	-	-	.32	-	-	-	.32	-	-	-	-	-	-	-	-	-	-	-	-	-	.17	-	-	-
710	.98	.89	-	.68	.63	.50	-	-	-	-	-	-	.05	-	-	.35	.30	.30	.25	-	-	-	.22	-	-	-
875	.98	.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.17	-	.75	-

NMFS REPORT GROUP CODES FOR VESSEL LOGS

Sp. group codes	Mgmt Areas	Species Common Names
110	all	Pacific cod
118	GOA	Deep water flatfish (rex sole, Dover sole, Greenland turbot)
119	GOA	Shallow water flatfish (all flatfish except deepwater flatfish, flathead sole and arrowtooth flounder) Includes yellowfin and rock sole
120	BSAI	Other flatfish (all flatfish except yellowfin, rock sole, arrowtooth flounder, & Greenland turbot). Includes flathead sole.
121	BSAI	Arrowtooth flounder and/or Kamchatka flounder (Atheresthes stomias and/or Atheresthes evermanni)
121	GOA	Arrowtooth flounder (Atheresthes stomias)
122	GOA	Flathead sole
123	BSAI	Rock sole
125	GOA	Rex sole
127	all	Yellowfin sole
130	all	Ling cod (non-allocated)
134	BSAI	Greenland turbot
136	GOA	Northern rockfish
139	BSAI	Other rockfish (all rockfish and thornyheads except POP, sharpchin, northern, shortraker, and rougheye)
141	all	Pacific Ocean Perch (Sebasted alutus only)
143	GOA	Thornyhead rockfish (all Sebastolobus species)
144	GOA	Slope rockfish (Aurora, Blackgill, Chilipepper, Darkblotch, Greenstriped, Harlequin, Pygmy, Shortbelly, Splitnose, Stripetail, Vermillion, Yellowmouth, Bocaccio, Silvergrey, and Redstripe.
160	all	Sculpins
166	GOA	Sharpchin rockfish
168	GOA	Demersal shelf rockfish (China, Copper, Quillback, Rosethorn, Tiger, Yelloweye, Canary and Redbanded
169	GOA	Pelagic shelf rockfish (black, blue, dusky, widow and yellowtail)
171	GOA, AI	Shortraker and/or rougheye rockfish (Sebastes borealis and/or S. aleutianus)
172	AI	Sharpchin and/or northern rockfish (Sebastes zacentrus and/or S. polyspinis)
173	BS	Other red rockfish (shortraker, rougheye, sharpchin, and northern) (Not for observer use!)
193	all	Atka mackerel
213	all	Grenadier (non-allocated)
270	all	Pollock, 270A = "A" season, Jan. - Jun, 270B= "B" season, Jul. - Dec.shoreside processing
510, 511, 516	all	Smelt, eulachon, capelin
689,700	all	Sharks, skates
710	all	Sablefish
875	all	Squid

Species Prohibited in Groundfish Fisheries

000	all	Salmon, unspecified	001	all	Crab, unspecified
200	all	Pacific halibut	920	all	Crab, unspecified king
235	all	Pacific herring	921	all	Crab, red king
410	all	Salmon, chinook	922	all	Crab, blue king
420	all	Salmon, sockeye	923	all	Crab, golden/brown king
430	all	Salmon, coho	930	all	Crab, unspecified tanner
440	all	Salmon, pink	931	all	Crab, bairdi tanner
450	all	Salmon, chum	932	all	Crab, opilio
540	all	Trout, steelhead			

COLLECTING TAGGED FISH AND CRAB INFORMATION

In General: Collecting and returning tags is an important way to help fishery research. If you should find a tagged fish or crab while you are sampling, or if a crew member brings you a tagged fish or crab, return the tag, along with all pertinent information, to the debriefers at the end of your cruise. Tags from yellowfin sole, halibut, cod, pollock, sablefish, salmon and other fish will then be forwarded by our staff to the appropriate tagging agency. Pertinent information should normally include:

1. Tag or tag serial number.
2. Scale and/or otoliths for aging.
3. Fish length (in mm if possible).
4. Fish weight (in gm if possible).
5. Sex and maturity of gonads (immature, mature, spawning).
6. General appearance (poor body condition, good body condition).
7. Condition of tagging wound (healthy healed tissue, open wound, etc.).
8. Time and date of capture.
9. Capture location (latitude and longitude).
10. Capture depth.

Tags are usually located on the dorsal surface of the fish, or on the gill cover. Tags can be of the anchor, spaghetti, or modified disk variety. Some fish may be tagged twice. NMFS will pay a $5 reward to the captain of the ship from which a sablefish tag is returned (the observer cannot be paid). To expedite the sending of the reward, include the captain's name and address with the data.

Halibut: The International Pacific Halibut Commission (IPHC) has tagged halibut with orange, yellow and pink spaghetti tags. These tags are attached to the cheek on the eyed side of the halibut and have a five or six digit number printed on the side. All tags from halibut should be removed from the fish and brought in. IPHC has no way of handling data from halibut that are re-released with the tag attached. Halibut from which tags are returned may be released alive or retained aboard for consumption (anyone) or for "home pack" (by the crew). If the fish is going to be retained, the otolith should be collected as well, as this information is very helpful for age and growth studies. Do not collect a scale sample and the fish weight is not required. The IPHC rewards fishermen for the return of tags with $5.00 or a baseball cap so the crewmember's complete address is needed.

Salmon: Some agencies tag salmon by inserting a coded wire tag (CWT) into the snout of fingerling salmon. These wire-tagged salmon are marked by clipping off their adipose fins. If you find a salmon missing an adipose fin (on the scale envelope, Adipose "N"), check to see whether other fins are partially clipped and if they are, describe this on the recovery information slip. Collect a scale sample, record species, sex, length, weight, and if you have access to a gram scale (which might be available from a factory manager or quality control person), weigh the gonads. Remove the snout by cutting well behind the eye. A diagram on the back of the recovery information tag shows where to cut.

When you get back to your quarters, complete the plastic recovery information slip with your name, vessel name, date and haul location, attach the completed data tag to the snout, and put it in

one of the provided plastic bags. Several handfulls of table or rock salt is needed for preservation. Ask a factory manager or cook for salt and add it to the bag. After a few days, drain off any accumulated liquid and re-salt the snout. Repeat the draining and re-salting as needed. If salt is not available, freeze the snout and ask your debriefer for salt when you come in. Please do not dehydrate snouts by drying them in air. This makes it nearly impossible to dissect out the wire tag. The plastic tag should be filled out in pencil and the scale sample number written on the top.

Crab: The Alaska Department of Fish and Game along with other agencies have tagged crab with bright yellow or orange plastic, "spaghetti" tags. If one of these tagged crabs are found, record the needed information and measure the crab as best you can to the nearest millimeter, even if you were not assigned calipers or dividers to measure crab. (Refer to "Length Measurements For Various Species" in Appendix). Sometimes tagged crabs that have been caught are alive and in good condition. If this is the case, record the pertinent information along with the tag number and release the crab as quickly as possible.

Sablefish: The National Marine Fisheries Service, Pacific Biological Station, and the Alaska Department of Fish and Game have tagged sablefish on the dorsal surface posterior to the dorsal fin with pink, red, yellow, and blue spaghetti tags since 1981. Since then, these agencies have compiled considerable information on recruitment, age and growth, distribution, and migration of sablefish in the Bering Sea and Gulf of Alaska. This information will be supplemented with an age validation study planned for 1992 that requires the extraction of otoliths from tagged sablefish.

Otolith Extraction Procedures: Two procedures are used to extract otoliths from tagged sablefish. The first procedure is for tagged sablefish whose otoliths have been exposed to OTC, a light-sensitive bone-marking chemical. Sablefish treated with OTC have **"GROWTH STUDY - REWARD FOR WHOLE FISH"** written on the tags or have **BLUE** spaghetti tags. Otoliths from fish with these tags should be extracted and placed in opaque vials that exclude light. If opaque vials are unavailable, the otoliths can be saved in standard translucent otolith vials wrapped completely with black electrical tape or wrapped thoroughly with aluminum foil. Put the tag in the vial along with the otoliths. Another procedure is to remove the head, place it in a plastic bag, and then freeze the head with the tag enclosed in the bag. The cut to remove the head should be between the operculum and the pelvic fin to ensure that the otoliths are not exposed to light.

The second procedure is for tagged sablefish whose otoliths have not been exposed to OTC. These tagged fish do not have special wording on the tag. Otoliths from these fish are extracted in the usual manner and placed in a white or clear translucent vile with the tag enclosed in the vial.

Store **all** otoliths in a solution of 50% ethyl alcohol and 50% water with the tag enclosed in the vial. If vials are unavailable, it is very important to clean the otoliths thoroughly, then dry and place them in paper envelopes with the tag enclosed. Your debriefer will have you fill out a **Tagged Fish Information Form** for each tagged fish.

Information and Data Collection: Remember to obtain as much information as possible: tag prefix and tag number, latitude and longitude of capture, date of capture, depth of capture, length, weight, sex and maturity of gonads, vessel gear type, and the fisherman's name and permanent address. The fishermen will receive a reward and recovery information for each tagged fish turned

in. Fisherman have a choice of a baseball cap, an incentive cash prize, or a 5$ reward for each tag turned in. Be sure to enclose the fisherman's address so that they can receive the reward and recovery information.

TAGGED FISH INFORMATION FORM

Cruise No.: _____ Vessel Code: _____ Observer Name _____

Ship Name: _____

Permit Number: _____

Captain (or reward recipient's) Name: _____

Address: _____

_____

_____

Species: _____

Tag Prefix (often a two letter code) and Serial No.: _____

Tagging Agency (circle one): Seattle Auke Bay Nanaimo Shimizu IPHC Other _____

Time and Date of Capture: _____

Capture Location (lat. & long.): _____

Sex and Maturity of Gonads (immature, mature, spawning): _____

Length (fork length in cm): _____

Affix the tag or vial here (with tape):

Weight (total wt. in kg): _____

Capture Depth (fathoms): _____

Vessel/Gear Type: _____

General Appearance (poor body condition, good body condition):

Condition of Tagging Wound (healthy healed tissue, open wound):

Other Comments:

HOW TO SEX FISH

During training you will have been shown the differences in the appearances of gonads of various species and given an opportunity to practice determining the sex of several fish species. Due to lack of availability of specimens of certain species for dissection purposes, you may not have been able to practice on your particular sampling species, but you should be able to determine the sex of fish on your own with practice. In determining sex, it is generally easiest to start with large, mature fish and work down in size to small, immature specimens. Thoroughly dissect a few fish and identify the various internal structures so that you know what you are looking for.

The Japanese have a way of telling the sex of pollock without cutting them open. This method uses the relative size and shape of the pelvic fins to distinguish male from female. Since this method requires a fair amount of judgment and works consistently only for the larger specimens, observers are not to use this method. Pollock can be more accurately sexed by splitting the belly and inspecting the gonads, and with practice this can be accomplished very rapidly.

Halibut should not be sexed, but all other pertinent data should be obtained before releasing the fish. Most salmon have a very poor chance of surviving after being caught in a trawl net, especially if many scales have been lost, so identify the species, look for tags and obtain the individual lengths, weights, scale samples, and cut them to determine their sex before discarding the fish over-board. For most of the fish species observers must sex the following information should be of help.

Cod, Pollock and Hake

Where to look:

The gonads of all cods and pollock are found directly above the vent near the top of the visceral cavity. An easy way to find the gonads of gadids (with a little practice) is to slit the stomach open near the vent, then use your thumb to scoop the viscera out of the visceral cavity. With a little practice, the gonads can be exposed for examination on your thumbnail.

What to see:

The ovaries are paired bags or sacs which are typically pink or orange in color and slightly translucent. When immature the sacs may be clear but they can be distinguished by shape and position. When the ovaries are mature they tend to be bright orange and will often nearly fill the entire posterior end of the visceral cavity and you should be able to see the eggs inside the ovaries. The ovary sac may or may not have black and white blotches on it. Sometimes the ovary of a fully mature female cod will be entirely black in color.

The testes look very different from the ovaries. They are always opaque. They are in the same location as the ovaries but when immature, they will only be a thin filament with a tiny ruffled edge and are attached to the vent. In this stage, the testes are very small and must be looked for very carefully. As an immature male gadid begins to develop, the lower side of the filament can be seen to have very small and fine convolutions. Immature testes typically will be dark pink due to the ample blood supply. Then, their color turns to cream tinged with pink as milt develops. The lower

edge of the testes then fills with milt as the fish matures and the convolutions finally will be thick, opaque and white; filling the inside of the fish.

Sablefish

Where to look:

The gonads of sablefish are lateral lobes that run the entire length of the visceral cavity just beneath the backbone. Usually they appear as fleshy filaments and are tan or cream colored to slightly pink. In immature fish the lobes are more soft and fragile, but when mature the gonad may look like liver tissue.

What to see:

There is no difference in the texture, and no reliable difference in color between the ovaries and the testes of sablefish. The only difference is that the testes have four lobes and the ovaries have two lobes. If the fish is immature it may be very difficult to determine how many lobes are present. Make a clean cross cut through the gonad strand and use the tip of the scalpel blade to assist in viewing the lobes. When mature, the ovaries may have a partial fold through each of their two lobes, giving a false four-lobed appearance. Examine the gonads carefully so that you can see if the divisions between the lobes are complete or partial. Teasing the gonad surface with the tip of your scalpel blade will help.

Flatfish

Where to look:

The gonads of flatfish are found posterior to the visceral cavity and especially in females they extend underneath the flesh of the body. To find the gonads it is usually easiest to cut back the skin from the visceral cavity and then extending the cut ventrally (just above the anal fin) back towards the tail, following the curvature of the body. Testes will be found only in the area directly posterior to the viscera, while the ovaries will extend away from the viscera in an elongated triangular shape.

What to see:

Females have ovaries that extend into and through the fillet meat in an elongated triangle. This triangle is consistently at least three times as long as it is wide and often much longer. The ovaries when they are immature are typically translucent and pink in color. Mature ovaries are very elongate, pink or orange in color, often with black spotting. Developing ovaries are more granular in texture and finally, eggs can be seen inside them.

Male testes are either found right next to the visceral cavity or when mature, extend into the flesh as a short wide triangle which is about as wide as it is long. They are consistently grey/white and opaque. Immature testes are slight crescents that are found along the posterior edge of the visceral cavity, on each side of the fish, parallel to the bone that supports the visceral cavity and becomes the anal spine. The crescent of male gonad tissue can be very small; it may look like fat tissue and therefore be difficult to differentiate or locate.

Rockfish

Where to look:

Rockfish gonads are found at the top of the visceral cavity directly above the vent. They are anteriorly slanted. When there is fatty tissue around the viscera, extra time and care will be needed to probe through the fat to locate the gonads.

What to see:

The ovaries are sac shaped and will be filled with eggs and then live young (rockfish bear developed young, not eggs). These bags are soft and flaccid, and generally are clear, but may be pink, orange or yellow color. Small round eggs can be seen often in very immature individuals. Rockfish ovaries are about two or three times as long as they are wide.

Testes are rod-like, they feel firm and are opaque. They are often colored with tan on one side of the testes which fades into a clearer grey on the other side. Some fish may have testes that are tinged with yellow or pink. They are more elongate than ovaries; often about five times as long as they are wide - although this is variable, they will get longer as they approach maturity.

Atka Mackerel

Where to look:

Like rockfish, Atka mackerel gonads are found at the top of the visceral cavity directly above the vent. Atka Mackerel external coloring is sexually dimorphic where often the male's light colored vertical bars are tinged with yellow.

What to see:

Ovaries are clear bags filled with a mixture of small round eggs that are various shades of olive green, brown, tan, and when hydrated, clear. Atka Mackerel spawn in spurts so eggs in the ovaries will be a mix of different sizes and different stages of development.

Atka mackerel testes are similar to rockfish, described above.

