UNITED STATES DEPT. OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL MARINE FISHERIES SERVICE

ALASKA FISHERIES SCIENCE CENTER

SEATTLE, WASHINGTON

Manual for Biologists

Aboard Domestic Groundfish Vessels

1994

[Revised December 1993]

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 plus training sessions and your perusal of reports filed by previous observers should adequately prepare you for your observer experience. It must be borne 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.

December 31, 1993 Manual Changes List

1 - 10 Names were updated on Communications list - Cindy Taylor, Allison, Martin, Tracy.
1 - 11 to 1 -15 Training Syllabus was updated.
1 - 17 & 18 The gear check-out list was updated and substituted for the previous gear list.
1 - 19 Data forms to be packed, the amounts were revised and list was updated.
1 - 26 Observers are required to wear boots while on deck but reference to steel toed boots was deleted.
1 - 39 Calculation guideline for increasing a number by a percentage was added to illustrate a common math error in observer work.

2 - 3 Item 5, The preface explanation was improved to direct observers with different gear types to the appropriate Catch Summary form. '93 pelagic gear definition is new.
2 - 4 Gear code 5 was added for shrimp trawls. Item 6, gear performance code 6 was added for nets, skates or pots lost.
2 - 9 RTC definition, Added: if the plant gives the boat back some of its fish to dump, that fish is still retained & what to do if your c/p dumps product overboard.
2 - 10 to 2 - 21 Dispersed the "Detailed Reviews" following the RTC & OTC sections. Put each entry in with its "method" discussion to simplify the organization. Underlined subject headings were added to some paragraphs throughout.
2 - 10 RTC Methods, para. 2 completely revised - please review.
2 - 11 Para. 1, Added 4) watch out for total weights on fish tickets (basically). Para. 2, limit use of fish tickets to wts. of target. Para. 3, Revised sentences. Para. 4, added a new method - could get est. of discard wt. by bin vol. Para. 5 minor rewording.
2 - 12 Para. 2, the prr example for h&g cod was changed from 62% to a more realistic 48%.
2 - 13 Para. 3, the reference to estimating discard by determining a discard rate was deleted as not realistic.
2 - 14 Para. 3, adj. ratio explanation revised to include instruction for making adj. ratios for "like" hauls within a day.
2 - 15 Preference 5), bottom of page, was re-worded for clarity.
2 - 18 Bottom of page - adj. factor explanation revised as for 2 - 14 above.
2 - 22 Preference 4), inserted a recommendation to consider using ret. catch and adjustment factor (pref. 2) before resorting to vessel's deck estimate.
* (2 - 22, further revision made in Dec. 31st edition, see list - last page)

3 - 6 Item 6, New sentence at end on "max. of 2 msample types per haul."
3 - 7, Item 9.; 3 - 9, Definition of "whole haul"; 3 - 12, top of pg; 3 - 14, in bold at the top of pg. All these were changed to reflect whole haul sample wt. may now be different from OTC by up to (not including) 5.0 kg.
3 - 11 Last para. reworded slightly.
3 - 12, para. 2; 3 - 15, 2) Tallying; Recommended minimum no. of fish for avg. wt. is now 50.
3 - 15 Top of page, last sentence of continued paragraph was added to clarify how to process partial haul sample.
3 - 16 First para. under "Criteria": New sentence on 300 kg. basket sample minimum to assure observers we'll use smaller samples if that's all they can get.
* (3 - 17, Dec 31st edition correction, see last page)
3 - 23 Last sentence before (d) Viability: Hbt for length and viability may come from outside the sample or from a non-sampled haul or set.

4 - 23 Items 19 and 20 were re-written per Betty Goetz. Please read.

4 - 24 Para. 3, end of: Otoliths and scales are taken only of cod now, not cod and sablefish. Para. 4: Phrase "Fill the vial half-full..." was changed to "Cover the age structures..." Last para., first few lines were brought up to date.

* (Para. 4 addition in Dec. 31st edition, see last page)

4 - 25 Third para., emphasis was changed to discourage collecting broken otoliths.

4 - 27, Item 3, & 4 - 28, Reference to sablefish scale sampling was removed.

5 - 1 Para. 1 was revised to indicate that all vessel observers fill out 10US.

5 - 2 Para. 1 & 2, and Item 6. were revised to include pot vessel observers filling out 10US. Item 4. addition - if no mm, there are no <u>further</u> entries on 10US past "none" with the possible exception of column 23.

5 - 3 Last line of instructions for Col. 24 - 25, included a phrase for recording on 10US as well as reporting to the debriefer.

5 - 19 to 24 Sp. id info. and pictures of Dall's porpoise, white sided, and right whale dolphin were moved to the sp. id. manual.

* (Seabird insertion as of Dec. 31st edition)

5 - 30 Item 6, code 6 definition now includes skates and pots lost.

5 - 33 Para. 2 during tally sampling, examples of bycatch to be landed was revised to include birds, coral, and garbage. Sentence on "Do not bother to include" was removed they should include everything.

5 - 34 Para. 1, no. of tallied species for average wt. changed from 30 to 50.

5 - 36 Para. 1, cod for average wt. changed from 30 - 50 to 50.

5 - 37 Para. 1, last line: guideline of 70 - 100 fish for lf.'s was changed to "Do as many as possible..." Para 4, first sentence was revised, longline and pot obs. both do 10US. At the end of that para. a sentence was added on about applying avg. wt. to fish heads that come up because of predation.

* (5 - 37, Correction in Dec. 31st edition - see last page)

* (5 - 44, Item 13 change in Dec. 31st edition - see last page)

5 - 44 Item 16, caution on use of fish ticket weights was revised.

5 - 42 New plant logbook format was inserted.

5 - 47 Plant report form was updated to 7/22/92 version.

6 - 3 Contact names, numbers and hours were updated.

* (6 - 3, Dec. 31st edition correction, see last page)

6 - 4 Para. 1 report week changed to Sun. - Sat. and messages must be in on Monday. Para. 3 references to "telex" format were changed to "typed message" format.

* (6 - 4, Para. 1 modification in Dec. 31st edition, see last page.)

6 - 6 BSA map - Areas 750, 522 and 511 have new area numbers.

6 - 8 Boundary Line Map - Corrections to Umnak Pass and spelling errors corrected.

6 - 12 CMA example, moved NOCHIN's to a more logical column.

6 - 13 & 14 All references to report week were changed to reflect Sun. - Sat.

6 - 18 Para. 1 last line, inserted underlined clarification: "haul or set you sample <u>for fish</u>" to distinguish from rules for mm monitored haul entries.

6 - 19 Item 10. Sentence: "The following table..." Added clarification to the end concerning example entries.

6 - 20 to 24 Changed all references of "telex" format to "typed message" format.

6 - 25 Para. 1 area 750 is now 550 (again). Para. 3 References to CMV form <u>by area</u> now

changed to by region.

6 - 26 New format for CMV!

6 - 27 to 32 Daily form - minor revisions: references to "telex" and the typed message example. CMV form corrected the shading, definition of OTAN, and added space for return number.

6 - 39 to 55 Updated Vessel Report to 7/22/92 version.

6 - 59 Title: "How To Survive Debriefing" changed to "How To Prepare For Debriefing"

6 - 60 Item 2. on logbooks revised - please review. References to Form 11(A) changed to 11US. 11US deleted from list for plant observers.

6 - 61 Para. 1: Reference to tagged fish form removed as it is now in the appendix.

6 - 62 Last 2 para.: revised wording for haul and set forms and for delivery notation requirements.

6 - 63 Fourth line: removed sentence about average speed on 2US having no decimal point printed.

6 - 64 End of 3US section - removed references to form 4 for crab molting. This is no longer assigned.

6 - 65 11US, reference to asterisked boxes changed to "shaded". GMT time reference removed. In CMA and CMB section, corrected some wording, put in a note about zero filling and changed week ending day to Sat. CMA Form Check, prohibs on CMA: Removed sentence "This occurs only..." as it was incorrect.

6 - 66 Cross Checking: Removed sentences for "Observers on motherships..." , out of date. "Reports" wording revised to reflect changes - please review.

6 - 69 to 75 Added decertification procedure from observer plan.

7 - 2 Items 4 and 9, added "at sea". Fishing greater than bottom depth was made into item 13, former item 42 was deleted. Item 25, sample weight must equal or round to OTC now.

7 - 15 Para. 4, Tagged salmon snouts, added: please don't hot air dry them.

7 - 17 Added Tagged Fish Information Form, changes suggested by Frank Shaw.

7 - 19 & 20 Sexing Fish, Gadidae term changed to cod, pollock and hake and wording slightly revised.

7 - 21 Sexing of Rockfish and Atka Mackerel - wording slightly revised

7 - 24 **Ethyl** alcohol is specified as the type of storage media for age structures. A note was added requesting no storage media be used that doesn't come from our offices. For sablefish assignments, now collect otoliths only, not otoliths & scales.

7 - 29 to 7 - 34 Specimen Collection Form, made revisions requested by Dave B.

December 31, 1992 Edition Changes

Table of Contents - revised

2 - 22 Preference 4 language was revised.

3 - 17 Para. 4 recommendation of fifty fish for average wt. was made here too.

4 - 24 Para. 4 Don't use rubbing alcohol! sentence was added in bold type.

5 - 37 Para. 5 Catch messages by Sunday or Monday, correction made.

5 - 44 Item 13 revised to stop too many target sp. being listed on Form A.

6 - 3 Recorder for after hours calls is on 1-800 line not the 526-4205 number.

6 - 4 Para. 1 deleted "a maximum of" from two message guideline for catcher boat obs.

Changed paging for answer sheets for both plant and vessel obs. reports.

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APPENDIX

ROLE OF THE OBSERVER IN THE DOMESTIC FISHERIES OBSERVER PROGRAM

As American harvest of groundfish resources replaced the foreign and joint venture fisheries, domestic observer programs were implemented to provide biological data to take the place of the data base formerly provided by the Foreign Fisheries Observer Program. The re-authorization of the Marine Mammal Protection Act of 1972 mandates observer coverage of 20 - 35% of groundfish trawlers to monitor incidental take of marine mammals but this coverage requirement will be superseded by a domestic observer program created by amendments to the Bering Sea and Gulf Of Alaska Groundfish Fishery Management Plans. Under the new program, there is a 100% observer coverage requirement on all vessels 125 feet or greater in length and 30% coverage on vessels from 60 - 125 feet. Processing plants which receive 1,000 metric tons (mt) or more of groundfish in a month must have 100% observer coverage during that month and plants which receive 500 - 1,000 metric tons in a month must arrange for observer coverage 30% of the days of that month. Though the stocks of fish are now harvested by U.S. vessels, the need for observers to make independent observations of the fishing operations has not changed.

The primary objectives of the observers are to: record fishing effort and obtain daily catch rates; determine species composition; monitor for the incidental take of marine mammals; gather data on species, size, and age compositions; determine incidence of Pacific halibut, salmon, king crab and Tanner crab in the landings; and report on possible violations of U.S. fishing regulations. The estimates of catch rates by species obtained through the observers, will be compared with weekly production data reported by vessels to enable the National Marine Fisheries Service (NMFS) to estimate total daily landings of the various fisheries and pace the progress of the groundfish fisheries towards the quotas.

Data collected by observers aboard U.S. fishing vessels will be used in much the same way as data collected by observers in foreign and joint venture fishery operations. The data will be used in: helping to assess the status of the stocks; estimating the bycatch rates of non-target and prohibited species; investigating population interrelationships; assessing the impacts of proposed fishery management plan amendments; assessing the impacts on fisheries of proposed actions by other federal agencies (e.g. oil leasing); assisting fishery development activities; and analyzing fishery-marine mammal interactions.

Data obtained by the observers on catch size and species composition will 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 these data and models, the ability of fishery scientists to determine the condition of commercially important stocks of fish would be diminished. Resulting decisions on allowable catches will be based on a higher degree of uncertainty and thus may be more conservative.

Another important use of observer data is to obtain estimates of the percentage of bycatch in each of the domestic fisheries. As one fisherman's discarded bycatch may be another fisherman's target species, the determination of bycatch rates is important in calculating the total removal of each species. This also applies to the determination of the incidence of salmon, halibut, and crab in the groundfish catches. These data, along with individual size, average weight, viability, and distribution data can help determine the impact the groundfish fisheries have on the shellfish, salmon, and halibut fisheries and provide information for studies of ways of reducing that impact. As a step in that direction, the prohibited species management proposals developed by the North Pacific Fishery Management Council's, (NPFMC's), Bycatch Committee require that each target fishery's bycatch requirements be estimated annually based upon the best estimates of bycatch rates from each target fishery. Without data provided by domestic observers, data from some other source such as joint venture catch rates would have to be used to determine domestic annual processing (DAP) bycatch needs and to set the bycatch caps by which those DAP fisheries will be managed. Bycatch data collected by observers will be beneficial to both the industry and fishery managers in determining realistic DAP bycatch needs.

Data obtained by domestic observers should be useful in studying particular fisheries questions, such as the stock relationships between pollock caught in the Shelikof Straits and those caught off East Kodiak. Another study in which observer information may play a part is analyzing the extent of interaction between killer whales and sablefish longline fishermen. Observer data will be used to estimate the frequency of the interactions and the economic impact to the fishermen of killer whale predation. In addition to planned uses, there are many other uses of data which come up as the need arises. Examples include the use of the data to help estimate the impact of impending oil lease sales on the commercial fisheries, or the location of marine cables or closed military activity areas. Our experience with the Foreign Fishery Observer Program has indicated that it is impossible to foresee all of the important questions that the observer data may help answer.