Salmon

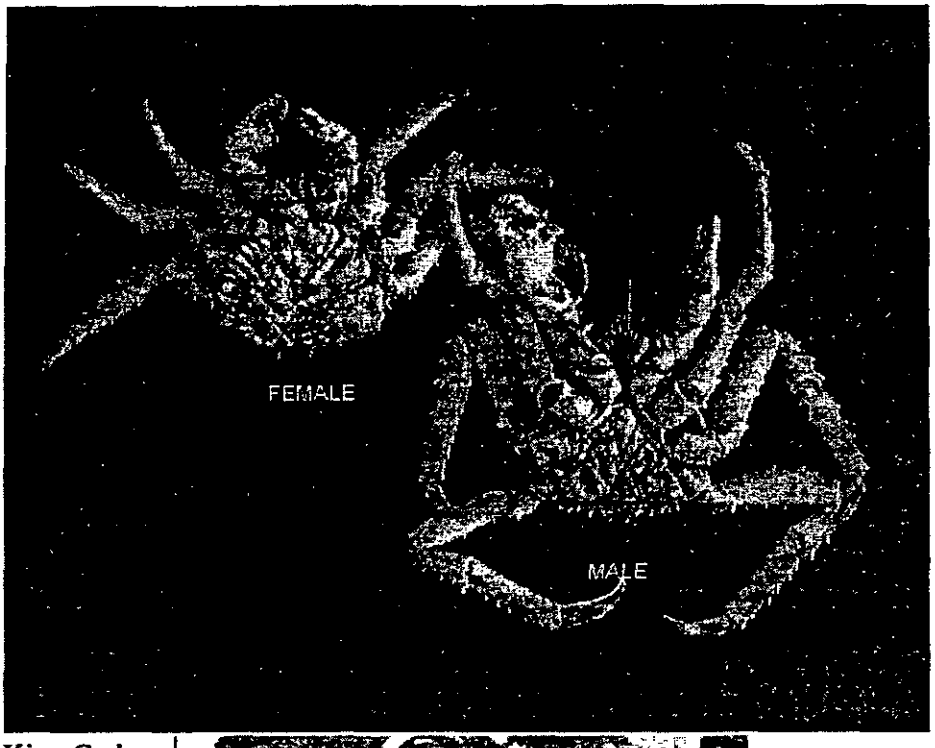
Where to look:

The gonads of salmon are thin, clear filaments which are found along the top of the visceral cavity just below the backbone. Salmon gonads, unlike other fish, will be found near the anterior (head) end of the visceral cavity.

What to see:

Sexing salmon is relatively easy. Even very young females produce eggs. To sex the fish find the clear tissue of the gonad and look for the presence or absence of the relatively large, round, orange eggs. If eggs are present then the fish is a female. If eggs are absent then the fish is a male.

SEXING KING AND TANNER CRAB

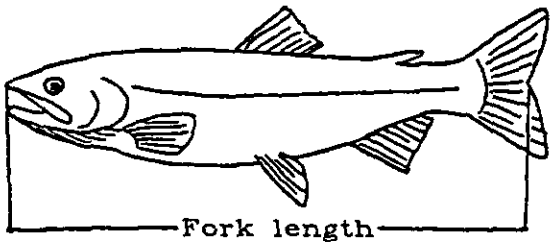


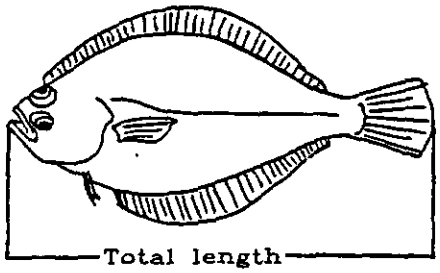
King Crab

Tanner Crab -- male above, female below.

LENGTH MEASUREMENTS FOR VARIOUS SPECIES

Fork length measurement used for length frequency sampling of all groundfish.



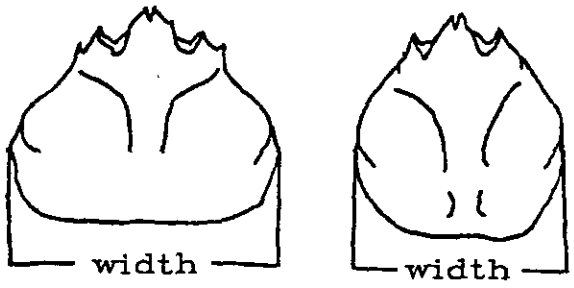


Measured from the *tip of snout to the end or tip of the middle fin rays of the tail.* Fork length is the same as total length in round tailed flatfish as shown above.

Observers given the special project of measuring king and tanner crab will be provided with dividers to use in conjunction with a measurement scale on a plastic form. Spread the dividers across the width of Tanner crab carapaces at their widest points, excluding spines. Without moving the arms of the instrument, lay one arm of the divider on the "start line" at the bottom of the plastic form and, when placed perpendicular to the start line, where the tip of the other arm lands, record the measurement with a tally mark on the 5 mm space. Measurements are grouped in 5 mm increments starting at 3 mm. For example, crabs 41 to 45 mm in size are recorded as 43 mm; crabs 46 to 50 mm are recorded as 48 mm. Thus, check your entries on Form 7US to see that all records of crab measurements end in the digits three or eight.

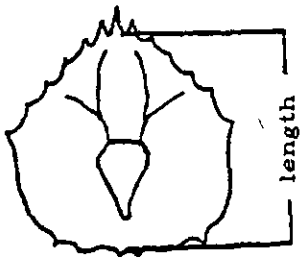
The carapace length of king crab should be measured. Measure from the right eye socket to the midpoint of the posterior margin of the carapace. Be careful not to let the tip of the divider arm slip into the eye socket below the carapace surface; keep the instrument on the rim of the carapace socket at it's deepest point. Record the length to the nearest 5 mm size group as explained for Tanner crab above. (Refer to the illustration below.)

Carapace Width Used For:



Tanner (Snow) Crab
Measured from the widest points of carapace, excluding spines, to the nearest 5 mm.

Carapace Length Used For:



King Crab
Measured from right eye socket to the middle of the posterior margin of the carapace, excluding spines.

FISH COLLECTION INSTRUCTIONS

Collected Specimens Belong to NMFS: When you collect any organisms at sea, be aware that the specimens belong to NMFS and cannot be kept for any other purpose unless you have obtained written permission first. Collections other than for NMFS could be considered a conflict of interest between observers and vessels. For that reason, label your specimen collection "NMFS Observer Program Specimens" in large letters. The most common problem in fish collections is the vessel discarding it! Labeling it well and getting permission to store the collection should take care of that hazard.

Tagging and Freezing the Specimens: After choosing a good specimen, lay the fish flat and straight before freezing it. Glaze the fish with water and freeze quickly after collection. Make an identifying label on thick paper (like the thickness of the dividers in your species I.D. manual), cardboard, plastic sheet or a provided tag (please find a substitution for regular notebook paper; it disintegrates after freezing) and put it with (in) the fish before freezing. The tag should list: 1) your name, 2) vessel name, 3) haul number, and 4) species identification. Fish color and condition keeps best if, after the fish is frozen, you glaze and reglaze it a couple times. If combining different fish species in the same bag, tag each fish inside the bag and put a tag on the outside listing all of the species within. When debarkation is near, pad and package it well to prevent broken tails and fins. While in transit do your best to keep it frozen.

Types of Collections: There are various types of fish collection. How you handle getting the collected fish back to NMFS depends on the type of fish collection you are doing. **Do not collect prohibited species unless you have obtained a special permit from NMFS first!**

Collection Types:	What to Do With Specimen
Special project assignments	- see project handout
Collection as verification of identification	- **bring the fish back with you to debriefing**
Collection because fish is out of range or rare	- bring back with you or leave at NMFS field office
Collection of fish from "Specimens Needed" list	- leave at NMFS field office or bring with you
Unidentified fish and crabs	- **bring back with you to debriefing**
Special request from trainer	- leave in field office or bring back

When Turning the Collection over to the NMFS Field Office: Both the Dutch Harbor and Kodiak offices have freezers. In order to leave fish there, you need to have the individual fish tagged as above and the bag or box holding the entire collection tagged with your name and vessel. If the fish was collected because it is rare or out of range, **make sure you label it as such.** The field offices will not accept untagged fish! Also, please turn in, with your fish collection, a listing of the fish you are leaving with the field office.

All fish in the field offices are eventually shipped to Seattle, but to save money on shipments, the field offices will only ship once they have accumulated at least 100 pounds of fish. That could take quite some time. This is the reason that you **must** yourself bring back any fish to be used for

verification of species identification or specimens you need identified for your data. Otherwise the fish will be in Dutch and you will be in Seattle, wanting identification verification!

Returning to Seattle with Frozen Specimens:

a) If your plane is not leaving immediately, maybe your place of lodging will hold it for you in their freezer. If not, temporarily store it at a NMFS field office. Sometimes a fish processing plant will allow you to keep **well labeled** fish in their freezer. Arrange this through the plant observer.

b) Tell the airlines at check-in that you have a package to keep frozen. If they are wrapped very well, it will help keep them frozen.

c) If you arrive in Seattle on a weekend, phone first and then take the fish to the Seattle Aquarium if you can't keep it at your lodgings. Their weekend, daytime phone number is: 386-5018 or 386-5019 and their 24-hour phone number is: 386-4359. Tell the aquarium staff you are a NMFS observer, get directions and ask them to hold it for you until Monday.

d) If you arrive on a weekday within working hours, just bring the fish into the wetlab freezer. Put incoming fish on one of the shelves just inside the freezer door, on the left. Then be sure and tell your debriefer that you have frozen fish brought back, and the reason you collected them.

Specimens Needed For Teaching Collection

[Small, 20 - 45 cm specimens are preferred but (*) means "collect any size."]

I. Gadidae

Arctic cod
Pacific tomcod
Saffron cod

II. Flatfishes

Rough-scale sole, Clidoderma asperrimum
Longhead dab, Limanda proboscidea
Curlfin sole, Pleuronichthys decurrens *
C-O sole, Pleuronichthys coenosus
Greenland turbot, Reinhardtius hippoglossoides
Deepsea sole, Embassichthys bathybius *
Hybrid sole, Inopsetta ischyra
English sole, Parophrys vetulus
Butter sole, Isopsetta isolepis
Slender sole, Lyopsetta exilis
Petrale sole, Eopsetta jordani
Bering flounder, Hippoglossoides robustus *
Arctic flounder, Liopsetta gracialis *

III. Rockfishes

Longspine thornyhead, Sebastolobus alascanus *
Darkblotched rockfish, Sebastes crameri
Harlequin rockfish, Sebastes variegatus
Silvergray rockfish, Sebastes brevispinis
Black rockfish, Sebastes melanops
Blue rockfish, Sebastes mystinus
Any WA, OR, CA coastal species

IV. Incidentals - Collect any unusual fish. Look especially for:

Bering Wolffish, Anarhichas orientalis
Flathead Pomfret, Taractes asper
small Grenadiers, (Macrouridae)
Oxeye Oreo, Allocyttus folletti
Capelin, Mallotus villosus
Eulachon, Thaleichthys pacificus
Manefish, (Caristiidae)
Quillfish, (Ptilichthyidae)
Loosejaws, (Malacosteidae)
Bigscales, (Melamphaidae)
Barracudina, (Paralepididae)
Brotula, (Bythitidae)
immature Ragfish, (Icosteidae)
Ribbonfish, (Trachipteridae)
Anchovies, (Engraulidae)
Lightfish, (Gonostomatidae)
Cusk-eel, (Ophidiidae)

Annex K

Shooting whales (photographically) from small boats: An introductory guide

Sally A. Mizroch[1] and Michael A. Bigg[2]

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[2] *Pacific Biological Station, Nanaimo, B.C., Canada*

As photo-identification collections grow and aids such as computerised video matching are increasingly used, great attention must be paid to photographic techniques. For more detail on examination of negatives and prints, see Bigg, Balcomb and Ellis (1986).

Choice of film

For whales that are mainly black, gray and/or white, high speed black and white (B&W) film, such as *Ilford* HP-5, is preferred. Colour slide film generally does not have the detail or latitude to be used on a regular basis for ID work from small boats, although in some cases right whale callosity/cyamid patterns are slightly better defined using a high speed colour film, such as *Kodachrome* 200 Professional. If there is any doubt about which type of film to choose, try shooting B&W and colour side by side or alternately for a few weeks, and then compare ID's and the proportion of good, usable shots.

Once the correct film has been chosen, the components of taking a good ID shot are: framing, focusing, exposure, developing and printing.

Framing and focusing

Before beginning field work with a new species, it is important to examine as many good identification photographs of your species as possible, to train your eye to the detail of the ID image. For example, look at Sears, Wenzel and Williamson (1987) for blue whales, Bigg, Ellis, Ford and Balcomb (1987) for killer whales and Katona, Harcourt, Perkins and Kraus (1980) for humpback whales.

Always shoot some practice rolls on land before going into the field, both to check the camera and to practice fast focusing. If possible, use a fast auto-focus camera, or practice focusing and timing by shooting any fast-moving activities, such as sporting events. Make sure to hold the camera very steady. Under some light conditions, such as haze or fog, you may need to switch from auto-focus to manual focus. Always take a back-up camera system in case the primary system develops any technical problems.

Timing is important when taking an ID shot. Determine the most distinctive ID features of your species, and take photos of those parts when they are most exposed. For example, for killer whales, photograph the saddle patch when it is out of the water (Figs 1a and 1b), not as it first begins to surface (Fig. 1c). With humpback whales, the back will show a pronounced arch or hump as the animal

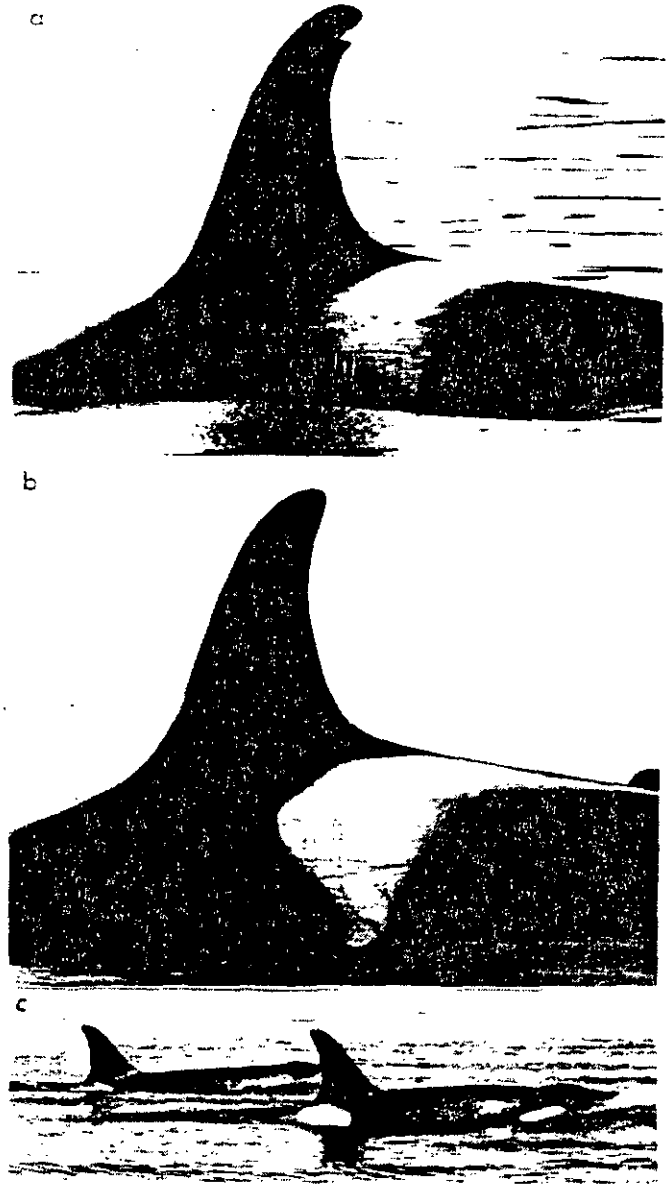

Fig. 1. Example shots of killer whales. a. Whale A2, an adult female with large nick at top, photographed 12 July 1986. b. Whale J12, an adult female with M-shaped scratches on saddle, photographed 21 April 1975. c. Not an ideal shot. Photos a. and b. by G. Ellis, Pacific Biological Station, Nanaimo, B.C., Canada. Photo c. by S. Mizroch.

Fig. 2. Example shots of a humpback whale. a. Note the rake marks on the trailing edge, the open circle on the left fluke, and the numerous lines and spots throughout the fluke. b. Printed from the same negative, but printed too dark. Only a few line scars show. Negative loaned by Cascadia Research Collective, Olympia, Washington, USA.

prepares for a deep dive, then the tail stock will begin to come out of the water. Focus on the caudal area as it rises and take photographs of the tail when the flukes are completely out of the water (Fig 2a). With right whales, take photographs of the crenulations along the lower jaw, post-blowhole callosities, white blowholes, belly and chin pigmentation, mandibular callosity islands, pigmentation, scars, and markings on the flukes, body, tail stock, fluke tips and head. Good photographs of any other unusual features are sometimes enough to make an identification within a season and often between years.

Exposures

If your study is to be carried out from a small boat, as is usually the case, it is important to use as fast a shutter speed as possible to minimise effects of boat and animal movement. Use high speed film, pushed to 800 or 1600 ASA, set the shutter speed at 1/1000 sec or faster, and use as small an f-stop as possible (e.g. in the range from f8-f22) to increase depth of field. Set exposures based on incident light readings from a hand-held meter; because lighting conditions change rapidly, take meter readings fairly often.

Processing

In photo-ID studies, the (photo) negatives are the baseline data, from which all analyses will spring. Therefore, do not take short cuts in processing. If shooting *Ilford* HP-5, use the processing method described in Annex G.

Printing

Commercial labs will generally print negatives for proper exposure of the entire content of the negative. This often results in prints in which the surroundings are well-exposed, usually at the expense of the ID detail of the whale. Fig. 2b gives an example of a typical badly printed ID shot.

A good ID print usually has a background that looks very washed out (Figs 1b, 1c and 2a). If in doubt, print lighter than darker. Use polycontrast paper (e.g. *Kodak* or *Ilford*) and experiment with polycontrast filters to heighten contrast. Ensure that you do not lose fine details by using too high a contrast. For example, a grade 3 polycontrast filter enhanced the details in Fig. 2a, giving a slightly better result than printing without a filter (i.e. grade 2).

Always print for the ID detail of the whale, not for the surroundings. Figs 1b and 1c are printed to show the detail of the indentations and nicks on the dorsal fin, and to show the shape and markings of the saddle patch. Fig. 2a is printed to show the fine lines, rakes, spots, and open circle on the flukes.

ACKNOWLEDGEMENTS

The authors are grateful to Scott Kraus (New England Aquarium, Boston, Massachusetts, USA) and Jan Straley (Glacier Bay National Park, Gustavus, Alaska, USA) for providing details about photographing right and humpback whales. Thanks also to Marcia Muto (NMML) and Greg Donovan for reviewing the text.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

Permit No. 797

Scientific Research Permit to Take Marine Mammals

The National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, 7600 Sand Point Way, N.E. BIN C15700, Seattle, Washington 98115, is hereby authorized to import marine mammal specimens, including material from species listed as threatened or endangered, for scientific research and scientific purposes as cited in the Permit Holder's application and subject to the provisions of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407), the Regulations Governing the Taking and Importing of Marine Mammals (50 CFR Part 216), the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the regulations governing endangered species permits (50 CFR Parts 217-222), and the Conditions hereinafter set out.

Abstract:

The research involves the collection of tissue samples from dead cetaceans, pinnipeds and sea otters to: determine the biology and life history of each species; determine a basis for approval of permits to domestic fishermen; assess and/or conduct appropriate research to lessen the impact of such operations on marine mammal stocks; and assess the rate of incidental takes (mortalities) in gillnet fisheries through observer programs and to use tissue samples from animals collected in this fishery and retrieved opportunistically (i.e., beached stranded) for use in fishery-impact analysis models. Tissues will be analyzed for genotype and pollutant level variations to determine the existence of discrete porpoise stocks.

Authorization:

A. Number and Kind of Marine Mammals:

An unspecified number of specimen materials may be collected and imported from dead individuals of all cetacean species, all pinniped species, and sea otters which were:

1. directly taken in fisheries for such animals, in countries and situations where such taking is legal, except as provided in B.1.b.;
2. killed incidental to fishing or other operations;
3. found dead at sea or beached; and/or
4. found dead of natural causes.

B. Special Conditions:

1. Research Requirements

   a. The collection and importation of marine mammal specimens shall be conducted worldwide by the means and for the purposes described in the application, as amended, and as limited by the Terms and Conditions of this Permit.

b. The Holder (or designated agent(s)) shall not import specimens into the United States from:

(1) marine mammals taken in any high seas driftnet fishery after December 31, 1992; or

(2) marine mammals taken during operation of any whaling programs not approved by the International Whaling Commission.

c. No specimens shall be imported into the United States that were taken illegally in the country of origin.

d. All specimen materials collected under this authority shall be maintained according to accepted curatorial standards and deposited in a museum or other bona fide scientific collection.

e. The Holder must coordinate activities within the United States with appropriate Federal, state and local resource management agencies.

f. The authority to collect and import the marine mammal specimens authorized herein, shall extend from the date of issuance through **December 31, 1997.**

g. The terms and conditions of the Permit shall remain in effect as long as the marine mammal specimens taken and imported hereunder are maintained under the authority and responsibility of the Permit Holder (or designated agent).

2. Reporting Requirements

a. The Holder shall submit a report by December 31, 1992 (provided specimens have been taken and/or imported), and annually thereafter for the duration of this Permit.

(1) For all cetaceans and pinnipeds (except walrus) the Holder (or designated agent) shall submit an annual report to the National Marine Fisheries Service indicating, if possible, a description of each animal from which a specimen was taken including its species, age, size, sex, reproductive condition; date and location of collection; circumstances causing death; the date and location of each importation; and the name and location of each institution maintaining specimen materials collected under this Permit.

(2) For sea otters and walrus, the Holder (or designated agent) shall submit an annual report to the U.S. Fish and Wildlife Service indicating, if possible, the age, size, sex, reproductive condition; date and location of collection; circumstances causing death, if known; and the date and location of each importation.

c. The Holder shall submit a final report within 90 days of the expiration date of this Permit. The final report shall include a summary of the specimens that were collected and/or imported, their disposition, and the results of research conducted thereon.

d. All reports for cetacean and pinniped (except walrus) collections shall be submitted to: the Permits Division, Office of Protected Resources, National Marine Fisheries Service, NOAA, U.S. Department of Commerce, 1335 East-West Highway, Room 7324, Silver Spring, MD 20910; for sea otter and walrus collections: the U.S. Fish and Wildlife Service, Office of Management Authority, 4401 N. Fairfax Drive, Room 432, Arlington, VA 22203.

3. Notification Requirements

The Holder (or designated agent) shall notify the U.S. Fish and Wildlife Service, Marine Mammals Management Office, 4230 University Drive, Room 310, Anchorage, AK 99508, to coordinate the collection of biological samples from sea otters and/or walrus in Alaska.

C. General Conditions

All applicable General Conditions attached as Section C shall apply and are made a part hereof.

William W. Fox, Jr.

OCT - 1 1992
Date

I. Teiko Saito
Chief, Branch of Permits
Office of Management Authority

OCT - 1 1992
Date

ADVICE TO WOMEN GOING TO SEA

[Note: This has been adapted from the original version of "Advice" which was prepared by Connie Sancetta and colleagues at Lamont-Doherty Geological Observatory following the rape of a female student on one of Scripp's ships. We believe "Advice" is a balanced statement of potential problems and realistic responses to them that should be helpful to seagoing scientists.]

Sexual harassment occurs at sea, from verbal harassment to assault and rape. Such incidents are frequently not reported, for reasons ranging from a desire to be a good sport in minor cases, to embarrassment in more serious cases. This document is intended to alert you to the different nature of social conditions at sea, and to suggest some actions you should take if you feel uncomfortable or harassed.

Social conditions are different from those on land. Privacy is greatly reduced, and as a result interactions can become more intense, and feelings of intimacy are more quickly established. Small incidents, both pleasant and unpleasant, can quickly take on exaggerated importance, due to the close quarters, the prevalence of gossip, and the sense of isolation from "the real world" back on shore.

Furthermore, staffing on a ship brings together people with very diverse backgrounds and value systems. While some of the men are used to the concept of women as professionals, other are familiar with more traditional views of women, For some men, sexual remarks or actions may be considered an acceptable mode of behavior. Also, the value systems of many men change somewhat during the period of time that they are at sea.

The crew of a ship have usually established a workable interaction among themselves, while scientists, who come on board for a single cruise, are not part of that system. Scientists are therefore particularly apt to draw attention, comment, and speculation.

Sexual awareness and tensions can be heightened at sea, due to the unusual social closeness and deprivation of normal outlets. Behavior and attire that are acceptable on shore can be viewed as provocative at sea and close relationships between people of opposite sexes can strongly affect the atmosphere in which everyone must work and live. The result often is that a woman on board is subject to far more attention than she would be on shore. While some of the attention may be pleasant and even flattering, some of it is not.

In consequence, it is necessary to be aware of the different social situation and to modify your normal behavior if necessary. At the very least, you should consider the possible consequences on some situations so that you can react appropriately. Below are some examples of the sort of actions you might adopt or avoid:

1) Strictly obey the rules regarding drinking, which can lead to poor judgement, lack of control and alertness, and hasty actions. At sea you must be prepared for any emergency. Consider yourself on duty 24 hours a day.

2) Refrain from wearing potentially provocative clothing such as halter and tank tops, shorts, and tight clothing such as lycra.

3) Be aware that if you show more attention to one man than others, it may be misinterpreted by him or by others.

4) Do not invite a man to your cabin if you are alone, or accept an invitation to be alone with him, ("a friendly chat," "a little drink"). Leave the cabin door open or go to a public area if a man comes to talk to you without your invitation.

5) Activities such as flirting, joking about sex, or touching may be misinterpreted by the persons involved or by others. Unwanted approaches such as these should be responded to politely but very firmly. You yourself should avoid flirtatious behavior.

6) Do not engage in sexual affairs. Such affairs will distract you and your partner from doing your work, can breed resentment and jealousy and will subject other women to increased sexual pressure, both on your cruise and on subsequent cruises. Remember, you are at sea to work, not to amuse yourself. Remember, physical or emotional involvement with vessel or shoreside processing plant personnel is grounds for de-certification.

7) Make it clear that your interests in male companionship are elsewhere, (some women wear wedding rings), or that you are "not available."

8) If you are experiencing unwelcome advances or are in any tense situations, do not stand around on deck or other deserted areas alone at night.

9) In general, be very sensitive to the altered social conditions and their possible implications. Be very conservative. Use your common sense.

An assault often occurs with warning signs of milder behavior. If you act firmly and decisively during the early stages, you may reduce the chances of future harassment. Some warning signs to watch for are:

1) A man makes frequent attempts to detain you, to be in your company, or to visit you in your cabin.

2) Mild or casual sexual remarks become more frequent, pointed and/or objectionable.

3) A man attempts any physical contact, even if it appears innocent.

4) Other people warn you about a man who begins to harass you.

5) A man whom you have repeatedly attempted to discourage continues or escalates his advances.

The definition of harassment is subjective, making it difficult to identify. Federal law defines sexual harassment as "unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature." Thus, it is your decision at what point you will draw the line.

Many women feel uncomfortable with milder forms of harassment, but tolerate it, not wanting to cause trouble, or appear to be oversensitive or bad sports. The unfortunate result of this passivity is that harassment may continue or increase until it becomes serious. At that point, the woman is open to the charge that she allowed (i.e., encouraged) the previous actions. It is best to take action at the time that you first feel uncomfortable. There are a variety of actions you may adopt, which must depend on your judgement. In general, the best sequence to follow is:

1) Indicate to the harasser that you do not enjoy or appreciate his actions. Do not make a joke of his behavior. Speak firmly and coldly, or pointedly avoid him. Do not make the mistake of pretending to ignore it; this invites continuation at a higher level. Losing your temper may be effective in some cases but usually is not, and may even encourage the harasser.

2) Document the incidents. (Refer to documentation guidelines in section 7). Discuss the problem with someone, preferably an officer, but at least a friendly crewperson. Ask for his/her opinion and advice as to handling it. If appropriate, you might ask the person to speak to the harasser, warning him off.

3) If the problem continues or worsens to the point that you feel upset or threatened, report it to the skipper immediately. Tell him the full story, explain that it is affecting your work, and request that he take steps to end the problem. Document any further incidents and your report to the skipper.

4) If the harassment advances to the point of assault, it becomes a felony. You should immediately report the offense to your employer and the captain, who are required by law to take certain actions. Have your contractor make arrangements for you to leave the vessel immediately or get yourself off of the vessel and inform your contractor of your actions. Make sure the incident is reported and is not swept under the rug. Failure to report a felony can itself be punishable under law.

Sexual assault and rape have occurred on fishing vessels at sea. These serious offenses might be prevented if appropriate action is taken in the early stages. Never believe that the problem is trivial or that you are over-reacting. If you feel harassed, then it has gone too far. It is your right to complain and even your obligation. By reporting harassment, you are protecting others as well as yourself. The skipper does not want trouble on his boat, and if you indicate to him that trouble may be brewing, he should take appropriate action.

Women's Resource Centers

Kodiak Women's Resource and Crisis Center

The center provides resources and crisis services to the community, as well as shelter for women and their children who are victims of domestic violence and sexual assault.

P.O. Box 2122
Kodiak, AK 99615
Business Phone: (907) 486 - 6171
Crisis Line Phone: 486 - 3625

South Peninsula Women's Services Inc.
P.O. Box 2328
Homer, AK 99613
Business Phone: (907) 235 - 7712
Hot Line: 235 - 8101

Women's Resource and Crisis Center
325 S. Spruce
Kenai, AK 99611
Business Phone: (907) 283 - 9479
Crisis Phone: 283 - 7257

Sitkans Against Family Violence
P.O. Box 6136
Sitka, AK 99835
Business Phone: (907) 747 - 6511
Crisis Phone: 747 - 3370

Women in Safe Homes
P.O. Box 6552
Ketchikan, AK 99901
24 hour phone (Business and **Crisis**) (907) 225 - 9474

Aiding Women in Abuse and Rape Emergencies (AWARE)
P.O. Box 020809
Juneau, AK 99802
Business Phone: (907) 586 - 1090
Crisis Phone: 586 - 6623

Dutch Harbor: Unalaskan's Against Sexual Assault and Family Violence
P.O. Box 36, Unalaska, AK 99685
24-Hour Crisis Line: 711
Office: (907) 581 - 1500
AK Toll Free: 1-800-478-7238

RADIO COMMUNICATIONS

The radios that you will encounter most often are VHF-FM (Very High Frequency Modulation), used for short-range vessel-to-vessel and vessel-to-shore communication, and HF-SSB (High Frequency-Single Side Band), used for communication when the stations are out of VHF range with each other. Both types offer certain special advantages, and each requires a specific operating procedure.

The use of radio communication equipment requires a licensed operator. If your vessel has given you permission to use the radio, you **must** follow the FCC rules for calling and speaking on the type of radio (VHF or SSB) you use. Ask first how to operate the radio and use these pages as a guide for calling. Be aware that obstructing others' transmissions with your call (by conversing for too long), using profanities or making false distress calls can cost the permit holder and/or you a heavy fine and/or prison sentence.

VHF-FM Radios

In the United States, the VHF Band is broken up into 71 channels, with a frequency range of from 156.000 to 163.000 MHz, including six WX (Weather) channels. By law, all operating VHF stations are required to have at least three of these channels: channel 6, channel 16, and at least one other working channel.

Channel 6 (156.300 MHz) is the Intership Safety Channel, used for intership safety purposes, search-and-rescue (SAR) communications with ships and aircraft of the U.S. Coast Guard, and vessel movement reporting within ports and inland waterways. This channel must not be used for non-safety communications.

Channel 16 (156.800 MHz) is the International Distress, Safety, and Calling Channel (Intership and Ship-to-Coast). This channel must be monitored at all times the station is in operation (except when actually communicating on another channel). This channel is also monitored by the U.S. Coast Guard, Public Coastal Stations, and many Limited Coastal Stations. Calls to vessels are normally initiated on this channel. Then, except in an emergency, you must switch to a working channel. It is against FCC regulations to conduct business on this channel. In addition, vessels calling must use their assigned call sign at the beginning and end of each transmission.