Because the management councils are dependent upon the data obtained by observers in order to assess the impact of fisheries upon the stocks, the necessity for accuracy in data collections, accurate 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, so 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 which 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 adapt to whatever sampling procedure is necessary to insure unbiased samples and devise sampling methods that insure representative samples of the landings for your ship. If you devise your own sampling procedure, make sure that you are able to collect all of the necessary 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, 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 according to cruise, so observers will be notified of the specific duties and priorities. A list of the observer's main duties is given below.

1. Record daily fishing effort and catch rate information. Special instructions will be issued describing methods of obtaining these estimates and how your estimates of catch should be used.

2. Send a summary of fishing effort and catch composition information (items 1, 3, 5 and 6) to Seattle weekly.

3. Record species, numbers, and viability of incidentally-caught marine mammals and occurrence of marine mammals in the fishing areas.

4. Observe the compliance or lack of compliance to U.S. fishing regulations and document instances of violations when observed.

5. Determine the species composition of the catch according to specified instructions.

6. Record the numbers and weights of certain "prohibited species" in the catch as per instructions. These species include, but may not be limited to: king crab, Tanner crab, halibut and salmon.

7. Obtain biological data and samples on prohibited species, then on target and other species as directed. This may include (in order of priority) length frequencies and sex or condition data, otoliths or scales for ageing, stomach content samples, or other information as requested.

8. Prepare a final report for the vessel which includes complete answers to all pertinent report questions.

CONFIDENTIALITY OF OBSERVER DATA

The fishermen are concerned that the information you are collecting can be obtained by anyone who may be interested in finding out where a particular boat caught fish. If this is brought up to you, reassure them that the information you are collecting is handled under the standard rules of confidentiality relating to commercial information and that you (the observer) are bound by an agreement to not disclose this information. If you are 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 of 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 the Privacy Act, which protects the privacy rights of the vessel owners. 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.

STANDARDS OF OBSERVER CONDUCT

[Note: This is a copy of the text from the regulation which implements the observer program. Further instructions regarding conduct follows in the "Special Cautions ..." section.]

The observer must avoid any behavior which could adversely affect the confidence of the public in the integrity of the program. Observers are thus expected to conduct themselves in a manner which will reflect favorable upon the program. This means acting in an honest, professional, business-like manner in all situations. Specific guidelines follow:

1. Observers must diligently perform their assigned duties.

2. Observers must accurately record their sampling data, write reports, and report honestly any suspected violations that are observed. Falsification of observer data will be grounds for decertification.

3. Observers must keep all collected data and observations made on board the vessel or in the processing plant confidential according to the Federal guidelines on confidentiality.

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. These actions or activities include, but are not limited to:

   a) 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) use or distribution of illegal drugs; and

   c) physical or emotional involvement with vessel or shoreside processing plant personnel.

Behavior which is contrary to these standards or the intent of these standards are grounds for the decertification of the offending observer.

CONFLICT OF INTEREST STANDARDS

A NMFS-certified 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 financial interest in the observed fishery;

3. may not have a personal interest in the vessel or shoreside facility to which he or she is assigned;

4. may not solicit, accept, or receive, directly or indirectly, a gift, whether in the form of money, service, loan, travel, entertainment, hospitality, employment, promise, or in any other form, that is a benefit to the observer's personal or financial interests, under circumstances in which it could be reasonably inferred that the gift is intended to influence the performance of official duties, actions or judgement.

SPECIAL CAUTION ON DEPORTMENT

As a fisheries observer:

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

2. When conflicts or sampling problems occur which affect your attempts 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 which 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 per 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 you are 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 perform for the vessel (or plant, company, owner, or operator) during your employment as an observer. Any act which could be construed as acceptance of a bribe, such as responding favorably to an offer of future employment, must be avoided. Work on developing the large 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 of time. 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 and every 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-indulgence and grounds for de-certification.

8. As an observer you will abide by all rules and regulations relating to the conduct of the host vessel. You shall not utilize, for any purpose other than obtaining required data, any species which 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. There is a copy of a permit in the appendix of this manual which does allow you to bring back sea lion or fur seal canine teeth for age analysis by the National Marine Mammal Laboratory. 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'll be in your cabin (or go to some other place that's 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 insure that planned levels of observer coverage are met.

11. Consider safety first in everything you do.

RESPONSIBILITIES OF VESSEL AND PLANT OPERATORS

An operator of a vessel must:

1. Provide, at no cost to the observer or the United States, accommodations on a participating vessel for the observer which are equivalent to those provided for crew members of the participating vessel;

2. Maintain safe conditions on the vessel for the protection of the observer during the time the observer is on board the vessel, by adhering to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel and by keeping on board the vessel:
   a) adequate fire fighting equipment;
   b) one or more life rafts capable of holding all persons on board; and
   c) other equipment required by regulations pertaining to safe operation of the vessel.

3. Allow the observer to use the vessel's communication equipment and personnel on request for the transmission and receipt of messages

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

5. Allow the observer 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 which may be used to hold, process weigh, or store fish or fish products at any time.

6. Notify the observer 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 observer specifically requests not to be notified;

7. Allow the observer to inspect and copy the vessel's daily fishing logbook, daily cumulative production logbook, transfer logbook, and any other logbook or document required by regulations, information from which will be kept confidential by the observer under Federal guidelines;

8. Provide all other reasonable assistance to enable the observer to carry out his or her duties;

9. Move the vessel to such places and such times as may be designated by the contractor, as instructed by the Regional Director, for purposes of embarking and debarking the observer;

10. 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 the observer involved;

11. Notify the observer at least three hours before an observer is transferred so the observer can collect personal belongings, equipment, and scientific samples;

12. Provide a safe pilot ladder and conduct the transfer to ensure the safety of the observer during the transfer; and

13. Provide an experienced crew member to assist the observer in the small boat or raft in which the transfer is made.

A manager of a shoreside processing facility must:

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

2. Accept and provide for an observer, at no cost to the observer or the United States, for the purposes of complying with the Observer Plan;

3. Notify the observer on a daily basis of the planned facility operations and expected receipt of groundfish.

4. Allow the observer to use the processing facility's communication equipment and personnel on request for the transmission and receipt of messages;

5. Allow the observer free and unobstructed access to the processing facility's holding bins, processing areas, freezer spaces, weight scales, warehouses and any other space which may be used to hold, process, weigh or store fish or fish products at any time;

6. Allow the observer to inspect and copy the shoreside processing facility's daily cumulative production logbook, transfer logbook, and any other logbook or document required by regulations, information which will be kept confidential by the observer under Federal guidelines; and

7. Provide all other reasonable assistance to enable the observer to carry out his or her duties.

PROHIBITED ACTIONS

No person may:

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 sorting or discarding any catch before sampling; or 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; or

4. Harass an observer by conduct which 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 form the facts on a case-by-case basis.

[Note: Copies of the Observer Plan are available from Observer Program offices upon request.]

PREPARATION AND DEPARTURE

COMMUNICATIONS

While deployed as an observer, it is not uncommon 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. Remember 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 your own arrangements with your contractor, the place where you're 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 and **no demands** can be made by an observer for this service. Any mail you wish to send out via the company must be stamped and ready for mailing. Do not send or expect to receive any personal messages while at sea except in the event of emergencies. Before you depart, provide the contractor with 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.

The following information for the NMFS Observer Program is supplied for your reference.

	Addresses:
Bill Karp (supervisor) (206) 526-4194 Janet Wall (supervisory assistant) (206) 526-4195 Bob Maier (program manager) (206) 526-6195 Debriefing Office (206) 526-4192 Gear Office (206) 526-6827 Karen Teig, Mike Brown or Sheryl Corey (training) (206) 526-4191	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, Charlie Yustin, Tracy Schall Phone: (907) 581-2060 or -2063, fax: (907) 581-2066	P.O. Box 638 Dutch Harbor, AK 99692

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, explanations of the sampling duties and procedures, learning how to identify the families and species of fish, crabs, and marine mammals of the Bering Sea and Northeast Pacific, and familiarization with groundfish fishing regulations. The following outline lists some of the 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, Sand Point 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, ABC's, TAC's, 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.

Plotting vessel positions video.

Homework on ADF&G area determination and position plotting.

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 conducted by a U.W. ichthyologist.

Day 3 (Wednesday)

Correction of ADF&G area homework

History of the Domestic Observer Program.

ADF&G fish ticket system and ticket format.

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.

Estimation of retained catch weights on catcher-only trawlers:

Definition of retained catch, 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.

Estimation of retained catch on catcher/processor trawlers:

Definition of retained catch, logbook production section, weekly processor reports, product recovery ratios and calculation of round weights from production data, NMFS tables of product types, product recovery ratios and report group codes. Example calculation. Difficulties of estmating discard, bycatch estimates, the use of deck estimates made by ship personnel and by observers.

Official Total Catch Weight - definition, method preferences by trawler type.

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

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

Trawl Deck Safety video

Overnight, Form 2US homework assignment.

Day 4 (Thursday)

Quiz on haul data form and collection of 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.

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 presented by U.W. ichthyologist.

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 and quiz on Form 3US data entry.
Retained and Total Catch (RTC/OTC) exercise - in class.
Weekly catch messages - Use of 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, definition of coverage days, 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.
Calendar homework assignment on correlation of transmissions, report weeks, sets of catch message data, and coverage days

Day 7 (Tuesday)

Correction of Calendar homework in class.
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.
Transmission of catch messages - fax, satellite Standard C, telex, voice/private line, voice/radiotelephone, coding for voice transmissions, CMV form.
Identification of Rockfish: lecture, slides and laboratory session presented by U.W. ichthyologist.

Day 8 (Wednesday)

Collecting biological information from Tanner crab, king crab, halibut and salmon in samples: weights and lengths, viability, sex, and salmon scale sampling.
Collecting data on tagged fish and crab.
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 9 (Thursday)

Quiz on data format of Forms 7 and 9US, and collection of 7US and 9US homework.
Collection of Catch Message homework.
Explanation of observer routing code
Final Data exercise, "Fish Killer" given out, due on Monday.
Species Identification lecture, slides and laboratory session on cods and salmonids. Pre-test on identification.

Day 10 (Friday)

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, length frequency and marine mammal observations.

Longline data talley exercise - in class

Guest Lecture: Dr. Aron, Director of Alaska Fisheries Science Center.

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 prr rates, Form 8US. Using product recovery ratios and the NMFS tabled values.

The Marine Mammal Protection Act, Exemption System 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.

Random Sampling Table for observers on trawlers

Handout observer logbooks and discuss entries.

Compliance Monitoring review of material to date, i.e. 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 (handout).

Review: How to handle questions about gear restrictions, fishery openings and closures, etc.. Review handout on Bulletin Board Service.

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

Documentation of Suspected Violations - handout, 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)

Shortraker and Rougheye Rockfish sampling project - lecture, slides, handout.

Review of Final Exercise ("Fish Killer").

Plant sampling, on-shore and aboard floating processors.

Considerations and requirements for sampling shoreside delivery vessels.

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 i.d.

Day 15 (Friday)
Guest speaker: Debriefing supervisor discusses 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 will be de-certified or dismissed by their contractor if they violate rules of conduct, rules of data confidentiality, or lack the appropriate human relation 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 the scientific observers with adequate rainproof clothing and boots. All equipment necessary for the collection of biological data will be similarly provided. The observer is responsible for the transport and return of the sampling gear issued. If the observer needs replacements for torn raingear or lost equipment during their deployment, the field offices 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 issued durable equipment 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 personal clothing, warm work clothes for wearing under raingear, toilet articles including a towel, and other items of a personal nature. A sleeping bag will be issued with the equipment. 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.

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

Personal Items Supplied by Observer

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

Work clothes--minimum number and type

Shirts, wool - 2 (1 light, 1 heavy)
Shirts, cotton - 2
Shirts, cotton sweat - 1
T-shirts - 3
Trousers, wool work - 1
Trousers, cotton - 2
Wool knit cap
Slippers or sandals
Handkerchiefs, large - 3
Underwear, long-thermal - 2 pairs
Underwear - 5 pairs
Socks, wool work - 2 pairs
Socks, cotton - 5 pairs
Jacket, medium wool or synthetic - 1

Other items or articles

Towel, medium cotton - 2
Pillowcase - 1
Toilet articles
Duffel bag - sturdy, medium size, old or inexpensive - 1
Small daypack 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 (not 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 OBSERVER 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		No.of Items	Circle New or Used	Item Description
*	___	N/U	baskets, 2 - 4	*	___	N/U	50 or 100 kg scale,
	___		basket lid				serial no. _____
	___		rope, 20 ft.	*	___	N/U	5, 10, or 12 kg scale,
	___		lubricant oil				serial no. _____
	___		scouring powder	*	___	N/U	2 kg scale, serial no. _____
	___		sponge, 2		___		scale hooks, 3
	___		length measuring board	*	___	N/U	first aid kit
	___		plastic length-freq strip, 2	*	___	N/U	survival suit
	___		plastic data sheets, 3	*	___	N/U	strobe light
*	___	N/U	measuring tape reel, 15m or 30m	*	___	N/U	life vest & whistle
*	___	N/U	fish gaff	*	___	N/U	hardhat and chinstrap
	___		plastic bags, 10	*	___	N/U	sleeping bag
	___		zip-top salmon snout bags, 5	*	___	N/U	rain jacket
	___		scale envelopes, 50	*	___	N/U	bib overalls
*	___	N/U	calculator	*	___	N/U	boots
	___		clipboards, 2		___		glove liners, 3 pr.
	___		shipping label		___		rubber gloves, 3 pr.

(* Asterisks indicate items which must be replaced if not returned.)