Channel 22A (157.100 MHz) is the U.S. Coast Guard Liaison Channel. This channel is used for communications with U.S. Coast Guard ships, aircraft, and coastal stations after first establishing contact on channel 16. Navigational warnings and, where not available on WX channels, Marine Weather forecasts are also broadcast on this frequency.

Channels 24, 25, 26, 27 and 28 (also 84, 85, 86 and 87) are the Public Correspondence channels (ship-to-coast). These are available to all vessels to communicate with Public Coastal stations (Marine Operator). Channels 26 and 28 are the primary public correspondence channels.

Channels 1, 3, 5, 12, 13, 14, 15, 17, 65, 66, 73, 74, 77, 81, 82 and 83 are channels with

special designations (port traffic communications, U.S. government communications, locks and bridges, environmental, etc.), and their use close to shore or to ports should be minimized.

Channels 7, 8, 9, 10, 11, 18, 19, 67, 68, 69, 70, 71, 72, 78, 79, 80 and 88 are commercial and non-commercial working channels that are available for conducting business. The abbreviated format (no call signs) is acceptable on these frequencies. It should be noted that some of these channels may be locally restricted (off the Washington Coast, for example, channel 11 is Tofino Coast Guard Traffic Control for the entry into Juan deFuca Strait, used for reporting ship locations), in which case their use for business should be avoided.

HF-SSB Radios

To communicate over distances of beyond twenty miles, you will need to use satellite communication or a medium to high frequency radiotelephone referred to as Single Side Band (SSB) radio. The signal is poorer in quality than VHF and susceptible to slight atmospheric shifts. Lower frequencies are used for medium distances and higher frequencies for greater distances. The general rule for single sideband frequency selection is: multiply the frequency in MHz by 100 to obtain the approximate coverage distance in miles. At night however, the ranges of SSB radiowave travel are from 2-3 times greater. Therefore, use a lower frequency at night to cover the same distance.

All ship SSB radiotelephones must be capable of operating on 2182 kHz, the international distress and calling frequency, and at least 2 other frequencies. Numerous channels are available for your use; which ones are available varies from place to place. However, channel 2670 kHz is only used for communicating with the Coast Guard and should not be used for other purposes.

When using SSB radiotelephone, you must observe radio silence on channel 2182 kHz, the emergency channel, for 3 minutes immediately after the hour and the half hour. The purpose of radio silence on the emergency hailing channel is to clear the airwave for weak or distant distress signals. No radio silence is used on the VHF emergency channel: channel 16.

Radio Procedure

Inasmuch as the airwaves are in the public domain, it is the responsibility of the radio station operator to conduct business according to established guidelines and procedures. While on the air, the operator should follow the following format outline:

1. Listen before beginning transmission in order to ensure that you are not interfering with other stations or with emergency radio traffic.

2. Identify your station when calling. On the SSB, a calling station must limit the duration of the hail to not more than 30 seconds. If there is no reply, the hail may be repeated at 2 minute intervals up to a maximum of three times, at which time the calling station must sign off and wait a minimum of 15 minutes before making another attempt. This requirement does not apply in emergency situations.

3. Keep transmissions short and concise, giving the other station a chance to respond, ask questions, or reconfirm an unclear message. A long, complicated message can best be effected in short segments, with breaks in between to ensure that the receiving station has copied each portion of the message correctly.

4. Follow correct radio procedure while on the air. The phonetic alphabet should be learned and used -- spelling unclear words with an extemporaneous phonetic alphabet can lead to misunderstood messages. You should also know and use the radio "punctuation" words ("over", "clear", "out", "roger", "words twice", "say again", "standing by", and "break"). Since most radio communication is only one way at a time, these words can be invaluable for signaling your intentions to the receiving station. Make sure to speak directly into the microphone; speaking loudly, slowly, and distinctly -- but not shouting -- can significantly improve the legibility of radio broadcasts. The use of profanity on the public airwaves is strictly forbidden.

5. Upon completing a transmission, you must sign off by identifying your station and using the words "clear" or "out" (or, if you expect to soon resume contact with the same station, by using the phrase "standing by").

1. Radios are different from telephones in that they cannot transmit and receive simultaneously. Therefore when you have temporarily finished talking and are ready to listen, say "over," and release the button on your microphone. When the other party is ready to listen they will say "over." At the end of your entire message, say "out" rather than "over." Keep in mind that people on other ships can overhear your conversation, so watch what you say.

2. Sounds are easily garbled on marine radios so the phonetic alphabet is used when sailors want to spell something. Here are the words that the Coast Guard will recognize as letters:

A - alpha	N - November
B - bravo	O - Oscar
C - Charlie	P - papa
D - delta	Q - Quebec
E - echo	R - Romeo
F - foxtrot	S - Sierra
G - gulf	T - tango
H - hotel	U - uniform
I - India	V - victor
J - Juliet	W - whiskey
K - kilo (keeloes)	X - x-ray
L - Lima (Leema)	Y - Yankee
M - mike	Z - Zulu

3. Every ship and all Coast Guard stations continually listen to the emergency frequencies. Therefore when you want to talk to someone, call on an emergency frequency. As soon as you contact them, arrange to switch to another channel. It is illegal, impolite, unfair, and dangerous to talk on emergency channels. Sometimes atmospheric conditions are such that the emergency frequencies are the only ones that work. At those times you simply cannot communicate via radio except to report emergencies.

   Emergency frequencies are:

   FM Channel 16, international distress
   FM Channel 13, for ships to use to avoid collisions. You can contact other ships on 13, but not Coast Guard shore stations.
   AM 2182, international distress

   (Almost certainly as an observer you will only be using FM frequencies.)

4. When you initially contact another station make sure you state what channel you are broadcasting on, since all ships and stations constantly listen to several.

5. Speak in normal tones, using normal conversational pauses and emphasis.
6. Ensure that your messages are brief and businesslike. No chatter.

7. *When trying to establish communications repeat the other station's name, and your name,* at least twice. A typical message may be as follows:

You - "Coast Guard Station Kodiak, Coast Guard Station Kodiak; this is the fishing vessel Starry Flounder, Whiskey Tango Zulu 4190; this is the fishing vessel Starry Flounder, Whiskey Tango Zulu 4190; on channel 16, over."

C.G.- "Fishing vessel Starry Flounder this is Coast Guard Station Kodiak, shift and answer on channel 11, out."

You - "Coast Guard Station Kodiak, Coast Guard Station Kodiak, this is the Starry Flounder on channel 11, over."

C.G.- "Fishing vessel Starry Flounder, this is Coast Guard Station Kodiak, send your traffic, over."

You - "Kodiak, this is the Starry Flounder, I am an observer talking for the captain. A crewman has a badly crushed arm and needs hospitalization. Can you evacuate the crewman? Over."

C.G. - "Vessel Starry Flounder, this is Kodiak. Affirmative. What is your current position? Over."

You - "Kodiak this is the Starry Flounder. Position 55 degrees 50 minutes north, 157 degrees, 24 minutes west, over." etc.

FIRST AID RESPONDER - LEGAL ASPECTS

What is our program's policy regarding an observer's role in giving first-aid to crewmen? Our recommendation is that observers should not get involved in any first aid or medical care unless they are the first responder and the situation is life threatening. Observers should not take any action which exceeds their certified first aid training, and information received during observer training does not qualify them for any first aid certification (!). Any first aid assistance given by an observer should only be given with the informed oral consent of the victim and if that's not possible, the Captain. In a true emergency in which there is a significant risk of death, disability, or deterioration of condition, the law assumes that the patient would give his consent. (The last statement and the following were taken from First Responder, A Skills Approach.[1])

If a patient or relative sues a First Responder for the way in which the patient was handled during treatment, the burden of proof is on the patient. The only time a first responder can be prosecuted is when he is guilty of gross negligence, recklessness, willful or wanton conduct, or intentional injury to the patient. Basically, the First Responder's duty legally can be defined as follows:

1. The First Responder should not interfere with the first aid help that is being given by others. [Note: Each vessel that operates with more than two individuals on board must have at least one individual certified in first aid and one or the same person certified in CPR. Each vessel that operates with more than 16 individuals on board has to have two persons certified in each and with more than 49 aboard, four persons have to be certified in first aid and CPR.]

2. The First Responder should follow the directions of (the Captain) and do what a reasonable, prudent person would do under the circumstances.

3. The First Responder should **NOT** force his help on a patient unless the situation is life threatening (such as severe bleeding, attempted suicide, poisoning, cardiac arrest, and so on). When the patient is unconscious, consent is automatic (by law). If the patient is not in a life-threatening situation and if he resists care, the First Responder can be charged with battery (physical contact of a person's body or clothing without consent) if care is forced on the patient without consent.

4. Once a First Responder has voluntarily started care, he should not leave the scene or stop the care until a qualified and responsible person relieves him; if he does, it constitutes abandonment.

5. The First Responder should follow accepted and recognized emergency care procedures.

First Responder A Skills Approach, 2nd Edition, by Keith J. Karren and Brent Q. Hafen, Department of Health Sciences, Brigham Young University. Morton Publishing Co., Englewood, Colorado. Copyright 1986, 382 pgs.

MEDICAL DIAGNOSTIC CHART (MDC)

One of the most important functions an observer can perform during a medical emergency is the collection and maintenance of a medical history. This history and its communication to the Coast Guard is essential to the further treatment of an injured person.

There are two histories to be aware of. The first deals with the patient's bodily make-up and past medical concerns. The second history is a record of the accident or illness and how it is affecting the patient over time. These two pieces of information will give doctors and corpsmen, hundreds of miles away, a greater diagnostic tool of what's happening inside the patient's body and what complications may lie ahead.

The patient's past medical history is the "framework" for which you will later fill in the "details". This medical history (refer to "MDC RADIO WORKSHEET AND FLOW CHART", items 7 - 13), is simple, basic, and vital. For example: 30 yr. old /male/145 lbs./ 5 ft. 7 in. / medium build/ no allergies/ no medications///. [Please note that what is underlined would be in your radio message.] This "framework" information is just as important as the details you are about to fill in.

Without previous training and using what is available, you can observe and record the nature of the accident and the patient's vital signs. On the worksheet, items 14 - 18 are observation questions of "what's happened" (#'s 7-13 are to whom), and 19 - 25 are the observation questions of "what's happening now". An example of what's happened might be:

Injured by a broken cable on jan. 24 at 2300/ Patient has sustained a head injury/ Complains of severe pain in the upper left quadrant of abdomen/ Compound fracture to right hand/ Possible fracture to left arm below elbow/ Possible internal bleeding in the abdomen, area hard and tight, some blood in urine/ Right hand and left arm splinted, external bleeding controlled///

"What's happening now" is information on the vital signs: level of consciousness, eye reactions, pulse, blood pressure, respiration, skin condition and body temperature. Here is an example of what's happening now:

VITAL SIGNS:/ LOC, alert/ EYES, E-R/ PULSE, 64 steady but weak/ B-P unavailable, distal pulse present, cap refill good/ LUNGS, clear and equal/ RESP, 30 and shallow/ SKIN PERSPIRATION, normal; COLOR, normal; TEMPERATURE, normal/ BODY TEMPERATURE, 102.2///

Don't forget to have ready the patient's name, the vessel name and the vessel owner's name and address. All of this extra information is necessary to expedite patient care and transport if necessary, and to inform family members. The procedure and interpretation of the worksheet is as follows:

(1 - 3) The "address" of the message.

(4) (Is not necessary for domestic vessels.)

(5) Self-explanatory.

(6) The patient's name is very important, don't forget to include it.

(7 - 11) Age, sex, height and weight can be estimated when there is a lack of specific information.

(12 - 13) Build and allergies information is critical and must be exact!

(14) (Self-explanatory.)

(15) Type of injuries should be self-explanatory, however there are three things to be aware of: 1) the definition of a soft tissue injury; 2) trying to localize abdominal pain; and 3) the various types of bleeding. Soft tissue injuries are injuries related to the organs (i.e. eyes, kidneys, testes, etc.). Whenever possible, locate the abdominal pain using the navel as the center point. This will give the doctors and corpsmen a better idea of which organs are traumatized.

(16) Fill type of bleeding out carefully. Bleeding is not only an injury, but also an indicator of further problems and therefore must be observed in greater detail. Identify the type of bleeding as: profuse, shallow, pulsating, steady, and/or internal. Internal bleeding is difficult to identify but can be suspected, if an area such as the abdomen which is normally soft, is now hard and rigid; if that area or another is tender, swollen and/or has a bruised appearance to it. Look for the presence of blood in the eyes, ears, mouth, vomit and urine. Blood in the vomit needs specific identification as to its consistency and color (i.e. is the blood fluid-like in appearance or does it appear clumped together like coffee grounds, is it dark red or bright red?). All of these observations are necessary to determine the nature and origin of the bleeding.

(17 - 18) Self-explanatory, rely on basic observations.

(19 - 25) The vital signs are indicators of the patient's present physiology. To record the vital signs, all you need other than your good judgment is a watch with a second hand and a flashlight. Item (19), a patient's Level Of Consciousness (LOC) is generally described in terms of Alert, Vocal, Pain or Unconscious. Use the following standard criteria to determine a patient's LOC. The method used to determine Alertness is "Time, Date, Place Orientation." A person is considered Alert if they can answer simple questions, "What is your name, where are we, what is today's date?" **Do not ask** questions like, "How many fingers do I have up?"; number skills involve an entirely different set of motor functions in the brain. A person who is incoherent, semi-conscious, or mumbling without direction is considered Vocal. When a patient is unconscious but responsive to Pain (a thin pinch on the bottom of the foot or under the armpit should suffice) then this should be noted differently than the state of Unconscious, since it denotes a higher state of consciousness.

(20) Eyes: you will need a flashlight for this one. Open both of the victim's eyes, shine the light into one eye **from the side of the face** (not directly in from the front of the face), and look into the other eye. Both pupils should constrict equally, quickly, and simultaneously. If you have any doubts, have someone else repeat this procedure and compare your results.

(21) Pulse is counted at beats per 30 seconds times 2, and rated per minute. The pulse is best taken

at the wrist (follow the thumb down to the beating area...) or at the throat (off to either side of the windpipe, under the jaw). Again, if in doubt, compare. A description of the pulse should follow: strong, weak, bounding, etc.

(22) Without a blood pressure cuff, accurate B-P information is unavailable. However, the other data you are collecting, the qualitative information on the pulse and skin conditions, will assist in a general qualitative assessment of the B-P. With that, there are two other direct indicators of B-P quality, they are: Distal Pulse and Capillary Refill. Distal pulse is a pulse taken at a location distant from the heart. The two most common places to take distal pulse are: 1) below and behind the ankle and, 2) top center of the foot. The presence and quality of this pulse is your data. (NOTE: these pulses are difficult to find on a healthy person and if you are unable to find them on your patient, try to find them first on yourself or on someone around you). Capillary refill is your other index of quality. Pinch a little bit of skin on the
fore finger and toe. Note how quickly color is lost and then returns. That speed in which skin color returns is your indicator. Capillary refill is diminished by cold.

(23) The information requested on lungs and respirations should be self-explanatory. In the event that you don't have a stethoscope, place your ear on the patient's chest, both sides, high and low. With a stethoscope, check the lungs high, middle and low on the chest, and high and low on the back. Respirations should be timed and qualified the same way as the pulse is. One word of caution, don't let the patient know that you are monitoring their breath, they will breath differently.

(24) Skin perspiration, color and temperature is monitored by sight and touch. This should not present any problems, but do not confuse skin temperature with body temperature.

(25) Place a thermometer in the patient's mouth or armpit and record your findings. To convert Celsius to fahrenheit use the equation given on the worksheet.

The flow chart on the back of the MDC is simply an update of items 19 - 25, every 15 or 30 minutes as necessary. For the first half hour it is good to monitor your patient every 10 minutes, every 15 minutes for the next hour and a half, and every half hour after that. An example of your first radio message should read something like the following, with subsequent radio messages updating the patients condition as necessary.