CARDBOARD BOX WITH THE FOLLOWING:

___		pencils, No. 2 yellow, 6	*	___	N/U	flashlight
___		drawing pencils, 2		___		extra batteries, 4
___		mechanical pencil	*	___	N/U	knife
___		pens, black, 4	*	___	N/U	forceps, 1
___		pencil leads, 1 tube	*	___	N/U	scalpel handles, 2
___		eraser stick		___		scalpel blades, 10
___		block eraser	*	___	N/U	thumbcounter
___		hole reinforcements		___		2 m tape measure
___		ruler		___		ear plugs 3 pr.
___		thumbtacks & paperclips		___		3 vials for sab. tags & oto.
___		rubber bands		___		looseleaf rings, 3

ISSUED PUBLICATIONS:

___		*sampling manual*	___		ADF&G area maps
___		logbook	* ___	N/U	Eschmeyer, fish guide
___		binder of data forms	___		Species I.D. guide
___		wallet folder for long forms	* ___	N/U	Leatherwood, MM book
___		Gov't envelopes (3)			

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.

CRAB PROJECT:

* ____ dividers, crab meas.
____ plastic crab meas. form

OTOLITH/SCALE COLLECTION:

____ otolith vials, 200, 100 per box
____ vial block, 1
____ plastic otolith form
* ____ squirt bottle, 1
* ____ alcohol or glycerol bottle
____ 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

PLANT OBSERVERS:

____ survey tape (for marking totes)

WOC COASTAL HAKE OBSERVERS:

* ____ Miller & Lea, ID book

OPTIONAL:

____ twine
____ 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)
____ laminated photo ID guide
____ wristers
____ whetstone

TYPE OF ASSIGNMENT: (Circle one or more)

Trawler/Mothership Plant Longline/Pot Vessel

SPECIAL PROJECT ASSIGNMENT: (Circle one)

Otolith/Scale Collection Crab Stomach Sampling Fish Collection

Other (explain) _____

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	2
Form 9US (obs. collecting age structures)	30
Form 9US (other obs.)	5
Form 10US	10
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
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
Vessel Report Answer Sheets	4
Gear Diagrams (3 types)	3 ea.

Port Sampling Forms:

Form A	20
Form 3US	25
Form 7US	45
Form 9US	30
Plant Report Answer Sheets	2

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 cruises, 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. There are facilities for cleaning gear at NMFS offices if this could not be done aboard 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, thumb counters, and tape measure. Books should be protected from water and slime at all times.

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. Tape measures, calipers, and thumb counters must also be cleaned (and oiled if necessary) each day when used. (Be careful to keep oil away from plastic forms, since pencil marks tend to wipe off a slick surface).

6. Keep your otolith alcohol in your room. Sometimes crew members consume alcohol which has been left at the work station.

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. Many of the government equipment items you are issued 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 which 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.

Prior to 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 sometimes hard to obtain when the ship is rolling. When possible, secure the top of the scale directly to a fixed structure, such as a ceiling 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 minimize the swing of the scale. Shortening the length of the ropes to the basket also helps. Scales located close to the center of the ship tend to swing less. If a 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. Pack the life vest so that it will be accessible prior to ship boarding. 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'll 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 you are flying with. 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.

Some observers have had their otolith alcohol confiscated by the airlines because there is no blanket permit for the transport of alcohol. If the airline personnel do not permit you to take the alcohol, do not argue--dump the alcohol, rinse the container if necessary, and when you get to your destination, purchase rubbing alcohol to replace the ethyl alcohol that was

dumped. Inform the debriefing staff upon your return and note on the top of the Form 9's that rubbing alcohol was used as the preservative.

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 in some cases 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, Ak. do not accept credit cards but you may be able to use them as identification for a personal check. If you have to pay cash for any excess baggage charges on your return flights, don't 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 accommodations equivalent to crew members and compliance to safety requirements and regulations is addressed by the regulation 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 is likely to happen. 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.

Crew's quarters range from twelve to two 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. For bedding, sleeping bags will be provided by the observer program. Showers and laundry facilities (or laundry service by a steward) will be available on larger vessels. Smaller vessels may or may not have showers and 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 make a conscious effort to remain clean and neat. Clean up after yourself and chip in to help where you can as you will need their help in return (especially with sampling on the smaller catcher boats). Do your best to maintain your sense of humor... Adaptable observers with an easygoing attitude are apt to receive more consideration than those who criticize and make demands.

Illness and Accidents Aboard

After September 1, 1993, 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 which 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 the event of an emergency such as an injury or illness requiring hospitalization, the Coast Guard should be contacted via voice radio and they will attempt a rescue and/or advise you on how to proceed. If it is you or another observer that 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 which inhibits your work for more than three days, you must inform your contractor 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). If you are sick, you would be negligent in your performance **if you did not** communicate your situation to your employer (or have someone do it for you).

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.

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

Take some seasickness medication along even if you don't plan on using it. Scopolamine works very well for many people. Scopolamine is currently sold under two trade names, Transderm Scop (the "ear patches"), available only with a prescription, and Triptone, an oral, non-prescription form. Some people cannot tolerate scopolamine's side effects. Dramamine (the trade name of Meclizine), Bonine and Cyclizine (trade name is Marezine) are the usual over-the-counter drugs which will inhibit vomiting. The U.S. Coast Guard formerly used Meclizine with moderate success. The Coast Guard's research "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, cannot be used by pregnant women (none of the drugs mentioned here can) and 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. 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

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

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.

Safety Aboard Vessels

Fishing vessels have many potentially dangerous areas. Extreme care should be taken to avoid injury. In addition to the personal suffering that would result, the observer program could be drastically hampered. The following points must be adhered to while on the vessel:

1. The first day aboard, 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. During your first talk with the captain, ask him to explain to you what to do in the event of a major emergency such as a fire aboard the ship, a serious collision with another vessel, or other conditions which might require abandoning the ship.

3. Observers are required to wear a hard hat, life vest or other flotation and boots when on the trawl deck for any reason. (If life vests are worn under your rain jacket, they will stay cleaner.)

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

5. Apparel with loose strings or tabs should be avoided, as they might become caught in the equipment or belts.

6. Don't run aboard ships, particularly up stairwells. 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.

7. The observer should not stay outside on the aft deck during rough seas. An observer has been swept forward over the 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.

8. Cables that break under strain frequently kill 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, do not work while a trawl is being set or retrieved, interrupt your work to go to a safe place during the process. When nets are being hoisted off the deck, stand well clear. Heavy nets have fallen near observers when the suspending cables parted.

9. 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.

10. 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.

11. 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 extremly hazardous. Observers must watch carefully where they step and where they grab for handholds.

12. The observer should notify or have the skipper notify the U.S. Coast Guard should an injury or illness occur to him/her which requires immediate hospitalization.

13. 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.

14. 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.

15. 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 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 judgement. Be cautious--not foolhardy. Do not be forced into transferring against your better judgement by an anxious or impatient captain. 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 (accommodation walkway), 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 hardhat 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. Soon after boarding 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. Give the captain a copy of your letter of introduction and use it to briefly explain what you'll be doing and your needs. Observers on vessels making short trips should try to take care of the introductory details before leaving dock or on the way to the fishing grounds. 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. 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.

5. 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 i.d. 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 any incidental take of marine mammals, make independent estimates of catch weight, determine the catch composition, sample to determine the incidence of specified prohibited species in the catch, collect biological data on the prohibited, target and other species and monitor for compliance to fishery regulations. Secondary objectives include marine mammal observations, gathering factory production information, recording gear design and vessel layout, etc.

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 paper 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:

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

Sampled Hauls, Deliveries or Sets: (numbered items presented in order of priority)

1. Record any incidental take of marine mammals (Form 10US).

2. 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 2 - 3 sets daily. In your sampling, do not leave out any species or species group, such as sampling only for prohibited species. Try to sample the whole catch for king crab, tanner crab, halibut and salmon if possible.

3. Estimate 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.

Biological data from prohibited species:

4. Sex and identify to species, all the salmon, king and tanner crab in your sample if possible, or take a random subsample for sexing (Form 3US).

5. Take length measurements of all salmon in your sample (Form 7US). Measure lengths and estimate viability condition of all halibut in your sample (Form 3US and 7US). When incidence rates are high, take a random subsample such as every third fish. A subsample should be of at least 20 fish. Viability and lengths of halibut may be taken from randomly selected fish (~20) from a sampled haul or set. Measure king and tanner crab only if given this as a special project.

6. If assigned to work on crab for your special project, then record the viability of the king and tanner crab in your samples as well.

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

8. 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 in the "Tagged Fish and Crab" section of this manual.

Every Day:

9. Take length measurements of 150 randomly selected fish per day (Form 7US). Lengths should be taken of the target species unless you are also collecting otoliths of a sampling species other than the target species. Remember that the otolith collection must be a subset of the length frequency collection. If it is not possible to measure 150 fish per day, try to do at least 70 per day. You may have to forego sexing the fish.

10. Otolith/scale collection - If given this assignment, choose a sampling species according to the directions given in this manual and/or in class (Form 9US).

    Other special projects - if assigned any other special project, such as stomach sampling, conduct work according to directions given.

Per Vessel: (not in order of priority)

Evaluate the accuracy of the vessel's catch weight estimations and report on their method of estimation.

Describe the fish processing products. Record the product recovery rates they use, if any. List what species are discarded (see vessel report questions).

Make pertinent diagrams: fishing gear, fish tanks, factory, or weather deck.

Make a catch or activity report message and transmit it weekly to Seattle or Observer Program field office.

Complete a vessel report which includes multiple choice questions, questions requiring written responses, a map of areas fished and gear diagram(s).

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 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 partial haul sampling or to basket sampling for all species (8 - 10 baskets or a minimum of 300 kg) so that all designated hauls in the series can be sampled.

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 cruise, 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, there are no days off 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

Observers aboard catcher-only trawlers normally will be sampling every tow as commonly there are only four to six tows made per trip and because many catcher boat observers will be doing all or part of their sampling work at the processing plant where fish from all the tows are pumped or brailed from the hold. Samples taken at the plant are proportioned among all the tows based on a deck estimate of relative catch weight. Therefore, catcher boat observers don't usually need to refer to a table to determine which hauls to sample. If you are on a catcher-only trawler and you cannot sample every haul, refer to the "Catcher Trawlers" Random Sample Table given to you in training. The difference in this table from the tables for catcher/processor observers is the number of hauls skipped between sampling blocks is only one 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, and was done in response to observer's complaints with the random sample table. 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, we are providing the following guidelines for using 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 also be used occasionally where, every day is tracked on the table but breaks are only used when the observer needs to.

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 your way 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 table you'll 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	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.

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?** 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.

GENERAL INSTRUCTIONS FOR DATA FORMS

In gathering the necessary data, 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 the data from a particular cruise after they are fed into the computer. Thus, certain data columns always have to be filled in and they have to be filled in a certain way, with leading zeros in some places but not others, zeros filled in behind printed decimal points, and decimal points added by observers in other cases. Refer to the 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.

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.

A captain may request copies of your catch composition or length frequency forms. Carbon paper is available from program offices so the forms can be made out in duplicate. Copies are to be made at the observer's convenience, but before leaving the ship. Vessel captains have no right to demand that any form be completed at a given time. However, if the captain is waiting for your species composition data, so that he can fill in a calculated estimate of the weight of discards or bycatch, then it may be to your advantage to provide the captain with copies of your Form 3US's so that you can get a final ship's estimate of catch size and complete your species composition extrapolations. (Note: It is permissible for the captain to use your sampling data to help him fill out the ships' fishing logs.)

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 radio call sign. Each of these identifiers is for a specific use and observers must be careful to record the specific identifier asked for! Cruise numbers and vessel codes will be assigned during your trip, and you can find out what they are when you debrief. In the meantime, start and **maintain separate sets of data for each boat/gear type/year** and mark your name and the ship's name on the first page of each type of form for each boat or plant.

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.

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. 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 3US's on a boat, then the first sheet will be page 1 of 58 and the last sheet will be page 58 of 58. Form 9US's 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.

Calculation Guidelines: The Rounding Rule

"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]

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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: Mc Graw-Hill Co., 1960), p.30.

To illustrate, for volume to weight estimations, your measurements may be to .1 or .01 meter and weights from the fifty kilogram scale may be read to .2 kilogram. Therefore, record all calculations for your weight estimations out to three or four decimal places (and leave a floating or full-field setting on your calculator). Nearly all weight data on this program's data forms are recorded to two decimal places, so again, record all intermediate steps, such as average weights of fish, to three or four decimal places.

In all your data:

≥ 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 hundredth's, 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".)

A common error: To answer the question, "120 is 70% of what number?"

Do: 120 ÷ .70 = 171.43 correct method

Do not: take 30% of 120 and add it to 120
120 x .30 = 36 + 120 = 156 incorrect method!

Do not: increase 120 by 30%
120 x 1.30 = 156 incorrect method!

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 that 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. The haul summary information forms 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 is useless as well. The collection of haul summary information is the top priority for an observer. All subsequent sampling data for a vessel is 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:

List of catcher boats for mothership

Full name of catcher boat	ADF&G #
American Beauty	24255
Aleutian Challenger	50570

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

Page 1 of ____ for vessel

Observer name Jane Observer

Vessel name Sea Gull

Page 1 of 3 for transmission

1. Leading zeros in columns 12, 14, 34-41 ONLY.
2. Skip a line after each day.
3. On days with no hauls, enter date, noon position in columns 25-33 and a haul # = 0. Note reason in columns 34-72.
4. Trailing zeros are required in columns 56-72.
5. For depths in columns 50 and 55: use M = meters and F = fathoms

Cruise number 1 2	Vessel code 6 7 8 9	Year 10 11
		94

Monitored for MM (Y/N ?)	Hauls sampled	Date Month 12 13	Date Day 14 15	Haul # 16 - 18	Gear type 21	Gear performance 22	Processing mode 23	Location code 24	Haul or Delivery position Latitude (N) 25 - 28	E or W 29	Longitude (100) 30 - 33	Fishing times in ALT Noon on bottom 34 - 37	Noon off bottom 38 - 41	Fishing duration (minutes) 42 - 45	Average fishing depth 46 - 49	M or F 50	Average bottom depth 51 - 54	M or F 55	Avg. speed (knots) 56 - 57	Retained catch: round weight in metric tons 58 - 62	Official Total Catch in metric tons 63 - 67	Observer's Total Catch Estimate in metric tons 68 - 72	ADF&G statistical area 73 - 78	Catcher boat's ADF&G # 79 - 84
Y	✓	09	17	101	1	1	3	R	5838	W	7624	2315	0525	370	130	F	130	F	3.5	15.80	16.00	18.50	765830	
Y		〃	〃	102	〃	1	〃	〃	5837	〃	7630	0610	0920	190	135	〃	135	〃	3.5	7.94	8.25	.	〃	
Y	✓	〃	〃	103	〃	2	〃	〃	5837	〃	7607	1015	1435	260	140	〃	150	〃	3.2	19.90	20.00	18.00	〃	
N	✓	↓	↓	104	↓	1	↓	↓	5838	↓	7647	1530	1850	200	140	↓	145	↓	3.2	10.50	12.00	13.50	↓	
Y	✓	09	17	105	1	1	3	R	5838	W	7654	1935	2330	235	138	F	138	F	3.5	17.92	18.62	.	765830	
		09	18						Arrive		Best Seafoods in Dutch			harbor at 0630					Completed		Delivery - 1640			
		09	19	0				N	5826	W	7553	No Fishing -		Rough			Weather		.		.	.	755800	
		A catcher vessel ↑ A catcher/processor taking outside deliveries ↓																						
Y	✓	08	23	28	2	1	1	R	5859	W	7531	2215	0045	150	70	F	73	F	4.5	60.00	60.00	.	755830	self
Y		〃	〃	29	〃	〃	2	〃	5851	〃	7531	1730	0300	570	72	〃	72	〃	4.1	63.97	64.00	62.85	〃	24255
N		↓	↓	30	↓	↓	1	↓	5851	↓	7554	0330	1000	390	66	↓	71	↓	4.4	89.92	90.00	85.81	↓	self
Y	✓	08	23	31	2	1	1	R	5846	W	7551	1720	2200	280	66	F	71	F	4.4	89.96	90.00	.	755830	self
Y	✓	08	24	32	2	1	2	R	5840	W	7552	1700	0730	870	70	F	70	F	4.1	63.98	64.00	67.10	755830	50570

created 11/90

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 Port Sampler Summary 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. Logbook information may need to be adjusted if it is not correct or not recorded according to 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:

1. An entry must be made for every day you are assigned to the vessel. Make certain that you have all of the hauls recorded. **Do not** make the mistake of recording only the sampled hauls. Shaded columns are not telexed. **Fill in all columns, shaded and white.**

2. The identifying cruise number and vessel code are assigned during your trip. The "vessel code" is **not** part of any code system outside of the observer program and should only be obtained from our offices or your contractor. Just keep data for each vessel separate and get your cruise number and vessel code(s) from your contractor before debriefing.

3. Enter a "Y" or "N" in the first column to indicate which hauls were monitored for marine mammals. Place check marks in the next column to indicate which hauls you sampled for species composition.

4. 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, an explanation should be written on the head of the form. Haul numbers must be in ascending order. Make sure that the haul numbers do not exceed 3 digits. (If the haul number recorded in the fishing log is 1657, for instance, then drop the first digit and call the haul 657. This will enable you to more easily compare your data with the ship's.) 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. If you reach number 999, the next haul should be "1", not "0." Haul number "0" means a non-fishing day.

5. Enter the 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 gear which is not listed here, you should probably be filling out a 1US Catch Summary form. Refer to the manual section on longline and pot vessel sampling for the Form 1US instructions.

   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. other than as defined below.

   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

6. 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

7. Enter the processing mode: (Indicates where the utilized fish from that haul are processed)

1 - A catcher/processor; retained fish or fish product is placed in a freezer hold aboard. The fishing trip usually lasts more than a few days.

2 - The vessel is a mothership; it accepts unsorted catch via codend transfer for processing at sea.

3 - Catcher-only vessel: retained catch is delivered to a processing plant (shorebased or "floater"). On board, the catch is kept on ice or in RSW (refrigerated seawater) tanks, not frozen.

5 - The fishing vessel sells the majority of their catch over-the-side to other fishing vessels who will utilize the fish for bait.

If a vessel like a mothership accepts catch which <u>could have been</u> sorted it is a <u>processing plant</u> and that delivery should be recorded on a Form A, the Port Sample Summary Form and should not be entered on the 2US. Example: If a catcher/processor or mothership accepts deliveries from a longliner, or pumps or brails fish from the holds of any other vessel, or receives fish by any method where the fish have been emptied from the net they were caught in, that delivery could have been sorted. For those deliveries the processor is a <u>plant</u>. Those deliveries are to be recorded on Form A and not on Form 2US, and the "plant" observer does not sample plant deliveries for composition but may take length frequency data. Deliveries by codend transfer should continue to be recorded on 2US and sampled as usual.

8. For the location code, enter R if the location in columns 25-33 is a retrieval position, and N if it is a noon position on a non-fishing day. 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 re-ordering are those for deliveries around 0000 hours.]

9. If there were no hauls on a given day (due to bad weather, mechanical breakdowns, traveling etc.) enter 0 in the haul number column, enter a "N" for noon position under location code and the Alaska Local Time (ALT) noon position in columns 25-33. In columns 34-72, comment on the reason there was no fishing and enter the ADF&G statistical area corresponding to the noon position in columns 73 - 78. All days at sea must be accounted for in this manner.

10. Each delivery of a catcher boat must be noted on a line of 2US. Record the time you reached dock, the plant name and location, and the date and time the delivery was completed.

11. 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. If the skipper is not cooperative in providing the above information, try at least to get his estimate of fishing duration.

12. 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, record ALT noon position in these columns.

13. 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 savings time. Times must be recorded according to the 24-hour system.

14. 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.

15. 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 actual ocean floor.) "Nets on bottom" refers to the time that the net first reaches the fishing level and the winches stop paying out cable.

16. 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.

17. 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.

18. Record both the "nets on/off bottom" times (cols. 34-41) and the fishing duration in minutes (cols. 42-45). On/off bottom times provide us with more detailed information however, so when the form 2US data is compiled on the database the duration will be calculated from the difference in the on/off bottom times. [**Note:** If the **actual** fishing duration is substantially different than what would be obtained by calculation from the on/off bottom times, record only the duration and off bottom time. This may occur if the net is raised and lowered several times during the haul. If this is the case, minutes duration would be more accurate than on/off bottom times. Note the reason for the unusual entry at the top of the form.]

19. The average fishing depth (cols 46-49) and average bottom depth (cols 51-54) can be recorded in either fathoms (more likely) or meters, depending on their preference. Try to obtain both fishing and bottom depths as that will indicate whether the net was fishing on or off the bottom. Record depths only to the nearest whole number, no decimal values please. Be sure to indicate the units (fathoms or meters) for every depth that you record (cols 50 and 55).

20. Record the average trawl speed to tenths of a knot in columns 56-57.

21. Retained catch: this is the original or fresh weight of any fish that is retained or consumed aboard the ship (recorded in metric tons, not pounds or short tons--see Table of Equivalents). The fresh or round weight is recorded whether the fish is retained in whole or in part. This figure should always be filled in for unsampled as well as sampled hauls, and must be recorded to two decimal places. On vessels that deliver catch to shoreside processing plants, your job would be to estimate the amount that is delivered to the processing plant, not what is eventually retained by the processing plant. Use your judgement as to how to obtain the most accurate data according to instructions on a following page.

22. Official total catch (OTC): according to the observer's judgement, this is the <u>best</u> 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 an observer will be on a ship when a haul comes in containing such items as 55 gallon drums, large amounts of mud, boulders, or a crab pot which makes up a significant percentage of the weight or volume of the catch. If the OTC weight is based on codend volume, or perhaps bin volume, where these items are part of that volume, include them as part of the catch weight and they might be represented in the observer's species composition data as well. If large, non-organism catch items are sorted out before the catch weight is determined, such as when OTC is based on production or delivery weights plus an estimate of discarded fish, then there is no need to include them in catch or composition data. When small bits of garbage occur in samples, they may be included in catch and composition data.

23. Observer's estimate: this is an estimate 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.

24. Enter the 6-digit, Alaska Department of Fish and Game (ADF&G) statistical area that the haul retrieval position places each haul in. Refer to the special supplement on the ADF&G statistical areas to determine the correct area. Do not use ADF&G area records from the vessel log unless you verified them. The ADF&G statistical area must correspond with the latitude and longitude entered in the location columns.

25. "Catcher Boat's ADF&G #" (columns 79 - 84) and the "List of Catcher Boats" at the top of the form are for mothership observers only. If you are on a catcher/processor which does not take any outside deliveries or on a catcher-only vessel, leave these areas blank. If a catcher/processor is operating as a mothership and also fishes for itself, enter the word "self" in columns 79 - 82 for the tows made by the processor and enter the ADF&G number for the catcher boat when one delivers a catch.

26. Leading zeros should be in the dates (cols 12 & 14) and the times (cols 34-41) only, as needed and skip a line after each day. Any notes, or comments (other than notes for non-fishing days) should be placed in a part of the form that is not keypunched.

Checking the 2US form: The correct haul/date correlation, retrieval position, duration, and total catch weight are especially important items--without this information the observer's sampling data cannot be used. The observer must cross-check all data for accuracy. After a week's worth of data, or for each page, check the "Nets off bottom" time of the last tow of each day. The tow cannot span midnight and be the last tow. (Unless it's the only tow of the day.) Check to see that no two haul times overlap. Check any change in degrees of latitude and longitude. Unless the minutes indicate the position is close to the next degree, changes of degree would mean long distances traveled or a recording error. Use the ADF&G statistical area numbering system to check the ADF&G area number against the latitude and longitude. Look at each whole page of form 2US for "holes" where data may be missing.

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 ship's 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.**

Though the fishing effort and captain's total catch estimate are to be recorded by haul in the NMFS Daily Fishing Logbook, the information for discard and for production of retained catch is only recorded by day on catcher/processors or by day and by delivery for catcher boats. Since the observer needs to record retained catch **by haul**, manipulation of logbook figures and independent work will be necessary.

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 pre-existing height or length marks or a vessel's weight scale, the observer must check them for accuracy. Without having made an estimate which is independent of industry's information, how are you to know (or prove to anyone else) how accurate the OTC, a skipper's deck estimate, the delivery weights, or fish ticket weights are? When discrepancies occur, your estimates will be used as a touchstone. 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", where you probably learned your mental gauge from the skipper - whose estimates you are there to check! Continue to 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 lays 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.

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.

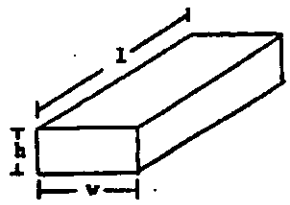
Methods for Observer Estimates of Codends

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."

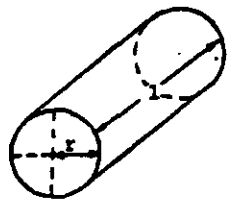
You will need to determine length, width and height to use with the most appropriate formula for volume. Look for measurement marks which may have been made by previous observers along the trawl alley length; measure the alley width. Look for height marks on posts or a gantry. Remember when sighting 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 hardhat! 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.

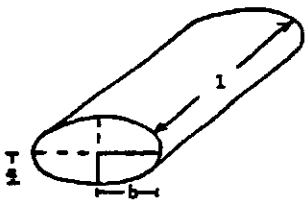


Rectangular solid
Volume = height x width x length
$V = hwl$

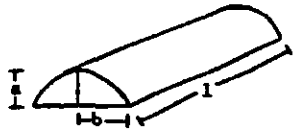


Cylinder
Volume = π x radius^2 x length
$V = \pi r^2 l$

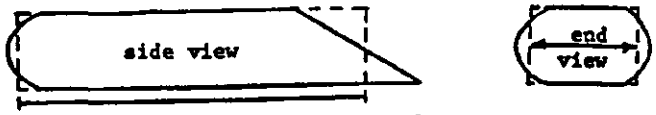
$(\pi = 3.1416)$



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. However, for retained and official total catch, 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.**

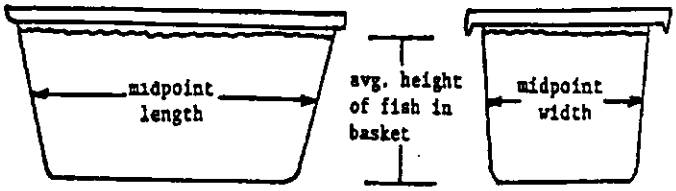
Record the dimensions for each catch in your logbook. Also in your log, calculate the volume in cubic meters using the appropriate formula, then multiply the volume times the density, obtained as explained below, to obtain the metric tonnage of the catches.

Density Sampling

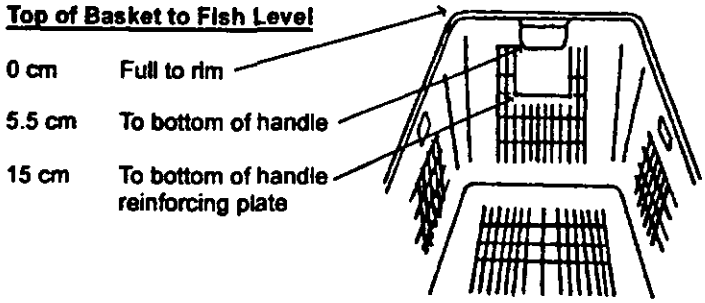
Codend volume (in cubic meters) is multiplied by a weight per cubic meter ratio, (termed "density") to obtain a catch weight estimate for that haul. Density is the ratio of mass, or weight, to volume. One cubic meter of fresh water by definition weighs one metric ton. It's **density** then is 1 ÷ 1, or 1.00. The density of seawater is 1.026. The density of pollock, (their weight per cubic meter of volume) commonly ranges from .87 - .98. Density of cod catches may be less than that, and pollock and flatfish catches may have a density slightly greater than 1.00. No studies have been done on densities of different species mixes. Therefore, we ask that observers sample for density as explained below and do not make unsubstantiated assumptions. The fish in a codend are often very tightly compacted and thus their density would be greater than the density of fish dumped loosely into a bin or basket but at least the observer's density value, when applied to a catch volume, will result in a conservative catch estimate.