TO: Coast Guard, Kodiak
FROM: your name, vessel name, vessel permit number, present lat. and long.,time & date

Request medical assistance/ Crewman Joe Misfortunate/ 30 yr./ male/ 145 lbs./ 5 FT. 7 IN./ medium build/ no allergies/ no medications///

Injured by a broken cable on Jan. 24 at 2300/ Patient has sustained a head injury/ Complains of severe pain in the upper left quadrant of abdomen/ Compound fracture to the right hand/ Possible fracture to the left arm below elbow/ Possible internal bleeding in the abdomen, area hare and tight, some blood in urine/ right hand and left arm splinted, external bleeding controlled///

VITAL SIGNS/ LOC, alert/ EYES, E-R/ PULSE 64 steady but weak/ B-P unavailable, DISTAL PULSE present, CAPILLARY REFILL good/ LUNGS clear and equal /RESPIRATIONS 30 and shallow/ SKIN: PERSPIRATION, normal; COLOR, normal; TEMPERATURE, normal/ BODY TEMPERATURE 102.2///

VESSEL OWNER/ Joe Smith/ Homer/ 907 123-4567///Please advise best course of action///

MDC RADIO WORKSHEET AND FLOW CHART

(1) VESSEL'S NAME & CALL SIGN _____

(2) VESSEL'S LAT. & LONG. _____ (3) TIME & DATE _____

(4) VESSEL AGENT'S U.S. NAME & ADDRESS _____

(5) VESSEL OWNER'S NAME & ADDRESS _____

(6) PATIENT'S NAME _____ (7) AGE _____ (8) SEX _____

(9) HT. ___ ' ___ " (10) WT. _____ # (11) BUILD _____ (12) ALLERGIES _____

(13) PRESENTLY ON MEDICATIONS Y/N _____ WHAT _____

(14) DATE, TIME & NATURE OF INJURY _____

(15) TYPE OF INJURIES OR ILLNESS

___ Airway	___ Abdominal Pain (general)	___ Fracture	___ Swelling
___ Cardiac Arrest	___ Upper Left Quadrant	___ Burn	___ Bleeding
___ Head	___ Upper Right Quadrant	___ Poisoning	___ Alcohol On Breath
___ Soft Tissue	___ Lower Left Quadrant	___ Seizure	___ Other _____
___ Chest Pain	___ Lower Right Quadrant	___ Psychiatric	_____

(16) TYPE OF BLEEDING

___ Profuse ___ Internal

___ Shallow

___ Pulsating

___ Steady

Blood in the:

___ Eyes ___ Ears ___ Vomit

___ Nose ___ Mouth ___ Urine

(17) LOCATION OF INJURIES

___ Head/Face	___ Upper Extremities
___ Neck/Spine	___ Abdomen
___ Chest	___ Pelvis
___ Back	___ Lower Extremities

(18) TREATMENT

___ Cleared Airway	___ Wound Care
___ Oxygen	___ Splint
___ CPR	___ Neck/Spine Immobilized
___ Controlled Bleeding	___ Other _____

VITAL SIGNS

(19) LEVEL OF CONSCIOUSNESS

___ Alert

___ Vocal (but not alert)

___ Pain (responsive to)

___ Unconscious

(20) EYES

___ Pupils EQUAL & REACTIVE

___ UNEQUAL but reactive

___ Sluggish

___ Dialated (Enlarged)

___ Constricted (Small)

___ NON-REACTIVE

(21) PULSE (#'s & quality)

___ XX Beats per minute

___ Strong

___ Steady

___ Bounding

___ Weak

___ Thready

___ *Irregular*

(22) BLOOD PRESSURE (B-P)

#'s __this/that__ Distal Pulse Present Y/N____

B-P Cuff Only Capillary Refill Quality ____ Good ____ Poor

____ Fair ____ Unavailable

(23) LUNGS & RESPIRATIONS

Lung sounds are:

___ Clear ___ Equal

___ Congested ___ Unequal

___ Raspy

Respirations are:

___ XX per minute ___ Short

___ Deep ___ Irregular

___ Shallow ___ Strained

___ Weak

(24) SKIN (perspiration, color & temperature)

PERSPIRATION

___ Very Dry

___ Normal

___ Sweating

COLOR

___ Flushed

___ Normal

___ Pale/Ashened

___ Cyanotic (blue)

TEMPERATURE

___ Hot

___ Normal

___ Cool/Cold

(25) BODY TEMPERATURE

____

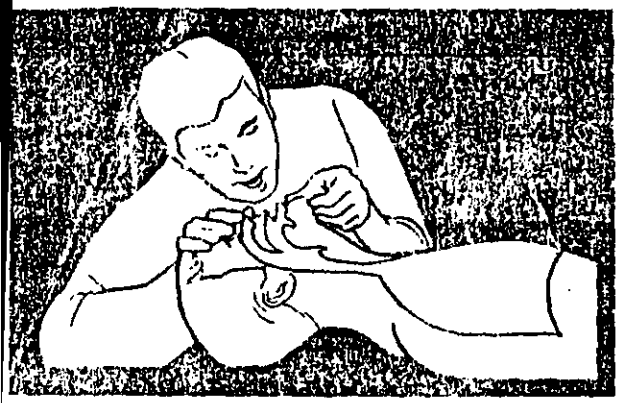
°F = °C x 1.8 + 32

FLOW CHART				FLOW CHART			FLOW CHART	
TIME (GMT)	19 LOC	20 EYES	21 PULSE & qual	22 B/P	23 RESP (# & qual)	24 SKIN (p-c-t)	25 BODY TEMP	OTHER

Cardiopulmonary Resuscitation (CPR)

SHAKE OR SHOUT TO DETERMINE UNCONSCIOUSNESS

Airway



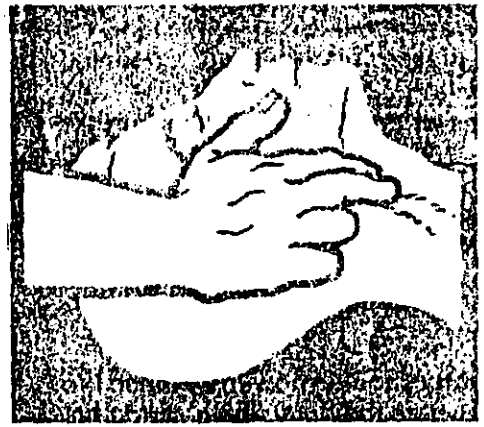
If no response:

TILT head and **LIFT** chin to clear airway of tongue.
LOOK, LISTEN, and **FEEL.**
Look to see if chest is rising and falling.
Listen and Feel at mouth with your ear to determine breathing.

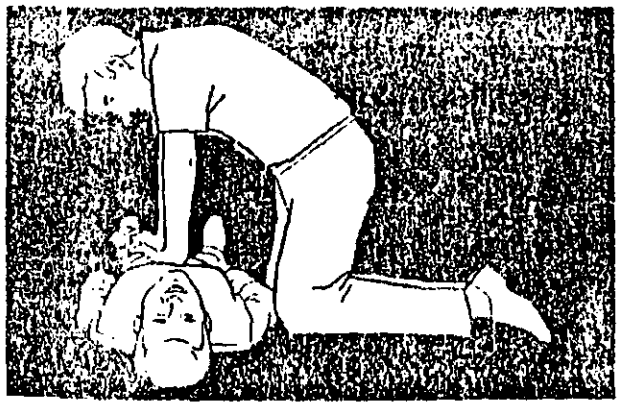
Breathing

If no breathing:

PINCH nostrils.
OPEN your mouth.
TAKE a deep breath.
SEAL patient's mouth with yours.
BLOW four quick, full breaths.
CHECK neck pulse on the side nearest you.
If pulse is present, continue breathing 12 times per minute (1 each 5 seconds).
Child/Infant rate - 20 times per minute (1 each 3 seconds)

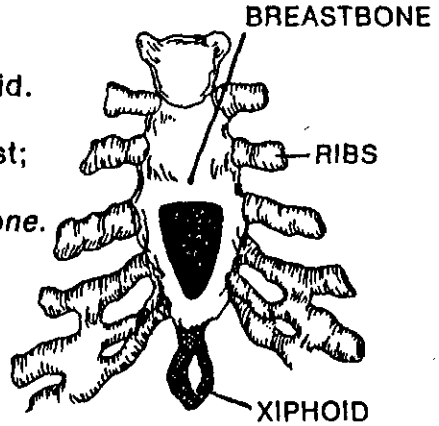


Circulation



If no pulse:

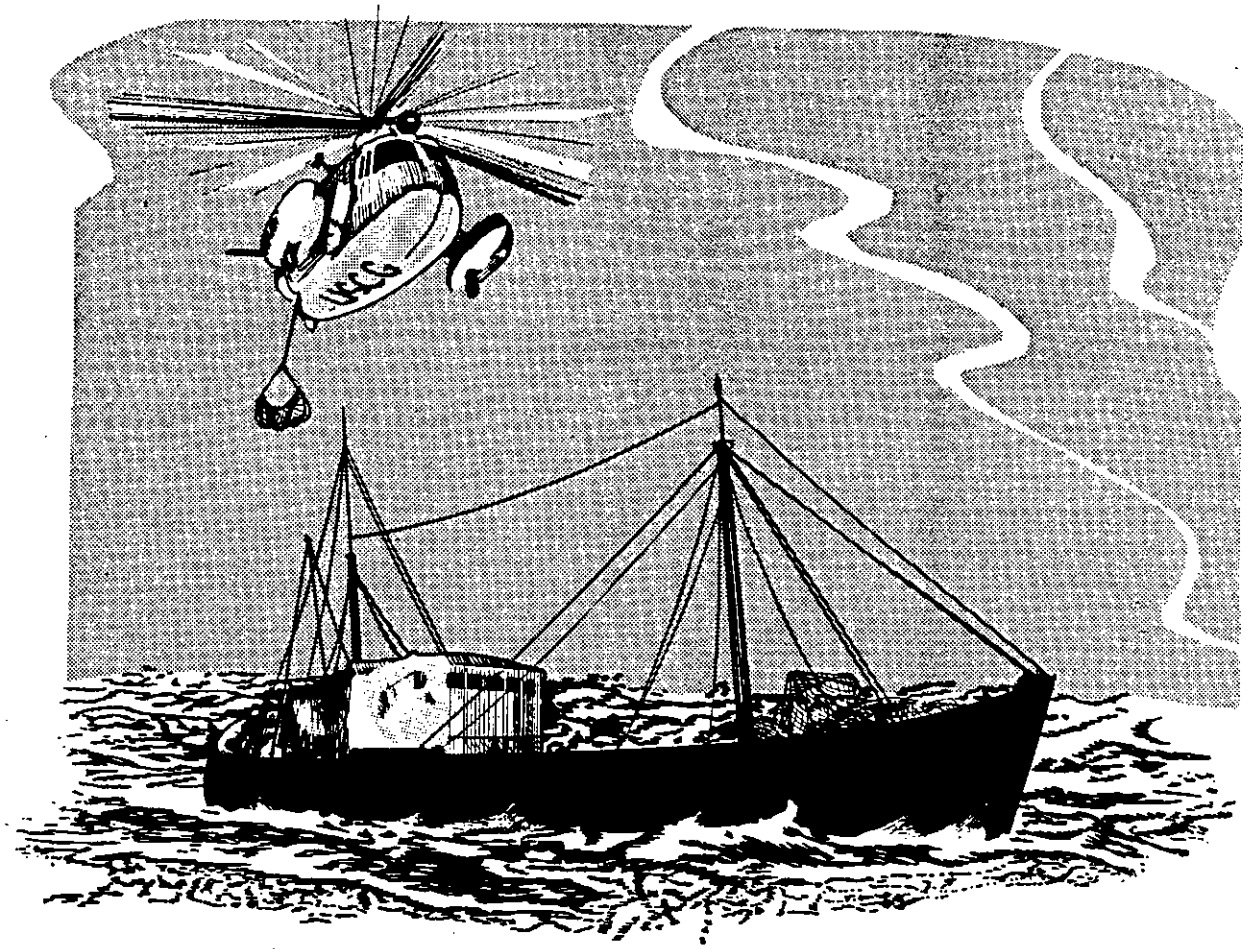
REMOVE obstructive clothing from chest.
FEEL for lower end of breastbone with 2 or 3 fingers on xiphoid.
PLACE heel of one hand just above fingers so that you are on lower one-half of breastbone, **PLACE** other hand on top of first; **KEEP** arms straight.
Small child — use heel of one hand at midpoint of breastbone.
Infant — use 2 fingers at midpoint of breast bone.
COMPRESS breastbone straight down 1½ to 2 inches . . .
Child — ¾ to 1½ inches
Infant — ½ to ¾ inch
. . . at a **RATE** of 60-80 times per minute.
Child/Infant 80-100 times per minute.



ONE PERSON — give 2 BREATHS after 15 CHEST COMPRESSIONS. Chest compressions are done at a rate of 80 times per minute.

TWO PERSONS — Give 1 BREATH during the upstroke of each **5th CHEST COMPRESSION.** Chest compressions are done at a rate of 60 times per minute.

Call for Help.



HELICOPTER EVACUATION

Helicopter evacuation is a hazardous operation and should only be attempted in a life or death situation. The following information provides the capabilities and requirements of the Coast Guard for evacuation at sea.

RANGE:
Helicopters can operate only 100 to 150 miles offshore weather conditions permitting.

REQUEST FOR ASSISTANCE:
▲ Determine patients condition and call the nearest Coast Guard station listed on NMFS Medical Assistance Placard.
▲ Give position, course, speed, weather conditions, type and characteristics of vessel.
▲ Conserve time by heading towards rendezvous point.

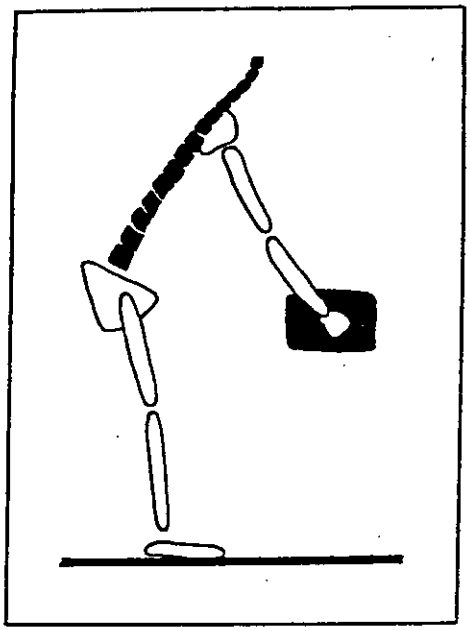
PREPARE FOR ARRIVAL:
▲ Stand by on 2182 kHz or specified alternate if not available.
▲ Display distress signal.
▲ Clear hoist area, preferably aft, with maximum horizontal clearance. If area is mid-ships lower antenna and secure running gear.
▲ At night, light area, DO NOT shine lights on helicopter.

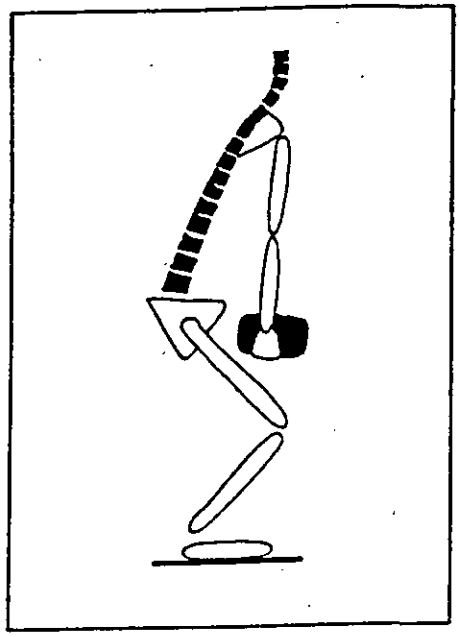
HOISTING:
▲ Tag patient, indicate medication given and conditions doctor should be aware.