Density is variable and should be derived from random basket samples for each sampled haul. Average density values for the day or area should be calculated and used for catch weight estimates of unsampled hauls. A minimum of four baskets should be used to calculate density. First obtain the volume of fish in the sampling baskets such that fish weight and volume can be accurately determined. 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 necessarily to the top of the basket.

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



It is important to 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:



Length	Width	Height	Volume
.52 m	.365 m	.290 m	.055042 m³
.51 m	.360 m	.235 m	.043146 m³
.50 m	.350 m	.140 m	.024500 m³

It is also important to examine the way that the fish are packed in your basket or small container and make sure that it approximates the way that the 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 laying 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 would to find a larger container or have one built.

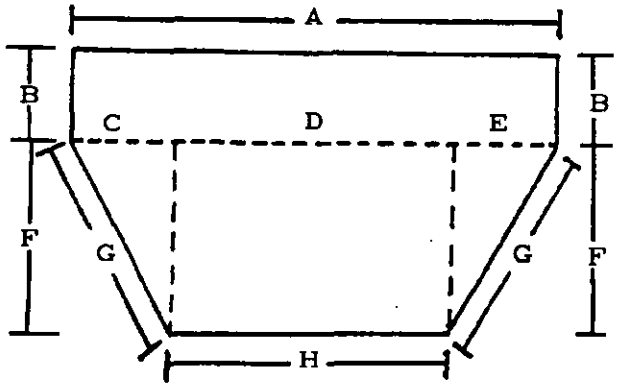
After the volume of an average basket is calculated, you need to obtain the average weight of four or more baskets. Be careful to take a random sample of the catch and to fill all your baskets consistently to the same level. Then simply divide the average weight of a basket by the average volume of a basket to calculate the density value for that haul. 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 = $2\pi r$ (π = 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)
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 a couple of 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. 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. Be aware of overhead structures which may reduce the volume capacity of a bin when it is filled above a certain point. When working with enclosed tanks which are not filled with refrigerated seawater (RSW tanks), some observers have successfully used a "dip stick" which they had made to measure fish depth through the hatches from the trawl deck. Height gauges painted on the sides of the tank might also be read from the trawl deck. 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 as we will not be comparing deck estimates.

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. However, retained catch and official total catch weight estimates 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 retained and 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: RETAINED AND TOTAL CATCH WEIGHT ESTIMATION

Retained Catch -- (RTC)

Retained catch weight is the weight of fish, in their natural state (also termed "in the round", round, fresh or whole weight) kept by the fishermen at sea. Sometimes catcher boat crewmen will "dress" or "bleed" the fish (to remove un-wanted body parts or fluids) at sea. Retained catch is the weight of kept fish before they were cut. All fish delivered by a catcher-only vessel are "retained". After delivery, if processing plant workers then discard more fish at

the plant, or return fish to the boat to dump at sea, that fish was delivered and is still part of "retained catch weight". Fish consumed aboard the vessel are also part of retained catch.

Objective: To derive or obtain for every haul made while the observer is aboard, the best possible estimate of the round weight of fish retained on board (Form 2US).

Options List:

1. Proportion the weight of fish delivered to the plant to the individual hauls using catch estimates made at sea.

2. For each tow, subtract the weight of discarded fish (recorded by the observer at sea) from a deck estimate of Official Total Catch (OTC) weight.

3. From catch composition samples, multiply the ratio of retained fish weight to sample weight by the OTC weight.

RTC Methods and Considerations

Option 1: Proportion the delivery weight (a) as obtained by the observer or (b) from the ADF&G fish ticket to hauls **using** (a) the skipper's deck estimates if they have been corroborated by the observer's independent deck weight estimates or (b) using the observer's deck estimate or (c) using the observer's codend band counts for a relative percentage per haul which makes up 100% of the delivery weight for the trip.

For the weight of retained catch of shoreside delivery or catcher-only vessels, observers commonly use delivery weight because the fish that are kept are actually weighed at the plant. When fishing, the retained catch is dumped, one tow after the other, into the "live" or holding tanks of the boat. So, to estimate the retained catch **by haul**, the observer must proportion the delivery weight based on at-sea catch weight estimates or percentages for each tow.

Obtaining Delivery Weights: (a) The best data is obtained when the observer is on the dock to verify the delivery weight by recording all the scale weights right off the readout if possible 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. Even delivery weights are only as good as the accuracy and calibration of the dock scales, so plant observers are asked to check calibration and the vessel observer should discuss this with the plant observer.

If you cannot record all the weights yourself or get a copy of a scale printout, getting a copy of the scale weights which were recorded by a factory worker may still be a better option than waiting for and trying to figure out the fish ticket. If a plant worker is recording the scale weights, you should at least spot check them by recording some of the scale weights yourself and comparing them with their record.

Talk to the plant observer or at least the plant personnel recording the delivery weights

about adjustments for "water weight". A percentage of the delivery may be subtracted as "water" or the scale may even be tared to adjust for "water weight." If so, examine the weighing point. Are the fish weighed in a container which holds water? If water from the pump is draining from the fish do not adjust your figures for water weight. If there is a significant amount of water in the load being weighed, you still cannot subtract a given percentage for water without testing it. The plant observer may have done this already. Copy their test data or run tests yourself (suggest: three tests minimum, over time) to provide documentation with your data for using a water weight percentage. If you do not have sampling data to justify the water weight percentage, just record the scale readout as fish weight.

When the delivery is sorted at the plant **before** weighing, the weight of the fish the plant will pay for can be obtained but bycatch and rejected (damaged, small) target fish weights may be harder to get. The vessel observer can get these weights from their own sorting work at the plant, or overseeing the plant employee's weighing of discard and bycatch, or estimating the weight of bycatch delivered from catch composition samples taken at sea.

Obtaining Delivery Weights: (b) 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 step 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.

ADF&G FISH TICKETS AND THEIR USE

Groundfish catch "landed" 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 new 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 proposed Individual Fishing Quota (IFQ) system for the 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 off of the tickets is interpreted correctly and makes se nse.

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) ADF&G statistical areas fished are listed on the fish ticket but these are frequently incorrect. Look up the area codes yourself, based on the position coordinates listed in the vessel log.

7) 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 in your logbook, 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. In the interest of product quality, many processors will not accept deliveries of fish held in the net on deck. 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 for a retained catch estimate.

RTC Option 2: From a deck estimate of Official Total Catch weight for each tow, subtract the weight of discarded fish that was determined by weighing, by counting and applying an average weight, or by volume converted to weight.

Estimating discards on catcher vessels: If you and/or the skipper are able to make good deck estimates of total catch weight (see the next section on OTC estimation) and you are able to quantify the weight of discards, obtaining retained catch weight by subtraction is a good alternative or back up method. 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. The

observer could extend this method to two prevalent discarded species and could be doing this in conjunction with their sampling work. The observer must not rely on crewpersons to count fish they are throwing overboard; crew are not employed to make accurate counts! Refer to the previous section on Observer's Estimates for calculating weight of discarded fish from a measurement of their volume.

RTC Option 3: Multiply the ratio of retained fish weight in the sample to the OTC. The round weight of retained fish can be derived directly from the observer's species composition sample of the catch, where: a ratio of the weight of fish in the sample which would be retained to the sample weight multiplied by a good estimate of total catch will give an estimate of the retained catch in the haul. This is more direct than using a ratio of discarded fish in the observer's sample to derive the estimated discard weight in the haul and subtracting that from the OTC weight. This method assumes the following relationship:

$$\frac{\text{Wt. of retained fish in sample}}{\text{Total sample wt.}} = \frac{\text{Wt. of retained fish in haul}}{\text{Total haul weight}}$$

Official Total Catch (OTC) Weight Estimation for Catcher-Only Vessels

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 the observer gains experience and familiarity, they may change the method used to obtain the best estimate of total catch.

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. Proportion the round weight of fish delivered to a plant to the individual hauls and add to each retained catch weight the weight of any catch discarded at sea.

3. Record the skipper's deck estimates if they have been corroborated by the observer's own independent deck estimates on an ongoing basis.

4. The observer makes a 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).

5. Calculate OTC from observer sample data for species composition using the formula:

$$\frac{\text{Species Composition Sample Weight}}{\text{Weight of Retained Fish in the Sample}} = \frac{\text{Total Catch}}{\text{Retained Weight in the Haul}}$$

OTC Methods and Considerations For Catcher-Only Trawlers

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: **Proportion the delivery weight** (a) as obtained by the observer or (b) from the fish ticket, **using** (a) the skipper's deck estimates if they have been corroborated by the observer's own independent deck estimates or (b) the observer's deck estimate or (c) using relative percentages based on the observer's codend band counts. Add to the proportioned delivery weight the weight of fish discarded at sea which were (a) weighed by the observer, or (b) tallied and average weight applied or (c) estimated by volume.

When cut fish are delivered, such as bled cod, delivery weights may have to be divided by a PRR from the NMFS table of values listed in the appendix of this manual to obtain a round weight of retained catch. Proportion the delivery weight of retained catch using one of the alternatives listed above. Refer to the consideration given for RTC option 1 in the previous section. As discussed for the RTC estimate, if significant amounts of fish were dumped at sea, the affected deck estimate should be lowered by a rough estimate of the discard weight before proportioning. Finally, add to each retained haul weight, the weight of any (and all) catch discarded at sea.

If the discard amount is small (500 kg or less) it can be actually weighed. If the amount is more than half a metric ton but is mostly one species (such as arrowtooth flounder) and little else, the predominant discarded species can be counted and an average weight applied while only the rest of the discard is actually weighed. Thirdly, if the discard was all thrown or shoveled into a small holding bin and it accumulated to a measurable depth, the discard weight could be estimated with a volume to weight ratio. Refer also to the previous topic of observer estimates by bin volume and to the previous RTC section on determining weight of discards, option 2.

Option 3: Record the skipper's deck estimates if they have been corroborated by the observer's own independent deck estimates on an ongoing basis.

The delivery of fish may not be weighed immediately upon delivery at the dock and the subsequent delay and potential errors of using fish ticket data may make using at-sea estimates 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 estimates or "estimates by eye" 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!

Option 4: The observer makes volume estimates of all codends and calculates weight with a volume to weight ratio (density value) obtained from each sample which is averaged for non-sampled hauls.

Observers may choose to use their own estimates (based on catch volume) for OTC when at-sea estimates are necessary and the captain's estimates are not consistent with their own and are, for reasons the observer has discovered, inaccurate. Refer to the previous section on "Observer Estimates of Total Catch" for a discussion of volumetric methods.

Option 5: If the observer's composition samples are representative as well as random (they aren't necessarily representative!), then using a ratio from the sample data multiplied by retained catch weight, yields the total catch weight by extrapolation.

When the observer can't weigh or tally the total discard for a haul, the amount of discarded catch can be estimated by their proportion in the observer's composition sample. If the crew sorts the catch at sea, the observer will be doing species composition sampling at sea also. The observer can sort the composition sample in the same way the crew sorts the total catch and use the following equation:

$$\frac{\text{Species Composition Sample Weight}}{\text{Weight of Retained Fish in Sample}} = \frac{\text{Total Catch Weight in Haul}}{\text{Retained Catch Weight in Haul}}$$

You cannot use a ratio of discarded fish in sample to sample weight because the proportional equivalent to the sample weight is the unknown object of our quest! On the right side of the equation above, the retained catch weight in the haul can be obtained by proportioning the delivery weight (verified for accuracy by the observer) to individual hauls using the skipper's or the observer's haul size estimates (as explained above in Preference 2). Remember: retained weight must always be whole fish weight. If product data are the only information available for retained weight, a product recovery rate must be used to convert product weight to fish "round" weight before proceeding with this calculation.

CATCHER/PROCESSOR TRAWLERS:
RETAINED AND TOTAL CATCH WEIGHT ESTIMATION

Retained Catch Weight Estimation

Retained catch weight is the round weight of fish, i.e. in their natural state, which was kept or utilized aboard (whether utilized in whole or in part). Fish consumed aboard the vessel are part of retained catch. On a catcher/processor, the round weight of the product on board is retained catch. If blocks or cases of the only product made from some fish are thrown overboard, the estimated round weight of that fish is not retained anymore. But if this happens days later, don't change your figures before consulting a staff member, record the estimate of amount and other details in the "Daily Notes" section of your logbook.

Options List: 1. If factory production information can be obtained by haul, the observer can calculate what the fresh weight of the fish was before processing.

2. From the daily totals of production entered in the vessel's NMFS logbook, the observer can calculate the daily total fresh weight and then proportion the daily total to the retained weight by haul.

3. From an estimate of total catch made before processing, subtract the weight of the fish that were discarded, the remainder is what was retained. *

4. From catch composition samples, multiply the ratio of retained fish weight in sample to sample weight, by the OTC weight.*

[* For hauls not sampled, a ratio of retained weight sums to total catch weight sums would have to be applied to the total catch weight of hauls not sampled.]

RTC Methods and Considerations For C/P Trawlers

Option 1: Use observer-verified production data **obtained by haul** and calculate round weight using (a) observer's product recovery ratios (PRR), (b) ship's PRR values if they have been checked for validity, (c) NMFS Product Recovery Rate Table. [Observer verification of product count and average pan weights is preferred but product data obtained from the factory manager may be used.]

Ship's production data: In addition to haul data and deck estimates, catcher/processor vessels are required to report daily production weight totals and the amounts of discarded species in the Daily Cumulative Production Logbook for NMFS. The retained product information in the ship's logbook is useful to observers except that the information is entered **by production day**. Observers will need product information **by haul** to estimate the round weight (also termed: whole or fresh weight) of the retained catch for each haul. Product weights are listed by species (or species group), and by product type. The factory manager has to report the weight of product produced for these logs. Usually, a count of the number of units of each

product type produced will be recorded for the factory manager by a crew person supervising the packing or breaking of product out of the freezer pans. (A unit of product would be a tray of fish packed for freezing or a bag of fish meal.) From this, the factory manager calculates the weight of each product made in the last 24 hours:

No. of Units of a Product x Average Unit Weight = Total Weight of that Product

For observers to use the ship's production information to derive round weight of retained catch, the observer needs a count of product units produced for each haul, or the day's total weight of product will have to be proportioned (see Option 2). **Except in the case of surimi or fish meal production, the observer may be able to obtain production data by haul by requesting it.** If catches are not mixed together by dumping successive catches into the live tank, production tallies by haul may be made. First familiarize yourself with the types of products being made. Observe the handling of fish into the live and holding tanks and through the processing line(s) to the freezer. If fish from different tows are kept in separate holding tanks, watch the clean-up of one catch and the start of processing of the next. Look for a clipboard tally sheet or grease board where the number of trays produced may be recorded. Note your observations for your logbook. Ask to meet with the factory manager at his convenience. Then you can ask him how the amount of product is reported to him by the crew. Would it be possible to have the tally made by haul? [If not, then for the purposes of record keeping, a production day ends at what time? To be included in the production day, hauls have to be in the live tank by what time? Proportioning the day's production is explained in Option 2.]

If the observer can obtain the number of units produced per product, per haul, the second variable is the average unit weight, as explained above. If you use production data for your estimate, you should independently check this by weighing units of product once or twice per week (recommending ten units per test). Be sure to subtract the container weight and weigh the product before the addition of water, if any, and before freezing. If each unit is weighed during the packing process, check the calibration of their scale with a known weight from your own scale.

Once you know the total weight of product, by product type, you can estimate the round or fresh weight of the fish retained to make that product by dividing the product weight by an accurate "product recovery ratio" specific to that product.

Product Weight ÷ Product Recovery Ratio = Fresh Weight of fish used to make the product

The sum of the round weights of fish made into product is the retained catch estimate. The factory manager does not have to estimate round weight of retained catch. In the vessel's log, only product weights are reported.

Product Recovery Ratios

A recovery rate represents the proportion of the organism that is used in any given product. A product recovery ratio (PRR) or a conversion factor can be applied to the product tonnage to estimate the round weight of catch used to make that amount of product.

Product weight ÷ round weight of sorted fish = product recovery ratio

Recovery rates are expressed as a percent or as a ratio. Headed and gutted cod may have a recovery ratio of .48 to 1, or 48% recovery, while fish frozen whole would have a recovery ratio of 1.00 to 1, or 100% recovery. The product weight divided by the product recovery ratio equals the fresh weight of the fish used to make the product.

Product Weight ÷ Recovery Rate = Whole Weight of fish used to make the product

[Note: Another term you may hear is "conversion factor". A conversion factor is the reciprocal of the recovery ratio and is **multiplied by** the product weight to obtain the round or fresh weight of the fish. A conversion factor is always greater than 1. To convert a conversion factor to a recovery rate, or vice versa, divide the number 1 by one of them to obtain the other.]

Product Weight x Conversion Factor = Whole Weight of fish used to make the product

A product recovery rate will change with the size, condition and handling of the fish. An accurate prr can only be obtained by averaging the results of numerous, careful samples. Most averages could be taken over a week's sampling data but only if the fish and handling conditions don't change. The condition of ripening pollock females will change in a matter of hours in the height of roe season. Therefore, observers calculating retained (or total) catch estimates from weight of product are asked to sample for prr and use their sample data for their estimates. Secondly, if the factory manager has done product recovery tests in the same manner as explained for observer sampling (see Appendix), that data can be recorded and used. As a last resort, the observer could use the NMFS Product Recovery Rate Table value (see Appendix). The table values may only be a rough approximation of the rates experienced on your vessel. If you use production data, take the time to do your own product recovery rate sampling.

The term "product recovery ratio" or prr, does not mean the same thing to all people. A captain is primarily concerned with the ratio of product weight to total catch weight or perhaps, product weight to catch weight of target fish (before sorting) and this may be his "product recovery ratio." The National Marine Fisheries Service (and therefore the Observer Program) defines a product recovery rate as the ratio of the product weight to the round weight of fish **used** to make the product, that is, the round weight after sorting for species, size, sex or condition. When asking vessel personnel for product recovery rates, be sure to inquire how they are determined. Observers are asked to record this and any PRR sampling information on a Product Recovery Rate Form (refer to the appendix of this manual).

Vessel Log's Reporting Codes

Daily product weights can be obtained from the "Finished Product Information" section of the vessel's Daily Cumulative Production Logbook. There the species report group code (of the fish that made up the product) is followed by a slash / and the product type codes for each finished product. The species report group codes and the Product Types Code List can be found in the logbook instructions section or the Appendix of this manual.

The main product from a single fish is called a **primary** product. This type of product is indicated in the logbook by a 'P' preceding the product code. Any other products that are made from the same fish are called **ancillary** products. These products are indicated in the logbook by an 'A' preceding the product code. If the vessel personnel do not label ancillary products as such, the NMFS will calculate the round weight of the fish once for the primary product and additional times for each non-labeled ancillary product. Such over-counting may result in premature closures of fisheries. Observers should also only use primary products when back calculating from product to round weight.

Option 2: Calculate round weight of day's production totals using (a) observer's PRR sample data, (b) ship's PRR values if they have been checked for validity, or (c) NMFS Product Recovery Rate table. Proportion the daily production totals by (a) OTC weights or (b) skipper's deck estimates.

As production lags behind catch, the daily product entries in the vessel's logs do not usually correspond to catches of that day. **The observer must roughly determine which haul's processing resulted in the totals for each "production day".** The daily product total must be back-calculated to round weight and then proportioned to haul based on a ratio of the deck estimates (either the observer's estimate, the skipper's or a combination of both). The following example is from a vessel which produces a minced fish paste called surimi. Surimi production is a continuous rather than a batch process. Therefore, information on units produced per haul is not usually possible.

Hauls 14 - 17 (roughly) went into production on a day when 20 metric tons (mt) of surimi was put up. Surimi processed "at sea" has a product recovery ratio of .14.

20 mt of surimi ÷ .14 PRR = 142.8571 mt round wt. of pollock went into production.

Haul No.	Deck Est.	% of Day's Catch	Retained Catch/Haul
14	45 mt	45/150	42.86 mt
15	30	30/150	28.57
16	55	55/150	52.38
17	20	20/150	19.05
	150 mt		142.86 mt

This calculation method assumes a consistent percentage of usable pollock (target species) in the four hauls. If this is not the case, first estimate the weight of the usable production species, in this case pollock, in the haul based on the percent in your composition samples (Wt. of pollock in haul). Also, sum this value for all the hauls in the day's production (Σ pollock for day). Then:

Wt. of pollock in haul Σ pollock for day	x	round wt. of day's pollock production	=	revised wt. of pollock retained by haul

Option 3: From (a) Official Total Catch or (b) captain's deck estimate, subtract the weight of discarded fish that was determined by the observer (a) verifying weights, (b) weighing or (c) counting and applying an average unit weight. For hauls not sampled, a ratio of retained weight sums to total catch weight sums would have to be applied to the total catch weight of hauls not sampled.

Estimating discards on catcher/processor vessels: As discussed for catcher boats, round weight of retained catch can also be estimated by subtraction of discard weight from total catch weight. Being able to count or weigh all the discards does not happen often on catcher/processor vessels, but if it can be done, it is potentially more accurate than deriving retained catch from a small sample of the catch (see paragraph below). Discards could be quantified by the observer actually collecting and weighing them before putting them overboard if there are only small amounts, i.e., less than half a ton. This would only be possible for very small mixed species tows (which are usually avoided by catcher/processor vessels as un-profitable) or with very pure catches of pollock where little or no pollock were discarded! Discard weights could also be closely estimated by having factory sorters fill baskets or tubs with discard fish which are periodically counted and emptied. An average fish weight per container can then be multiplied by the total number of containers of discard for a total discard weight. With the backing and cooperation of the captain and crew, this could be done easily on some boats. Some observers may be able to negotiate this type of cooperation.

Option 4: If your catch composition samples are representative as well as random, and if there are consistent sorting criteria that you can mimic in your samples, then you could apply the ratio of retained fish weight in the species composition sample to the OTC weight. For hauls not sampled, a ratio of retained weight sums to total catch weight sums would have to be applied to the total catch weight of hauls not sampled.

Do not calculate the percentage of discards in your sample. Instead, use the ratio of retained fish in your sample as follows:

retained weight in sample total sample weight	x	OTC weight	=	Retained weight in haul

Retained catch for non-sampled tows: On the twenty to thirty day trips of catcher/processors, observers don't usually sample every tow and therefore would not have available the discard or sample information needed to get retained catch weight on non-sampled tows via methods 3) and 4). If using options three or four, obtain retained catch weight for hauls not sampled by calculating an adjustment ratio for the day and multiplying the total catch of the un-sampled haul times the adjustment ratio for that day. If you observed the catches to be very different in composition, and have samples of each type, you might calculate an adjustment ratio for each type and apply the ratio to similar or "like" hauls not sampled.

$$\frac{\text{sum of calculated retained catch wts. of sampled hauls* for the day}}{\text{sum of the total catch estimates of sampled hauls* for the day}} = \text{adjustment ratio for "like" hauls for the day}$$

$$\text{un-rounded adjustment ratio for the day} \times \text{total catch est. for a nonsampled haul} = \text{retained catch est. for that haul}$$

* sum sampled hauls of similar composition when there are marked differences.

OTC Weight Estimation Methods for C/P Trawlers

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 non-sampled hauls).

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

4. To the retained catch weight for the haul derived from production data add the weight of discards as determined by the observer.

5. The skipper's deck estimate is recorded as the OTC weight but the observer continues to make independent volumetric estimates (observer estimates) for comparison.

OTC Methods and Considerations for C/P Trawlers

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 if any 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 non-sampled hauls.

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 often 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). Their deck estimate is required to be reported in the NMFS Fishing Log. The skipper's deck estimates aboard a catcher/processor are commonly not accurate. Observers report that they can be highly optimistic with large catches and pessimistic with small ones.

When using the skipper's deck estimates only for hauls the observer doesn't estimate, there is no recorded comparison on Form 2US to indicate the accuracy of their catch weight estimates. Therefore when using this option, it is important that the observer record both the captain's deck estimates and observer's estimates in the observer's logbook. Compare the differences between your estimates.

If the differences are less than ±5% simply record the skippers estimates for hauls you don't observe. If the skipper's estimates are consistently higher or are consistently lower than yours by more than 5% you could modify the skipper's estimate with an adjustment factor:

$$\frac{\text{Obs. est. of observed hauls}}{\text{Skipper's est. of the same observed hauls}} \times \text{skipper's est. of a non-observed haul} = \text{OTC of non-observed haul}$$

If you suspect the catches are being underestimated only when you are not making estimates, you could calculate an estimate as explained in preference 4 below.

Option 4: **Calculate round weight from product weights** using observer-verified counts, unit weights, and prr values **and add the weight of discarded fish** where discard weight is (a) verified by observer, (b) weighed by observer, (c) determined by counting containers of discards and applying an average unit weight, (d) derived based on sample weight proportions or (e) estimated by eye and/or by reports.

Round weight of retained fish + Total weight of discarded fish = Official Total Catch

Discards normally include prohibited species, bycatch species and undersized and damaged target fish. When the observer cannot sort the whole catch for bycatch and obtain a total weight of bycatch discard, the species composition sample can be used to extrapolate the total catch weight from the round weight of retained catch:

$$\frac{\text{Species composition sample wt.}}{\text{Weight of retained fish in sample}} = \frac{\text{Total Catch Weight}}{\text{Retained Catch wt. in Haul}}$$

This extrapolation assumes that the sample is representative of the catch in addition to being a random sample and that the observer can apply the criteria for sorting the catch to his or her sample. Another element of discard is the fish which went into processing but which dropped off the lines and into the bilge. This part of discard is very difficult to quantify.

An observer may be sorting the entire catch in a fishery for pollock or whiting where the catch is very pure and is sorted or processed quickly. The amount of prohibited species and bycatch is small enough that it can be actually weighed. The sorted discard of damaged, undersized and old **target** fish though, will probably be more than the observer can weigh but again, it may be possible to estimate this amount by a ratio from the observer's sample. When the observer cannot weigh the discarded target fish but has an actual weight for the discarded bycatch, a sub-sample of only the target species might be used to extrapolate the total weight of the target fish for the haul, thus accounting for the amount of target species (sp.) discard:

$$\frac{\text{Total weight of target sp. in sample}}{\text{Wt. of retained target sp. in sample}} = \frac{\text{Total weight of target sp. in haul}}{\text{Round wt. of retained target sp. in Haul}}$$

Then: Total weight of target sp. + weight of discarded bycatch = Official Total Catch

Again, this assumes that the observer's sample is representative of the target species retained and discard weight!