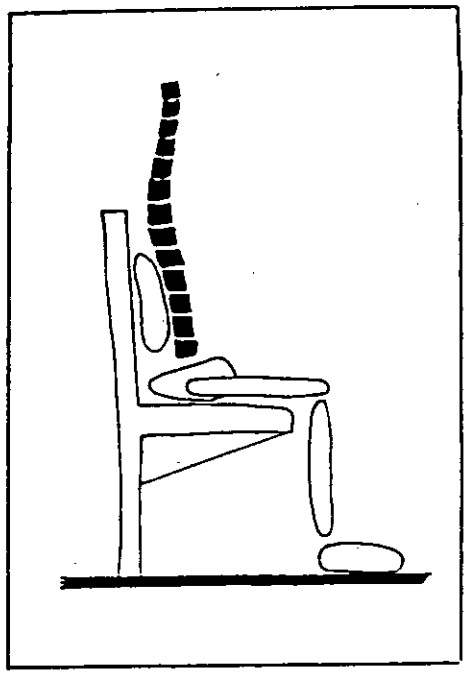
Keep vessel into wind or with wind about 20° on port bow at 10 to 15 knots.
▲ Hoist instructions will be given by pilot. Allow stretcher or basket to touch deck to discharge static electricity. Wear dry cotton or rubber gloves.
▲ If stretcher is needed it will be equipped with a hoisting bridle.
▲ Conditions permitting, have patient in life jacket, strapped in, face up, and hands clear of sides.
▲ DO NOT secure hoist cable to vessel or attempt to move stretcher without first unhooking cable.
▲ With patient strapped in signal pilot to lower hoist. Steady stretcher.
▲ Use trail line to steady stretcher. Make sure line is clear of rigging and crew.

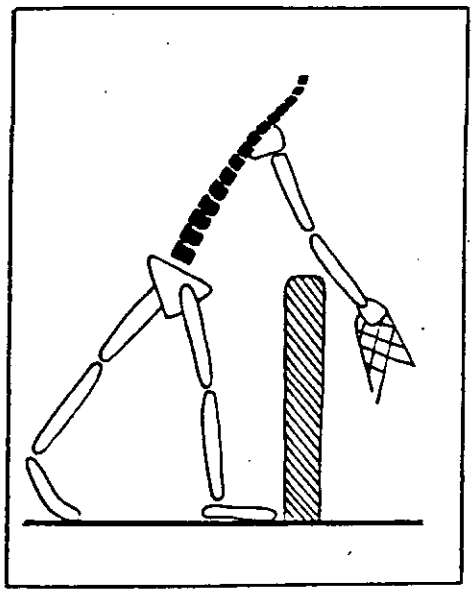
U.S. Department of Commerce, National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Fisheries Extention Service, Northeast Region, Gloucester, Massachusetts

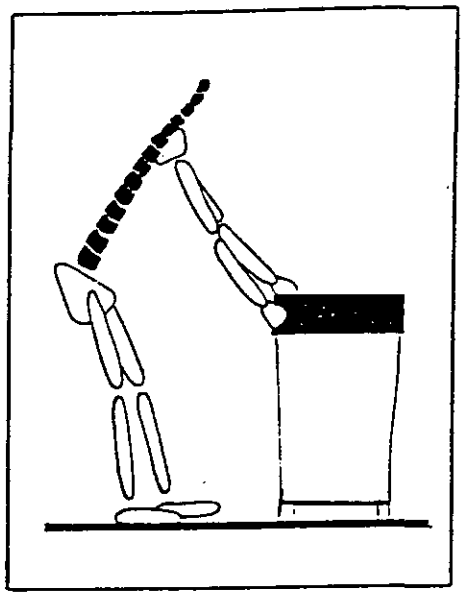
PREVENTING BACK INJURIES

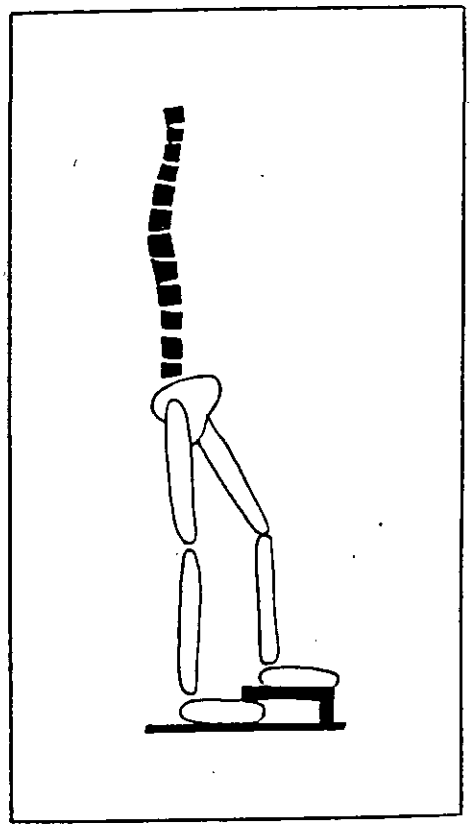












1. The stress on the back is increased when the work is too far away from the body.

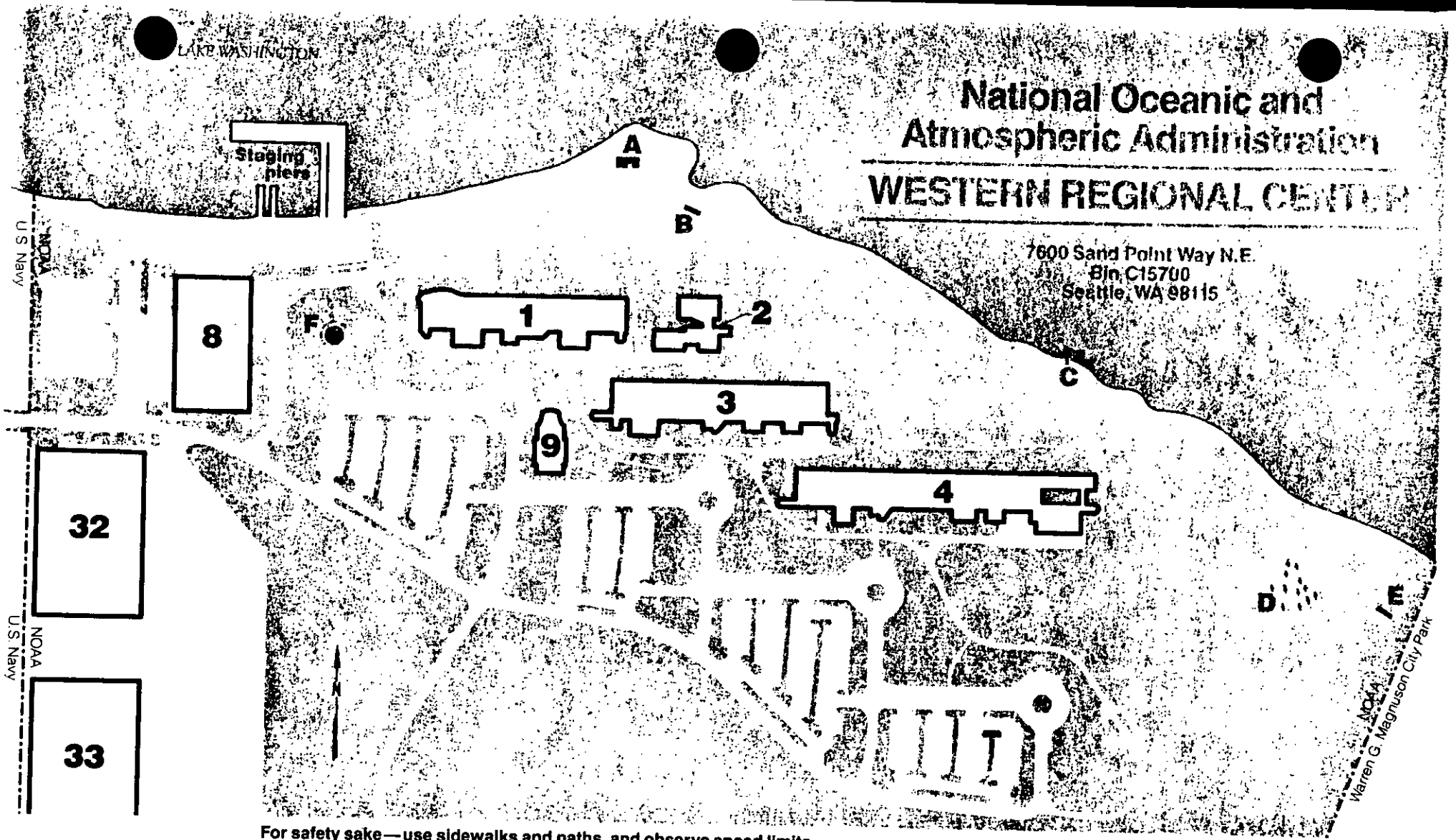
2. Taking the time to get a load directly in front of and close to you will reduce the chance of hurting your back. Always bend your knees and lift with a straight back.

3. If you have to sit for a long period, make sure the seat supports the lower back. If it doesn't, put a rolled-up sweater or towel behind your waist.

4. If you have to reach over something to do a job, put your weight on one leg and stretch the other leg straight out behind.

5. If you have to pull or push an object, take the extra step to get it straight in front of you.

6. If you must stand for a long period, put one foot up on a low ledge or rail.



For safety sake—use sidewalks and paths, and observe speed limits

Building 32
NMFS Resource Assessment and Conservation Engineering

Building 33
Warehouse

Building 8
Pacific Tide Party, PMC.
Western Regional Diving Facility.
Shops.
Warehouse.

Building 1
NW Regional Office, NMFS.
NW Regional Counsel.
NW Ocean Service Center.
Public Affairs.
Office for Civil Rights.
National Weather Service Forecast Office.
Western Administrative Support Center.

Building 2
Cafeteria.
Health care facility.

Building 3
Pacific Marine Environmental Laboratory.
Nautical Chart Branch, PMC.
Library & Information Services Division.
Ocean Assessments Division, NOS.

Building 4
Northwest & Alaska Fisheries Center, NMFS

Building 9
Auditorium and seminar rooms

Artworks

- **A** Viewpoint
- **B** NOAA Bridge
- **C** Berth Haven
- **D** A Sound Garden
- **E** NOAA Bridge
- **F** Knoll for NOAA

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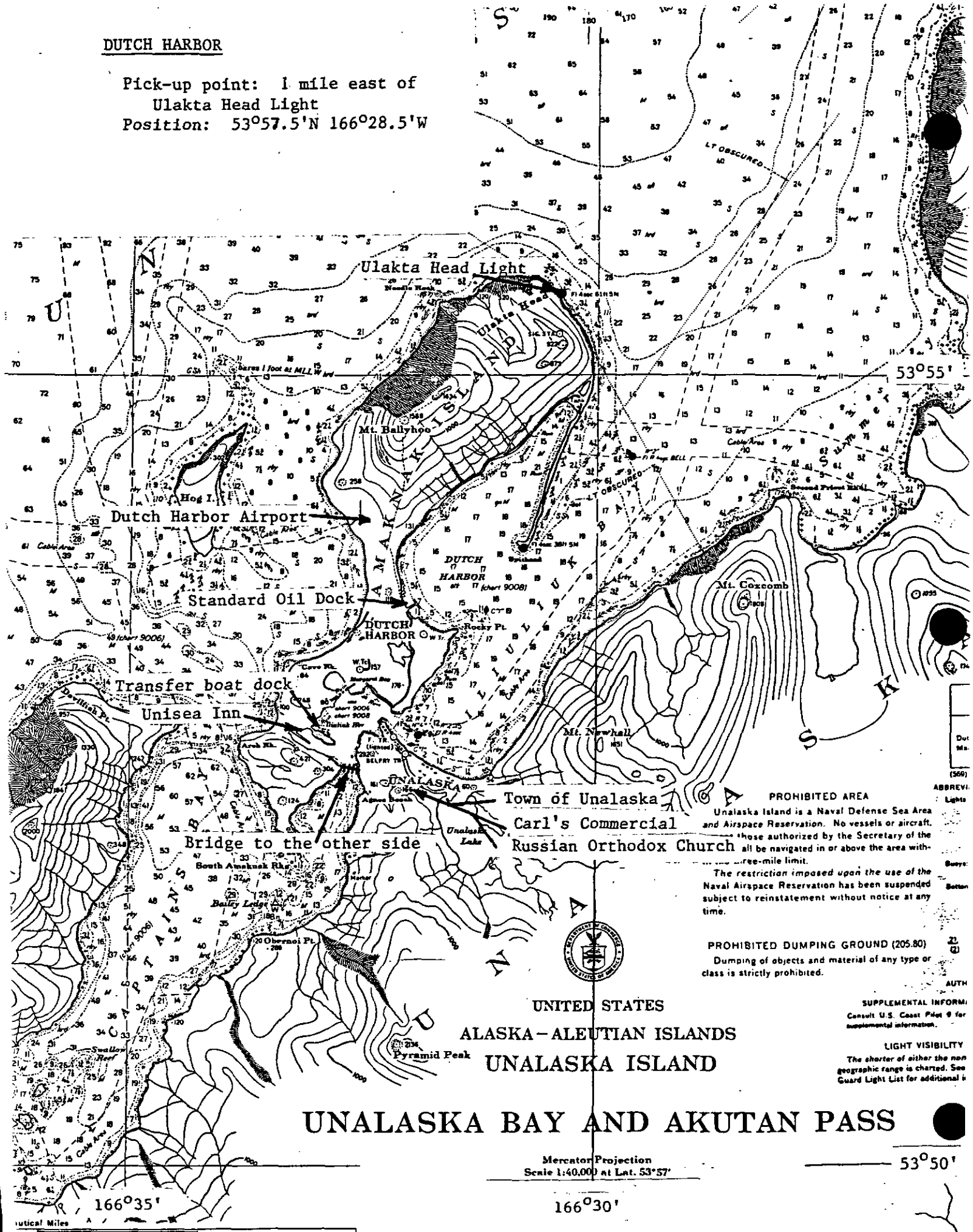
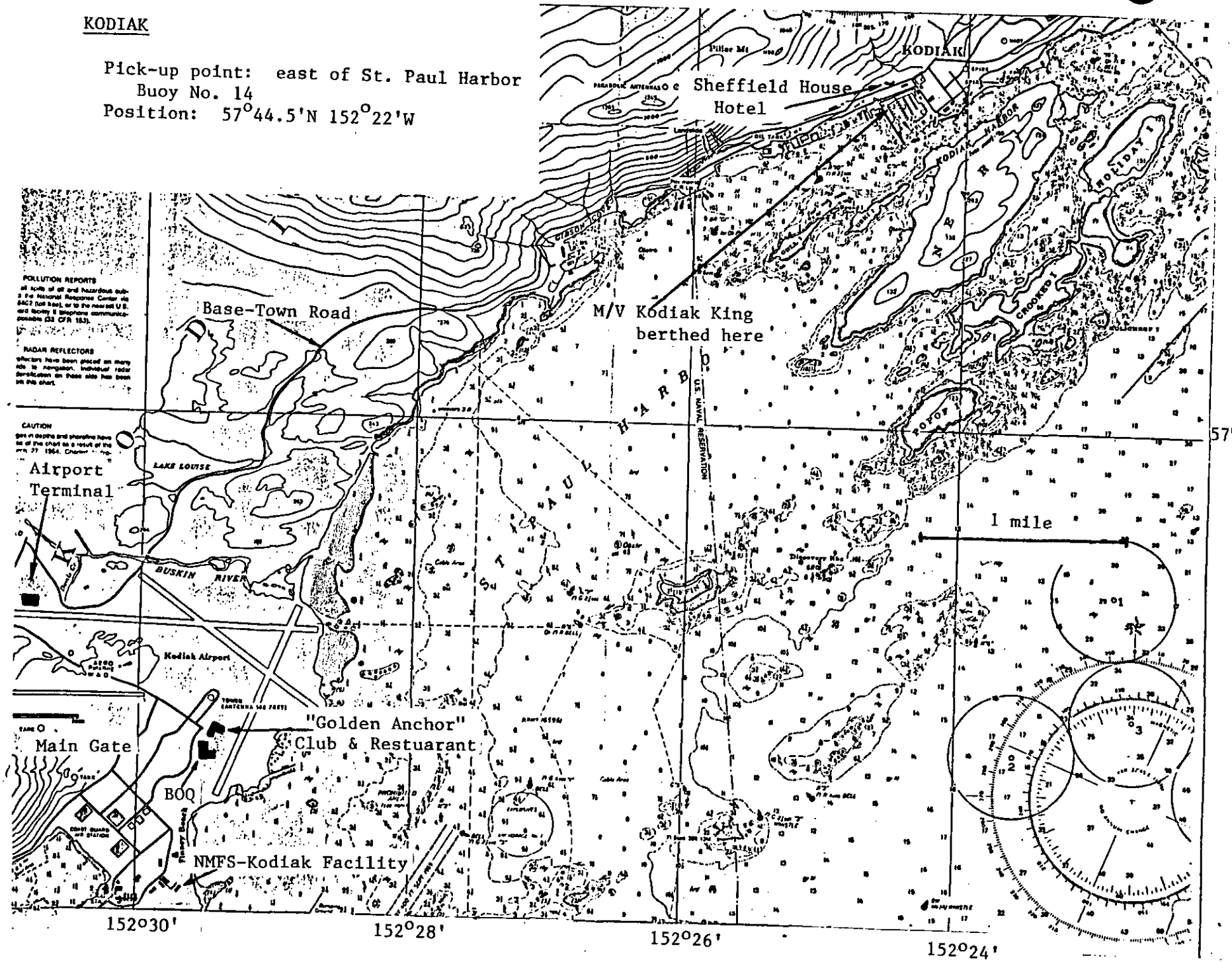
DUTCH HARBOR

Pick-up point: 1 mile east of
Ulakta Head Light
Position: 53°57.5'N 166°28.5'W



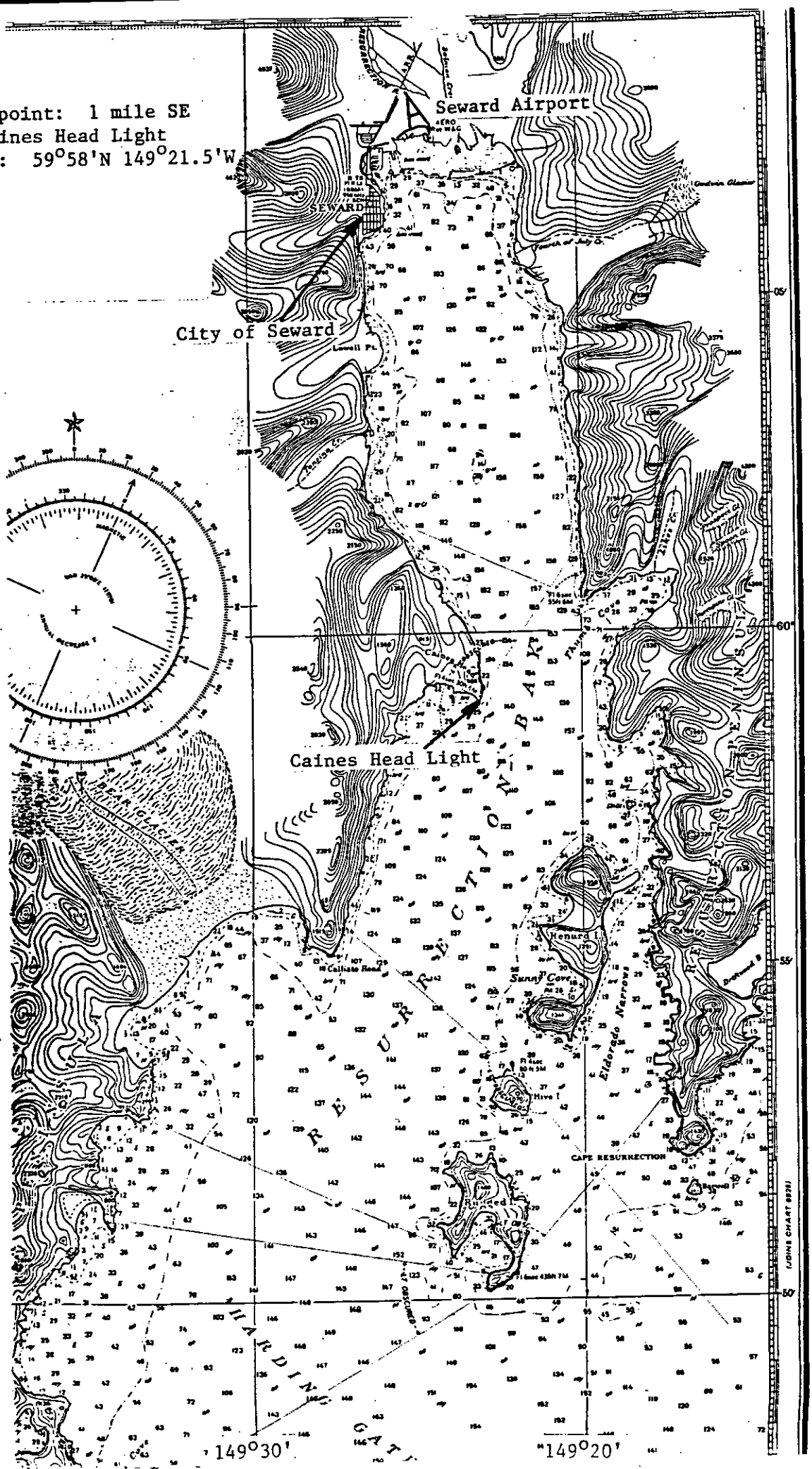
KODIAK

Pick-up point: east of St. Paul Harbor
Buoy No. 14
Position: 57°44.5'N 152°22'W



SEWARD

Pick-up point: 1 mile SE
of Caines Head Light
Position: 59°58'N 149°21.5'W



GLOSSARY

ABC - Acceptable Biological Catch is an annual harvest level for each species based only on biological considerations.

Aft - towards the stern of a vessel

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

Athwart ships - side-to-side across a ship, perpendicular to the centerline.

Bag - the codend.

Beam - width of a ship.

Benthic - living in direct relation with the bottom

Bight - a loop or turn in a line.

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

Block - a pulley or system of pulleys in a frame, with a hook.

Boat Share - The percentage of the gross 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 - chief of the deck crew

Bottom - 1) ocean floor, or 2) fishing depth, or 3) a ship hull. Which meaning to apply must be taken from context.

Bow - the forward end of a ship.

Bow line - a mooring line attached to the bow of a ship.

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

Breech - 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.

Bridle - Wire attached to the headrope, footrope or side panel of a net, by which the net is towed.

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.

Capstan (gypsy) - an upright, spool-shaped, power rotational cylinder around which cables or hawsers are wound for hoisting anchors, or other weights.

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

Chief - The engineer, the man 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.

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 a dock or the deck.

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

Combing - a low partition that separates the trawl deck from the side pockets.

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

Compliance - in accordance with the fishing regulations.

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.

Demersal - being or living near the seabed.
Directed fishing - targeting or fishing for a species quota.
Disembark - to get off a vessel.
Door - a large steel or alloy structure attached to each main wire (in front of the net) to spread the net horizontally by means of hydrodynamic and friction forces.
Draft - vertical distance from keel to waterline of a ship.
Drum - a metal spool or cylinder around which cable, etc. is wound.
Drumhead - the top of a capstan, into which bars are inserted for leverage in turning it.
Ebb tide - outgoing tide.
EEZ - Exclusive Economic Zone. This is the term for the 200 mile jurisdiction zone formerly called the FCZ.
Embarkation - to board a vessel.
EPIRB - Emergency Position Indicator Radio Beacon.
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.
Expenses - All costs of making the trip: fuel, groceries, ice, bait, lost gear. Some expenses may be gross-stock expenses, that is, costs levied against the gross stock before any shares are deducted. Crew expenses are those trip costs levied against the crew's share, which is the amount left after deduction of boat share and gross-stock expense.
Fathom - a measure of length or depth equal to six feet.
Fishfinder - an electronic device for locating schools of fish under a vessel.
Fishing line - a length of chain or wire in the bottom, front end of a net between the footrope and the bolsh line.
Flatfish - fish which are laterally compressed and who orient themselves in the water with their lateral surfaces or sides towards the surface and bottom.
Flatlink - a piece of cut or cast hardware, generally oblong in shape, with leg diameter smaller in certain areas to allow attachment of a G-hook; used where wires must be connected and disconnected frequently.
Flood tide - incoming tide.
Fo'c'sle (from: forecastle) - the forward part of a ship where sailor's quarters are located.
Footrope - 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.
Forward - towards the bow of a vessel.
Freezer trawler - a large, catcher/processor vessel whose products are whole fish or parts of fish frozen into blocks.
Fresh weight - the weight of the whole fish (or animal) as it was when alive. Also called round weight, whole weight.
FUS - Fully Utilized Species. FUS is a designation given to bycatch species whose quota has been taken but the fishery was permitted to continue. Fully Utilized Species must be discarded from the catch like prohibited species.

Galley - Ship's kitchen and/or mess hall.
Gallows - structure from which trawl blocks are hung; separate units port and starboard.
Gangen - the leader line, about a meter in length, tied into a longline with a hook tied to it's free end.
Gantry - a continuous structure athwart ship used for towing and gear handling.

Gas bladder - a sac filled with air or similar gases in the body cavity. May or may not be attached to the throat by a duct.

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.

Gill rakers - bony tooth like structures on the anterior edges of the gill arches. For protection or straining out food.

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

Gunnel or Gunwale - the upper edge of the side of a boat.

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

Gypsyhead - A metal drum with a smooth concave surface, usually mounted on a winch. Several wraps of line around the gypsy provide enough friction while it is turning to raise heavy loads smoothly because the line slips and is easily controlled, like the friction on a clutch plate.

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

Haul - a catch of fish from one tow of a net

Hawser - any large rope (generally five inches or more in circumference) used primarily for towing, mooring or hauling.

I-beam - a steel beam shaped like an "I" in cross section.

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.

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

Knot - A measure of time multiplied by distance, equaling speed. One knot equals one nautical mile (6080 feet) in one hour.

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.

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

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

Master - fishing master and/or captain.

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

MSY - Maximum Sustainable Yield is 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.

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

Otterboard - Another name for a trawl door; Refer to net diagram.

Otter trawl - The type of net gear used on stern trawlers; Refer to net diagram.

OY - a range within which summed TAC's must fall.

Pelagic - midwater

Peritoneum - the lining of the gut cavity

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

Pod - a group of marine mammals traveling in association

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

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

Radio Call Sign - four letters and/or numbers which are an international identifier of a vessel. The International Radio Call Sign (IRCS) is painted in large letters on the side of each vessel and on the deck of the flying bridge.

R.D.F. - Radio direction finder.

Regenerated scale - a fish scale which has grown in to replace one that was lost. Regenerated scales are useless for aging the fish.

Reserve - a portion of quota set aside at the beginning of the fishing year to allow for uncertainties in preseason estimates of DAP catch.

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

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

Roundfish - fish that orient themselves in the water with the dorsal side towards the surface and ventral side towards the bottom.

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

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

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

Sheave - a wheel with a grooved rim, such as is mounted in a pulley block to guide the rope or cable.

Shortwiring - to haul in the main wire to bring the net up out of the fishing level but not out of the water. The trawl doors may or may not be brought up to the stern. The vessel continues to tow to keep the fish corralled in the net until haulback. The towing speed may be reduced. Shortwiring (1) may be done by a catcher boat for a mothership to hold the fish in good condition until delivery, (2) may be done to keep the warp cables from tangling when turning the ship around, or (3) may be done to raise the net to see the amount of catch.

Skate - a length of longline gear, usually 100 fathoms or 600 feet long.

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

Spring line - a mooring line attached amidships.

SSB - Single Side Band radio used for long distance contact.

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.

Surimi - minced fish meat paste usually produced from pollock.

TAC - Total Allowable Catches are annual harvest levels based on biological, economic and social factors

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.

Trawl - A cone shaped net, towed through the water to catch fish.

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.

Vessel Code - A code used only by the observer program to identify a ship.

Warp (main wire) - the cables on a trawler which run from the main winches to the trawl doors on the net.

Wing - the sides off a trawl net near the opening, usually with larger mesh than the rest off the net.

Wrister - A coated cloth tube worn on the arm, extending from the elbow and covering the wrists. Keeps arms warm. Fish blood and slime are more easily washed out from these than from shirt sleeves. Most fishermen cut off work shirt sleeves, generally about halfway between elbow and wrist.

Zipper - an area of the codend which may be opened to remove fish, a seam connecting two parts of the net which may be opened by pulling on the zipper line.

Zulu - another name for GMT.

FORM A - Plant Delivery Form

Cruise #	Plant code	Year

Catcherboat Name	ADF&G #	CG #	Permit #

Delivery sampled ?	Observer onboard ?	Delivery date		Delivery Number	Gear type	NMFS area number	No. of tows	Average duration (minutes)	Total wt. delivered (round wt.)	LB or MT	ADF&G # of catcherboat	ADF&G fish ticket number
		Month	Day									

Created 1/1/97

FORM A - Delivery Composition Form

PAGE ______ OF ______

Cruise #	Plant code	Year

Delivery Date		Delivery number	Species code	Main product code	Possible length/sex bias?	Weight of target species discarded at sea	Round weight of target species delivered	LB or MT
Month	Day							

Created 1/1/97

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Observer Name _____

Vessel Name _____

Page _____ of _____ for transmission

Page _____ of _____ for vessel

Plant/Processor name	Location	Processing code #

Cruise number	Vessel code	Year

ORC

Sets sampled for composition	Date: Month	Date: Day	Set #	%Monitored for marine mammals	Gear type	Gear performance	Vessel type	Location code	End position of set: Latitude (N)	End position of set: E or W	End position of set: Longitude (100)	Soak time: hrs	Soak time: min	Avg. bottom depth	M or F	# of skates or #of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	Vessel's Total Catch Estimate in metric tons	Processor code	CDQ/IFQ number

Revised 1/1/97

FORM 3US--SPECIES COMPOSITION FOR LONGLINE AND POTS

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments:____

____

____

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
L = Longline
T = Trap/pot

Species name	Sex	Species code	ST	Number						Species weight in kg. w/ decimal	No. of hooks or pots sampled	% Retained
(keypunch check)		999										

FORM 3US--SPECIES COMPOSITION FOR LONGLINE AND POTS

Page _____ of _____

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

*Other calc.& comments:*_____

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
L = Longline
T = Trap/pot

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	*No. of hooks or pots sampled*	% Retained
(keypunch check)		999					

FORM 2US - HAUL FORM FOR U.S. TRAWLERS

Page ________ of ________ for vessel

Cruise number	Vessel code	Year

ORC

List of catcher boats for motherships

Full name of catcher boat	ADF&G #

Observer name ________________________

Vessel name ________________________

Page ________ of ________ for transmission

Plant/Processor name	Location	Processor code #

Hauls sampled for composition	Date: Month	Date: Day	Haul #	Monitored for MM?(Y/N)	Gear type	Gear performance	Vessel type	Location code	Haul or Delivery position: Latitude (N)	E or W	Longitude (100)	Fishing times in ALT: Nets on bottom	Nets off bottom	Fishing duration (minutes)	Average fishing depth	Average bottom depth	M or F	Avg. speed (knots)	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	B or C	Density used in mt. per cubic meter	Vessel's Total Catch Estimate in metric tons	Catcher boat's ADF&G #	Processor code	CDQ/IFQ number
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Revised 1/1/97

FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Page ______ of ______

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments:____

____

____

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number						Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)		999										

Revised 1/1/97

FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Page ______ of ______

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments: ______________________________

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X			X	

Cruise	Vessel Code	Year	Month	Day

FORM 7US-LENGTH FREQUENCY OF MEASURED SPECIES
(includes halibut, salmon, and crab measurments)

SIZE GROUPS: Fish by 1cm. Crabs by 5mm

M = male
F = female
U = unknown sex

Species name	Species code	Set/haul no.	Sex	Eggs?	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.

Cruise	Vessel Code	Year	Month	Day

FORM 7US-LENGTH FREQUENCY OF MEASURED SPECIES
(includes halibut, salmon, and crab measurments)

Page_____ of _____

SIZE GROUPS: Fish by 1cm.
Crabs by 5mm

M = male
F = female
U = unknown sex

Species name	Species code	Set/haul no.	Sex	Eggs?	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.

AREA _____ **FORM 9US - BIOLOGICAL SAMPLING FORM** Page ____ of ____

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23

Total no. of specimens _____

Catalogue date _____

	Set/haul number			Specimen number			Sex	Length (cm)			Weight (kg)					Form 7	Maturity stage		Notes		Age			REMARKS
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	41	42	43	44	45	47	48	49	
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AREA _____ **FORM 9US - BIOLOGICAL SAMPLING FORM** Page ____ of ____

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23

Total no. of specimens _____

Catalogue date _____

	Set/haul number			Specimen number			Sex	Length (cm)			Weight (kg)					Form 7	Maturity stage		Notes		Age			REMARKS
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	41	42	43	44	45	47	48	49	
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Cruise #	Vessel code	Year

Form 10AUS - Marine Mammal Interaction Data

Page _____ of _____

Describe features used in identification; circumstance and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Cruise #	Vessel code	Year

Form 10BUS - Marine Mammal Specimen Data

Data describing indiviual specimens; sexing criteria, methods of measurement, types and extent of injuries; etc..