Discard of target fish is often not consistent however. With a load of fresh fish just brought in, a factory boss may decide to discard the remainder of the last catch in preference for fresh fish. This leaves the observer with these last two alternatives: You may estimate the amount of discard based on the rate determined by samples (as shown above) and add to it the weight of wholesale dumping that takes place occasionally as estimated by eye or by the report of a trusted crewman or factory manager. As this is very shaky ground, the observer should consider giving up on estimating discards altogether and re-examine the other options for obtaining OTC. **Using the proportion of daily total discard weight from the logbook is not recommended except for days when the observer is not able to work and the skipper's deck estimates are a worse alternative.**

Adjustment factors for non-sampled hauls: The observer must be present and working in order to make estimates and take samples for the above method. Similar to the procedure given previously for retained catch weights, to obtain total catch for hauls which you did not sample, you can calculate an adjustment factor for the day as shown below and multiply the retained catch for the unsampled haul times the adjustment factor for that day. If you observed the catches to be very different in composition, and have samples of each type, you might calculate different adjustment factors from different samples and apply the most appropriate factor to "like" hauls you observed but did not sample.

sum of calculated total catch weights for the sampled hauls* for the day
---
sum of the retained catch estimates for the sampled hauls* for the day
= adjustment factor for "like" hauls for the day

*Note: See last sentence, above.

adjustment factor for the day x retained catch est. for a nonsampled haul = total catch est. for that haul

Example--see 9/17 on the example 2US form:

$$\frac{16.00 + 20.00 + 12.00 + 18.62}{15.80 + 19.90 + 10.50 + 17.92} = \frac{66.62}{64.12} = 1.0390 \times 7.94 \text{ RTC} = 8.25 \text{ OTC}$$

Option 5: The skipper's deck estimate is recorded as OTC but the observer continues to make independent volumetric estimates for comparison. The independent, "Observer's Total Catch Estimate" is recorded next to the "Official Total Catch" columns on Form 2US.

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:

EXAMPLE 1

Jane Observer
Sea Gull

Page 1 of ____

FORM 3US–SPECIES COMPOSITION

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet — 6 baskets

Species:	POLLOCK	P. COD	TOTAL WT	minus BYCATCH:		Salmon Shark
No. weighed:	285	33	POLL.	COD wt.		consensus =
Wt. of above:	230.5 kg	160.1 kg	16000.0 kg	− 261.37 kg =	15738.63 kg	20016. or
Avg. weight:	.8087719298	4.851515151				90.0 kg

Other calc.; comments: Whole haul sampled for two predominant species. Tanners subsampled. POLLOCK: 230.5 kg / 390.6 kg × 15738.63 kg = 9287.65 kg 9287.65 ÷ .808 = 11484 Pollock

COD: 160.1 kg / 390.6 kg × 15738.63 kg = 6450.98 kg 6450.98 ÷ 4.852 = 1330 COD

* Calculations full field on calculator.

ST = Sampling Type: B= basket; W = whole haul

Check Type: W P B — Halibut ☑ ☐ ☐; Salmon ☑ ☐ ☐; King crab ☑ ☐ ☐; Tanner crab ☑ ☐ ☐

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
									9	4	0	9	1	7	1	0	1

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)	Viability: Number excellent	Viability: Number poor	Viability: Number dead
	19	20 21 22	23	24 25 26 27 28 29	30–40	41–51	52 53 54	55 56 57	58 59 60
(Keypunch check)	X	9 9 9	X	1 3 5 5 3	16000.0	Haul wt: 16000.0	21	23	45
POP		301	W	9	4.9	16000.0			
NORTHERN ROCKFISH		303	|	1 1	18.7				
SCULPIN unid.		400	|	3	2.3				
ROUGHEYE R.F.		307	|	1	3.2				
SHORTSPINE THORNYH.		350	|	1 2	4.5				
FLATHEAD SOLE		103	|	1 5	6.3				
ARROWTOOTH FLOUNDER		141	|	2	5.0				
REX SOLE		105	|	6	1.45				
ALASKA PLAICE		106	|	1	4.1				
SALMON SHARK		67	|	1	90.0				
TANNER CRAB unid.	U	3	|	5 6 2	89.5				
OPILIO TANNER	M	5	|	3	.43				3
OPILIO TANNER	F	5	|	1	.17			1	
BAIRDI TANNER	M	4	|	3 2	5.44		6	5	18
BAIRDI TANNER	F	4	|	5 9	8.7		15	16	23
PACIFIC HALIBUT	U	101	|	2	6.2			1	1
KING SALMON	M	222	|	1	1.62				
KING SALMON	F	222	|	1	2.1				
KING SALMON	U	222	|	1	1.76				
KING CRAB	U	2	|	0	0.0				
PACIFIC LAMPREY		79	|	2	1.4				
SQUID		50	|	5	3.6				
POLLOCK		201	✓	1 1 4 8 4	9287.65	↓			
P. COD		202	W	1 3 3 0	6450.98	16000.0			

EXAMPLE 2

FORM 3US–SPECIES COMPOSITION

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

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

Other calc.; comments: Partial haul for some probibs. using Bin Volume method.

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
									9	4	0	9	1	7	1	0	3

ST = Sampling Type:
B= basket
W = whole haul

Check Type:

	W	P	B
Halibut	☐	☑	☐
Salmon	☐	☑	☐
King crab	☐	☑	☐
Tanner crab	☐	☐	☑

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)	Viability: Number excellent	Viability: Number poor	Viability: Number dead
	19	20 21 22	23	24 25 26 27 28 29	30–40	41–51	52 53 54	55 56 57	58 59 60
(Keypunch check)	X	9 9 9	X	4 9 0	476.8	Haul wt: 20000.0	70	42	19
HALIBUT	U	101	P	1 1	55.0	9348.7		1	10
KING CRAB	U	2	|	0	0.0	|			
KING SALMON	M	222	|	4	12.6	|			
KING SALMON	F	222	↓	3	9.3	↓			
CHUM SALMON	M	221	P	1	1.9	9348.7			
BAIRDI TANNER CRAB	M	4	B	1 8 0	68.4	398.0	40	28	2
BAIRDI TANNER CRAB	F	4	|	1 3 2	52.8	|	30	13	7
POLLOCK		201	|	7 3	40.8	|			
P. COD		202	|	6 1	214.1	|			
ARROWTOOTH FLOUNDER		141	|	3	3.5	|			
FLATHEAD SOLE		103	|	1 4	7.1	|			
POP		301	↓	1	.8	↓			
SABLEFISH		203	B	7	10.5	398.0			

Example 3

FORM 3US—SPECIES COMPOSITION Page 3 of ____

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

Species:	Halibut					
No. weighed:	est. length due to presort on deck by crewmember who					
Wt. of above:	didn't know I was sampling: 1 at 90cm, 2 at 150 cm.					
Avg. weight:						

Other calc.; comments: Basket sampled for prohibs and sp. comp. Tannen crab were sub sampled for viability and length.

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
									9	4	0	9	1	7	1	0	4

ST = Sampling Type: B= basket; W = whole haul

Check Type:	W	P	B
Halibut	☐	☐	☑
Salmon	☐	☐	☑
King crab	☐	☐	☑
Tanner crab	☐	☐	☑

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)	Viability: Number excellent	Viability: Number poor	Viability: Number dead
	19	20–22	23	24–29	30–40	41–51	52–54	55–57	58–60
(Keypunch check)	X	999	X	16565	537.1	Haul wt. 12000.0	20	38	68
Pacific Halibut	U	101	B	1	3.6	537.1			1
Red King crab	M	13		14	6.1		10	3	1
Red King crab	F	13		6	.70		4	2	
Opilio Tanner	M	5		1 26	9.2		5	16	39
Opilio Tanner	F	5		61	6.1			10	20
Bairdi Tanner	M	4		13	1.1			3	3
Bairdi Tanner	F	4		15	1.0		1	4	4
Salmon unid	U	220		0	0.0				
Arrowtooth fl		141		31	89.1				
flathead sole		103		802	160.2				
rock sole		104		86	26.4				
yellowfin sole		140		431	200.5				
rex sole		105	↓	70	16.7	↓			
skate unid.		90	B	2	16.4	537.1			

FORM 3US—SPECIES COMPOSITION Example 4

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

Species:	Halibut					
No. weighed:	22 +	1 est. 200cm +	1 at	147cm =	24	
Wt. of above:	83.6 +	119.373 +	44.023	= 247.0	Kg	
Avg. weight:						

Other calc.; comments: Whole haul sampled for halibut, salmon, and King crab. Basket sampled for tanner crab and sp. comp.

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
									9	4	0	9	1	7	1	0	5

ST = Sampling Type:
8= basket
W = whole haul

Check Type: W P B
Halibut ☑ ☐ ☐
Salmon ☑ ☐ ☐
King crab ☑ ☐ ☐
Tanner crab ☐ ☐ ☑

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)	Viability: Number excellent	Viability: Number poor	Viability: Number dead
	19	20–22	23	24–29	30–40	41–51	52–54	55–57	58–60
(Keypunch check)	X	9 9 9	X	7 1 8	757.6	Haul wt: 18620.0	.	3	26
Salmon unid.	U	220	W	0	0.0	18620.0			
King crab unid.	U	2	↓	0	0.0	18620.0			
Pacific halibut	U	101	W	2 4	247.0	18620.0		2	20
Bairdi Tanner	M	4	B	1	.32	510.6		1	
Bairdi Tanner	F	4	(	6	1.89	~			6
Pollock		201	|	6 7 5	478.93	(			
P.cod		202	|	4	21.4	|			
POP		301	|	2	1.49	|			
Dusky rf.		330	|	1	1.04	|			
Northern rf.		303	|	1	.84	|			
Shortraker rf.		326	|	1	2.6	|			
squid		50	↓	2	1.23	↓			
jellyfish		35	B	1	.86	510.6			

SPECIES COMPOSITION FORM 3US - INSTRUCTIONS

The Form 3US is for the recording of detailed composition sampling data by haul. When catches from two or more hauls have been combined before sampling, data still must be recorded by haul. Observing the differences in composition during the emptying of the net will help in attributing catch to particular hauls, or the composition must simply be proportioned to hauls based on relative catch weight. (See also the section on "Mixing of Hauls".)

1. **Enter the date, and haul number.** (The cruise number and vessel code will normally be given to you during debriefing.) 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 is not necessarily the date you sampled it.

2. **Group your species composition samples by the sample size and enter data from the largest sample first.** Only one or two sample types or weights per haul are allowed. Skip a line between sample types.

3. **List each species or species group by their common name** and the corresponding code from the alphabetically arranged Species Code List in the "Reference Section" of this manual. 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.

4. **You cannot have two sample weights for any species.** Each species code (except those whose listings are by sex) may only be listed once for each haul.

5. **All Tanner crab, king crab, or salmon should be listed separately by species and sex** whenever possible. Pacific **halibut should be listed with "U"** for sex unknown. (Do not sex halibut, even the dead ones.) **For these species only**, record an "M", "F", or "U" in column 19. **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 all of the individuals in the subsample by species and sex. Then, either count or weigh all of 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 1, tanner crab for an illustration of how to record the data in this type of a subsample situation.

6. **Indicate the sampling type** for each sample size in column 23. For species that you whole-haul sampled, use "W"; for partial haul sampling, use "P"; for basket (or actually weighed) sampling data use "B". Note there is a maximum of two sample types per haul.

7. Skip a line between species with different sample weights (see examples 2 and 4).

8. **Every number must have a weight and every weight must have a number.** All weights should have a **well-defined decimal point** as the decimal point itself will be keypunched

and must be present even if the weights are not carried to a tenth or a hundredth of a kilogram (see the examples of Form 3US). **Enter a trailing zero** after the decimal point if you do not carry the weights to a tenth or a hundredth of a kilogram. **Do not enter any weight to more than two decimal places.** If something weighs much less than .01 kg, ignore it.

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 your catch messages.

9. **Enter the weight sampled for each species in columns 41-51, using a well-defined decimal point and one or two places following the decimal.** If you whole-haul sampled for the species composition, the rounded sample weight, if converted to metric tons, must match the official total catch weight on the Form 2US. This should be an obvious point when sampling the whole haul, yet this is an easy mistake to make when using an un-rounded weight which is a conversion from pounds to kilograms. If you basket sample, the sample weight must equal the sum of the weights of the individual species that were basket sampled (marked with a "B" in column 23).

> Please note: if an observer is whole or partial haul sampling for some species, the observer should not include the weight of any of these in the basket sample weight if some are found in the basket samples. These of course should be entered with any others as a part of the whole or partial haul sample data.

10. **Record on the worksheet, at the top of the form, any raw data** such as subsamples for average weight that might otherwise be lost because an extrapolated figure is entered on the keypunched portion of the form. The following are examples of the use of the worksheet:

a) **If more individuals of a species were counted than could be weighed,** enter the actual weight of the individuals weighed on the worksheet, calculate and record the average weight to three or four decimal places on the worksheet, and enter the total extrapolated weight for all observed on the keypunch part of the form. **Similar entries should be made for the reverse situation** when, for example, large quantities of small Tanner crab are weighed, and a total number must be extrapolated.

b) When whole or partial haul sampling for composition, the **samples for average weight of target species must be recorded in the worksheet area of the form.** See the Form 3US example 1 for pollock and the instructions for "Recording Whole-Haul Sampling..." in the following section on "Methods".

c) **Individuals whose weight is estimated** can be entered on the worksheet as in Form 3US, example 1 for salmon shark. If you feel a non-weighed individual is of a different size than those that were weighed, enter an estimate on the "wt of above" line just below the number estimated. **On the keypunch portion of the form, include the total number observed and the combined weight of the actual and estimated individuals.** (Note: For halibut there is a statistically valid length/weight relationship that can aid you in estimating the weight of large individuals, see "Biological Data Collected From Prohibited Species". Length/weight relationships cannot be predicted for other species.)