Date Month	Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Remarks : (see manual for list of required information)

Date Month	Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Date Month	Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Date Month	Day	Haul, or set number	Marine mammal species code	Interaction code	Sex? (M, F, or U)	Specimen number	Standard length in centimeters	Curvilinear length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?

Form 11US

MARINE MAMMAL SIGHTING

NOAA/NMFS/AFSC/NMML
Platforms of Opportunity
7600 Sand Point Way NE
Seattle, WA 98115

Observer(s)_____ Vessel_____

date

local time (24 hr. clock) +/- GMT

latitude N/S

general location (optional)

longitude E/W

sighting conditions Beaufort +/- water temp. °C

xlnt good fair poor

species (common and/or scientific name)

confidence

sure likely unsure

sighting cue

closest approach meters

number sighted (best)

number (minimum)

number (maximum)

observer

vessel

platform vis species code sighting cue

conf. length photos

behaviors

interactions multi

(circle as appropriate)

Narrative

Make identifications only on specific features seen. Mention them here. Include body features, markings and coloration, associated organisms, elaborate on behaviors, etc. The most valuable sightings contain a good amount of detailed information.

Body Length Estimate

- ☐ < 3 m (< 10')
- ☐ 3–8 m (10–25')
- ☐ 8–16 m (25–50')
- ☐ 16–26 m (50–80')
- ☐ >26 m (>80')

Behaviors Seen

bowriding (small cetaceans)
stern/wake riding
galloping ("porpoising")
jumping
slow rolling
roostertailing
milling

spyhopping (large cetaceans)
blow visible
breaching
pec (flipper) slapping
lobtailing
tail raised on dive
tail throws
lateral lunge feeding
vertical lunging
group lunging
flukes up on dive

rafting (pinnipeds)
resting (jughandle)
running ("porpoising")
inverted slaps
leaving haulout
vocalizing

Fishing Interactions

feeding on discards
feeding from gear
swimming near gear
contact with vessel
contact with gear
trailing gear

Photos/Video (optional)

☐ photographs
☐ video

roll/tape # _____

frame(s) _____

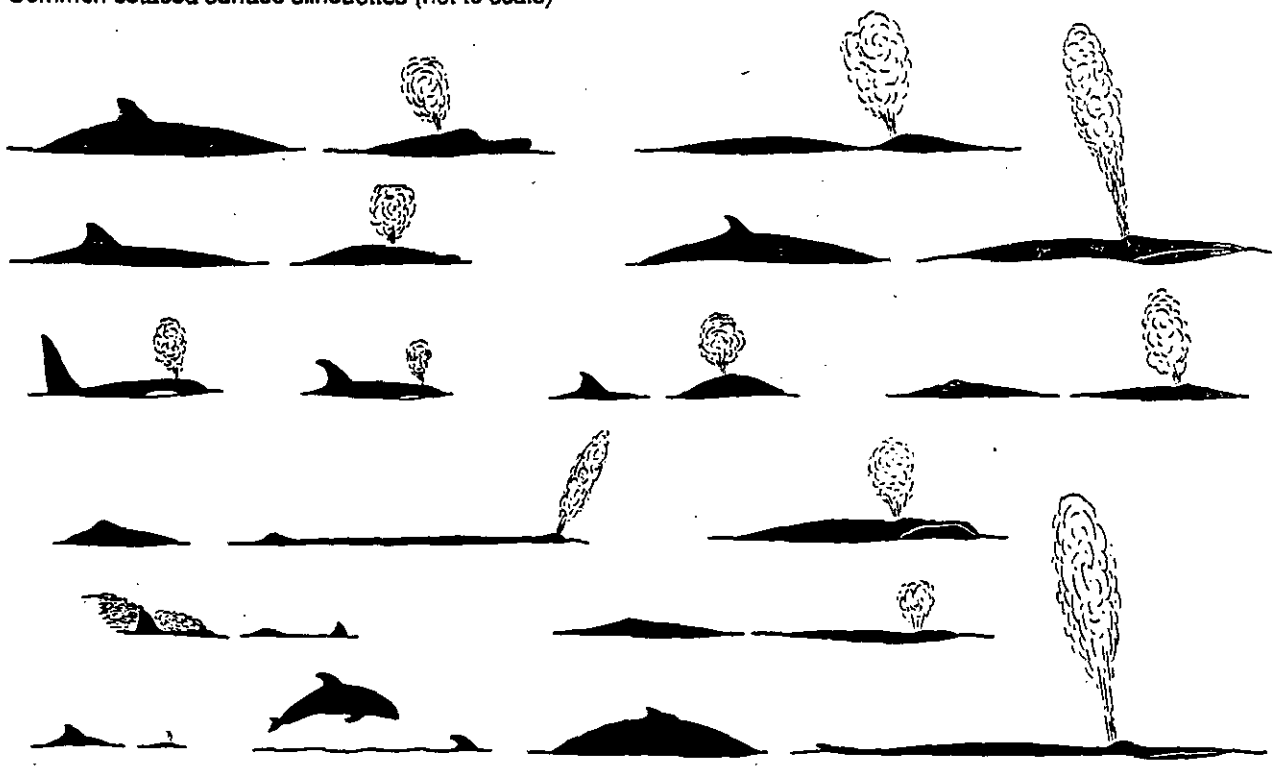
☐ Check here if there was more than one species of marine mammal present at this sighting. Please fill out a form for each species.

Sketches

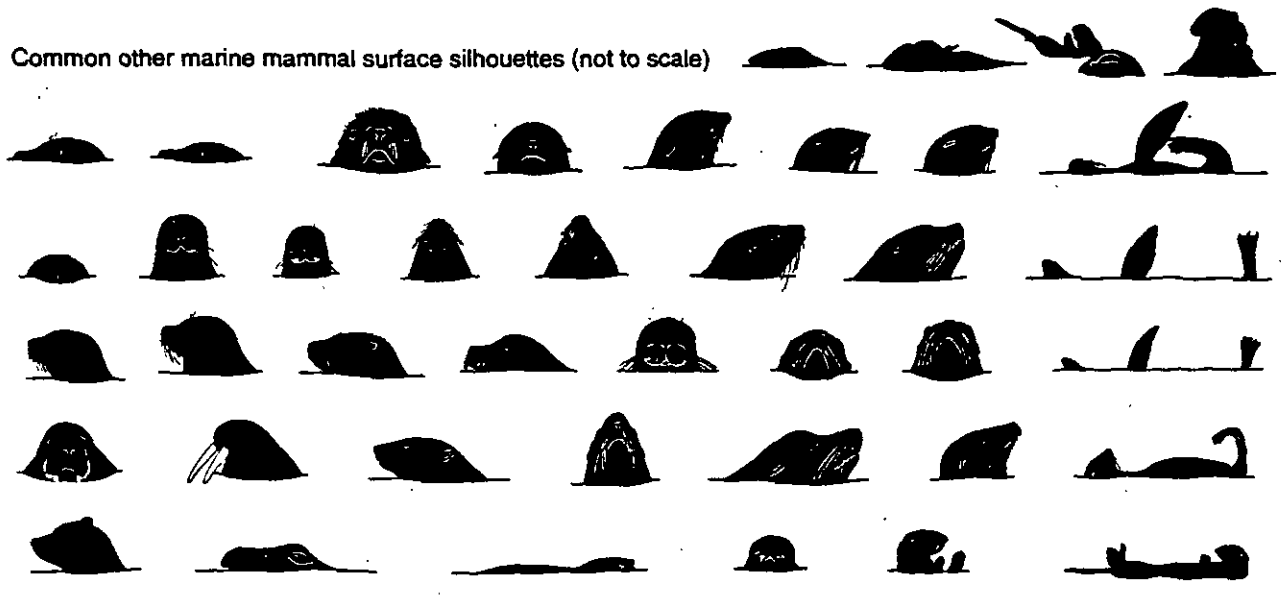
When possible, make a sketch noting pigmentation, anatomical features, scarring, posture, anatomical anomalies, group positioning, etc.

cruise number and vessel code

Common cetacea surface silhouettes (not to scale)



Common other marine mammal surface silhouettes (not to scale)



These are silhouettes of most genera of marine mammals known to occur in and around North America. Subtilties exist between closely related genera. Care should be taken in identifying species. Assessing one's level of confidence with copious notes and observations is more valuable than a brief misidentification.

BEAUFORT SCALE (Sea Condition)		***wind***	***wave height***	
0	glassy, calm	0 , 1 kts	calm	
1	*light ripple*	1 < 4 kts	*light air*	1/4'
2	small wavelets	4 < 7 kts	light breeze	1/2'
3	scattered whitecaps	7 < 11 kts	gentle breeze	2'
4	small waves, frequent whitecaps	11 < 17 kts	moderate breeze	4'
5	moderate waves, many whitecap	17 < 22 kts	fresh breeze	6'
6	all whitecaps, some spray	22 < 28 kts	strong breeze	10'
7	breaking waves, spindrift	28 < 34 kts	near gale	14'
8	medium high waves, foamy streaks	34 < 41 kts	gale	18'
9	high waves, dense foamy streaks	41 < 48 kts	strong gale	22'
10-12	not meaningful (time to go home)			

Cruise # _____ Vessel code _____ Vessel Name _____

CMA - SPECIES COMPOSITION

Page _____ of _____ for vessel

Weekly Message or Resubmission of Message

Observer Name _____ Page _____ of _____ for transmission Fax /Telex # _____

GROUP ABBREVIATIONS																
SPECIES GROUP CODES																
HAUL NUMBER	TOTAL SAMPLE WEIGHT IN KG	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE
	% of group retained															
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	% of group retained															

Revised 1/1/97

Cruise # _____ Vessel code _____ Vessel Name _____ CMB - PROHIBITED SPECIES Page _____ of _____ for vessel

Observer Name _____ Page _____ of _____ for transmission Weekly Message or Resubmission of Message

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB		OTHER KING CRAB		SAMPLE WEIGHT IN MT	HERRING	SAMPLE WEIGHT IN MT	BAIRDI TANNER		OTHER TANNER		SAMPLE WEIGHT IN MT	PACIFIC HALIBUT		SAMPLE WEIGHT IN MT	CHINOOK SALMON		OTHER SALMON		Marine Mammals	
		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG		WEIGHT KG		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG		NUMBER	WEIGHT KG		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG	code	#

revised 1/1/97

Inseason Halibut Viability Form

Page _____ of _____ for the transmission

Observer Name_____

Vessel Name_____

Fax to:
Domestic Observer Program
(206) 526-4066 or
(206) 526-4207

Office Use Only Cruise # Permit # Proc. Code

BSA or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	If IFQ, Were Halibut Retained? Y or N (Non IFQ, Leave Blank)

Revised 11/30/95

INSEASON SALMON RETENTION FORM FOR CATCHER/PROCESSORS AND MOTHERSHIPS

Observer Name_____

Vessel Name_____

Cruise #_____ Vessel code _____

Vessel ADF&G Number	Date	Haul or Delivery Number	Gear Code	Haul Wt. in mt.	Haul Position			Temperature			Wind Measurement			Salmon Totals			Reliability Code
					Latitude	E or W	Longitude (1)	Degree °F or °C	Surface temp.	Fishing temp.	Data? Y or N	Wind Direction	Wind Speed	Number of Chinook	Number of Other Salmon	Number of Unident Salmon	

revised 6/28/95

INSEASON SALMON RETENTION FORM FOR PLANTS AND FLOATERS

Page _____ of _____

Observer Name_____

Plant Name_____

Cruise # _____ Vessel code _____

Data From All Deliveries									Data From Deliveries Sampled by C/V Observer					
Vessel ADF&G Number	Delivery Date	Delivery Number	Delivery Weight in mt.	Number of Chinook in delivery	Number of Other Salmon in delivery	Number of unident Salmon in delivery	Observer onboard the C/V?	Sampled by C/V observer?	Tonnage sampled for salmon in mt.	First 2US haul # of delivery	Last 2US haul # of delivery	Number of Chinook in sample	Number of Other Salmon in sample	Number of unident Salmon in sample

revised 6/25/95

(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for FAX communication

RKNG - Red King Crab
OKNG - Other King Crab
HERR - Herring
BTAN - Bairdi Tanner Crab
OTAN - Other Tanner Crab
HBT - Pacific Halibut
CSAL - Chinook Salmon
OSAL - Other Salmon

To: Alaska Regional Office
Inseason Management Branch
Juneau, AK

Via FAX: (907) 586-7131
Via TELEX: 62296000
Via Operator: (907) 586-7228

Vessel's FAX/TELEX _____

(6) Date		(7)	(8)	(9)	(10)	(11)	For requested prohibited species			(15)	For requested species group	
							(12)	(13)	(14)		(16)	(17)
Month	Day	NMFS Area	By area, total daily weight in metric tons	Sampling method	Total of haul weights per sampling method	Species Report Group Code	Total of prohibited species sample weights in metric tons	Total number of prohibited species in samples	Total weight of prohibited species in kilograms	Species Report Group Code	Total of species composition sample weights in kilograms	Total weight of species group in samples in kilograms

revised 3/93

(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

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CMD - DAILY CATCH MESSAGE FORM
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Vessel's FAX/TELEX _____

(6) Date		(7)	(8)	(9)	(10)	(11)	For requested *prohibited species*			(15)	For requested *species group*	
Month	Day	NMFS Area	By area, total daily weight in metric tons	*Sampling method*	Total of haul weights per sampling method	Species Report Group Code	(12) Total of prohibited species sample weights in *metric tons*	(13) Total number of prohibited species in samples	(14) Total weight of *prohibited* species in *kilograms*	Species Report Group Code	(16) Total of species *composition* sample weights in *kilograms*	(17) Total weight of *species group* in samples in *kilograms*

revised 3/93

CM V - Weekly Catch Message Form for Voice Communication

Page _____ of _____ for vessel

Observer Name

NMFS Region

ORC_____
(not coded)

Vessel Name

Gear Type

Week Ending Date

Observer Coverage Days

Check one of the following boxes or fill in name of shoreside plant or floating processor:

Aboard a catcher/processor? ☐

Aboard a mothership? ☐

Catcher boat? Delivering to: _____

1. Summarize data for the week for the target species and for halibut by region and gear type.
2. Transfer totals to the shaded boxes on CM-V.
3. Translate all information in the shaded boxes using codes and enter in adajcent white boxes.
4. Transmit all information in the white boxes via marine operator and radio.

Office Use Only Cruise # Permit # Proc. Code

(1) Total catch for the week in mt	(2) Total of species composition samples in kg	(3) Target Report Group Code	(4) Total weight of target species in samples in kg	(5) Total halibut sample weight in kg	(6) Total number of halibut in samples	(7) Total weight of halibut in samples in kg

0	1	2	3	4	5	6	7	8	9

revised 11/92

CM V - Weekly Catch Message Form for Voice Communication

Page _____ of _____ for vessel

Observer Name

NMFS Region

ORC_____
(not coded)

Vessel Name

Gear Type

Week Ending Date

Observer Coverage Days

Check one of the following boxes or fill in name of shoreside plant or floating processor:
Aboard a catcher/processor? ☐
Aboard a mothership? ☐
Catcher boat? Delivering to: _____

1. Summarize data for the week for the target species and for halibut by region and gear type.
2. Transfer totals to the shaded boxes on CM-V.
3. Translate all information in the shaded boxes using codes and enter in adajcent white boxes.
4. Transmit all information in the white boxes via marine operator and radio.

Office Use Only Cruise # Permit # Proc. Code

(1) Total catch for the week in mt	(2) Total of species composition samples in kg	(3) Target Report Group Code	(4) Total weight of target species in samples in kg	(5) Total halibut sample weight in kg	(6) Total number of halibut in samples	(7) Total weight of halibut in samples in kg

0	1	2	3	4	5	6	7	8	9

revised 11/92

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