Note in the comments section the type of sampling you used, number of baskets taken, density values, and anything unusual about the catch or sampling.

11. **Each of the four prohibited species groups must be represented on each form.** It is necessary to have some indication of how much catch was monitored for each of the prohibited species groups--halibut, king crab, Tanner crab, salmon/steelhead. **If no individuals of that species group were observed, then the observer should enter that group name, species code (use codes 2, 3, 101, 220), sample type, sample weight, 0 for the number, and 0.0 for the weight.** (See the 3US examples 1, 2, 3,and 4.)

12. **Under "Viability", record the number of halibut (and crab if assigned), judged to be in each category.** For the definition of "excellent", "poor", and "dead" conditions, please refer to "Biological Data Collected From Prohibited Species". **Do not sample salmon for viability.** The sum of the numbers recorded in those three categories should be **the total number** of halibut (or crab, if assigned) examined for viability but it **doesn't have to match the numbers weighed** (on the same line to the left of the viability).

13. **Complete the keypunch check (line 999 at the top of each form)** by adding all of the figures in the number column and enter the sum on line 999, columns 24-29. Add the weights and enter on line 999, columns 30-40. Enter the official haul weight in columns 41-51 of line 999. (Previous observers have found it useful to have this information present on this form for ease in filling out the 3US and catch report forms.) **Add the numbers in each viability category and enter in columns 52-60 of line 999.**

14. **Check the sampling method for each of the prohibited species groups** in the boxes just above the column heading labelled "Viability". This will enable the debriefers/data editors to see quickly what your sampling methods were and will serve as a check if you forget to enter 0 data for non-observed prohibited species groups.

DEFINITIONS OF SAMPLING TERMS

Basket sample - When the amount of catch which was sampled by the observer is actually weighed. The sample weight minimum is 300 kg, the maximum is equal to the OTC weight.

Bycatch - any species in the catch other than 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, halibut, king crab and tanner crab. For the vessel, the prohibited species include the above as well as herring and 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, 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 present is grouped by family or by species and, to determine the number and weight of the organisms in each group, thereby accounting for all of the sample weight.

Sub-sample - the weight of catch designated by the observer which weighs less than the sample weight and is processed for a more specific purpose than determining the composition of a haul.

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 sampled (sorted) by the observer. The rounded sample weight, converted to metric tons, equals the OTC weight as recorded on Form 2US.

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 random sampling, the relative amounts of species in the sample will not necessarily reflect their proportion in the haul. However, from many samples taken within an area/week, a reflection of the relative species proportions over time should be apparent. Never

should you "hand-pick" a "representative" sample based on your visual estimate of the composition. Observer's species composition samples must be collected such that (ideally) every fish (or organism) in the catch has an equal opportunity of landing in the observer's sample. It is up to you to choose a sampling method and devise a sample collection technique which is most appropriate for your vessel 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. Your choice of a sampling method must fall under the natural constraints of your available time, energy, and work space as well as consideration of the size of the catch and its diversity. To guide your judgement in choosing a sampling method, please comply with the following additional constraints to ensure proper and accountable data collection:

1. Strive for data that is representative of the catch by collecting random, unbiased samples. Believe in the scientific method of random sampling and in the "long run" accuracy of it. As a result of reducing your sample size, you may find that a species whose occurrence is "patchy" is over-represented in some of your samples and under-represented in others. Over time and many samples, the level of occurrence will closely approximate the true value (assuming random samples). Remember that in many analyses your data will be merged with all other observer's data in that area, year, month and vessel type classification. **It is better to produce accurate data using a small sample size than to have a much larger sample size with dubious data.**

2. Allocate your time appropriately. Sampling a catch at sea should usually take two to three hours. If you are spending more than three hours per sample you won't be able to keep up with the Random Sample Table. If your ship is hauling more than four catches per day, you should reduce your sampling time by reducing your sample size.

3. You cannot sample for only one species or group. Conversely, you cannot leave out any component of the catch. When sampling for prohibited species, you must also sample for target and other bycatch and vice versa.

4. 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, through the entire collection 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 situation until you can be sure that you are getting all the bycatch--allowing for human error. This usually occurs because (a) the fish that are passing by you are too deep or moving too quickly or (b) you do not have enough supervisory control over those assisting you to sort.

5. There can be **only one sample weight for target species and bycatch** other than the four prohibited groups (halibut, salmon, king crab and tanner crab), per haul.

6. The four prohibited species **groups** do not have to have the same sample weight, and the sample weight for any of the prohibited species groups cannot be less than the sample weight for target and bycatch species.

7. You cannot have two sample weights for any one species or species group.

8. Only one or two sample types are allowed per haul (not three), and you cannot use whole and partial haul sampling methods on the same haul.

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. <u>You cannot estimate both the number and the weight of any species.</u>

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 handling and your time and energy. Whenever a vessel's catch fits the definition of an Incentive Program fishery where observer sampling is stipulated, an actually weighed sample ("Basket Sample") method is mandatory, including the samples for prohibited species. Basket sampling is the most common means of sampling when the catch is reasonably diverse. When one or two species predominate in the catch and there are very few other species, it may be possible to sample the whole haul to determine composition. Frequently observers are able to sample the whole catch or a large portion of it for prohibited species and basket sample for species composition. 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, and to devise a sampling scheme which will provide **complete** species composition data for any sampled haul.

<u>Whole-Haul Sampling</u>

Criteria:

- for composition sampling, hauls must be fairly pure; usually seen in the pollock or whiting fishery - consider that 1% bycatch in a 50 mt haul is 500 kg, or at least 13 baskets of fish.
- for prohibited species sampling, the catch composition may be diverse as long as there are not too many prohibited species per ton of groundfish to deal with.
- you are not partial haul sampling for target and bycatch species.
- 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. A processing rate of 25 MT/hr is probably too fast for you to accurately whole haul sample.
- the processing is done in a timely manner. If you are sampling 3-4 hauls in a day, spending 3-4 hours per sample is probably not feasible.

When your vessel is fishing pollock in Alaska or whiting (hake) off Washington and Oregon, hauls commonly have less than one percent bycatch. Whole-haul sampling means that the entire <u>unsorted</u> catch passed by you at one point and you were able to see and pull out all bycatch organisms or prohibited species for counting and weighing later. Partial haul sampling is

a variation of this where the observer samples a large portion of the catch and sorts it for bycatch or prohibited species. In a pure pollock fishery, catches will normally be whole or partial haul sampled, which allows for a larger sample. The danger is that accuracy may suffer. In this program we place a high value on thorough, accurate sorting. (Refer to "Partial Haul Sampling" on following pages.) When whole-haul sampling, the sample weight - if rounded and converted to metric tons, must equal the Official Total Catch weight on Form 2US.

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 by the observer alone, but this is not always possible. 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. Avoid having crew simply count bycatch for you and then rely on their counts multiplied by an average weight. It is too easy to lose count and you can't supervise what's going on in their minds! You must have direct <u>visual</u> supervision of anyone helping you to gather sampling data. You are expected to work within the constraints of each sampling situation and produce accurate sampling data. Catcher boat observers cannot whole haul sample at sea unless the entire catch is thoroughly sorted by the crew (and the observer) and only intentionally retained species are put below. Even then, the vessel or plant observer should check the sorting done at the processing plant to get bycatch missed during the sorting at sea. On catcher/processors, if processing is very slow, the observer may have to change to partial haul or basket sampling if sorting the entire catch will take four or more hours.

Bycatch species and/or prohibited species that have been sorted out of the entire catch, must then 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 only for prohibited species, the whole haul sampling is then complete. If the observer is whole haul sampling for composition of <u>all</u> bycatch and target species, the observer should next obtain a random sub-sample of the predominant species and count and weigh them. If the predominant species is of average size, 30 - 50 cm (like pollock), take a minimum of 80 kg which is two or three baskets of fish. If the predominant species is large, >55 cm (like cod), try to collect at least fifty fish for average weight. This sub-sample data must be entered on the worksheet portion on the form and is used to calculate an estimate of the total number of the predominant species:

Total wt. of predominant sp. x no. in sub-sample ÷ wt. of subsample = est. no. of predom. sp.

For composition sampling, the sample and sub-sample method above may be expanded to include the situation of whole haul sampling when two species dominate the catch. The extrapolation may not be carried to more than two species. (If more than two species are present in large numbers in the catch, you must basket sample.) If, for example, a majority of the catch is comprised of pollock and cod and there is very little other bycatch, sort the bycatch from the entire haul and identify, count and weigh them. Take a random sub-sample of pollock and cod as they occur in the catch to determine their <u>relative</u> percentage by weight and count and weigh them for their respective average weights. The sub-sample (of pollock and cod in this case) must be of a minimum of 200 kg, and the data must be recorded in the worksheet portion of Form 3US.

These are the calculations which accompany the Form 3US example one, for haul 101:

1. Subtract the total combined weight of the bycatch species from the sample weight. The figure you obtain will be the weight, in this case, the combined weight of the two major species in the haul.

   16000.0 kg - 261.37 kg = 15738.63 kg
   (sample wt) - (bycatch) = (combined wt. of pollock & cod in total catch)

2. Record the numbers and weights of the sub-sampled pollock and cod (used for determining avg. wts. and percentages) in the worksheet part of the form. Divide the total catch weight of pollock and cod by the proportionate weights of the pollock and cod in the sub-samples, so that you obtain the estimated weight of each species in the whole haul.

   the subsample yielded:
   285 pollock = 230.5 kg
   + 33 P. cod = 160.1 kg
   Total subsample weight = 390.6 kg

   $\frac{\text{kg pollock in subsample}}{\text{total subsample wt}} = \frac{230.5 \text{ kg}}{390.6 \text{ kg}}$ (about 59% pollock by weight)

   $\frac{\text{kg P. cod in subsample}}{\text{total subsample wt}} = \frac{160.1 \text{ kg}}{390.6 \text{ kg}}$ (about 41% P. cod by weight)

3. Then multiply the combined weight of pollock and Pacific cod in the haul by the ratio of the weight of each predominant species over the sub-sample weight.

   $\frac{230.5}{390.6} \times 15738.63 = 9287.65$ kg = wt. of pollock in whole haul

   $\frac{160.1}{390.6} \times 15738.63 = 6450.98$ kg = wt. of P. cod in whole haul

   You must now sum the proportioned species weights to make sure that rounding did not result in a sum greater than the pollock and cod weight obtained by subtraction of bycatch from OTC. (9287.65 + 6450.98 = 15738.63)
   Record the above two figures on the data form opposite each species.

4. Using the average weights of these species obtained from the sub-sample, calculate the number of fish each weight represents.

   $9287.65 \text{ kg} \div \frac{230.5 \text{ kg}}{285} = 11484$ estimated number of pollock, when rounded to a whole number.

   $6450.98 \text{ kg} \div \frac{160.1 \text{ kg}}{33} = 1330$ estimated number of Pacific cod, when rounded to a whole number.

The respective weights of pollock and cod which passed by the observer during sorting, were obtained by subtraction and relative percentage. These weights and the estimated numbers of each would be entered on the key punched portion of Form 3US. **After you have completed the above calculations, check your math. The sum of all the species weights in a whole haul sample must have less than 5.0 kg. difference from the OTC weight.**

The predominant species are not necessarily species the vessel was fishing for or "targeting" on. For example, when fishing for pollock, vessels will occasionally tow through clouds of jellyfish and when fishing for Atka mackerel, they will sometimes pick up lots of brittle stars.

Partial Haul Sampling

Criteria:

- sorting 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.
- you are not whole haul sampling for any prohibited species.
- 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 will be discussed later in this section - read it 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 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. **If you choose to 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 samples. **The following two methods are presented in order of preference:**

1) 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 the section on "Observer's Total Catch Estimates" 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.

The sample weight is sorted for bycatch, which are subsequently sorted to species, counted and weighed. The predominant species are subsampled for average weight. The sample weight (obtained by volume) minus the sum of the bycatch weights (actually weighed) is the total weight of the predominant species. The predominant species weight, divided by their average weight is the estimated number to record on 3US.

2) Tallying fish is the primary method for sampling aboard a longline vessel and may be employed on trawlers too. When tally sampling, the target (or predominant) species is accurately counted and all other bycatch are collected to be sorted, counted and weighed later. Tallying fish with a hand counter should only be done with large, distinctive fish such as cod or turbot. Just before and/or after the tally periods, a random sample of the tallied species is gathered to determine average weight. For the larger fish suitable for counting with a thumb counter (like cod), try to collect a minimum of fifty fish.

The target species may be counted in two different ways. You may actually count the target species and collect the bycatch yourself as they are leaving the net, passing on a conveyor belt, or being handled by the crew. A second possibility when sampling in a processing factory would be to use the automatic counters found on <u>some</u> of the processing machines. For a partial haul sample you note the count of the target species on the machine, move to the conveyor belt which feeds unsorted fish to that machine and collect all non-target species for your sample, and finally return to the processing machine to note the final count of fish processed while you were sampling. Be aware, the processing counter will only count fish that are put into the machine; fish that are too small, damaged, or simply fall on the floor will not be included. You must account for these "lost" fish in your partial haul sample weight as well. This method should not be used if you need the tally from more than two machines. When you are checking machine counts, sorting, and accounting for "lost" fish there are too many variables to keep track of on more than two processing lines.

When a sub-sample of tallied fish is taken for average weight, the number and weight data are recorded on the worksheet portion at the top of the 3US form. Calculate the average weight of the tallied species and multiply it by the total number counted. (In addition to a machine count, the total number must include your count of lost fish which dropped off the line before the automatic counter.) The total number of tallied fish and their calculated weight is entered on the keypunch portion of the form. The entries for the tallied species and bycatch species are all recorded under the same sample type, "P" for partial haul sample.

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

(# of tallied fish x avg. wt.) + wt. of discarded target sp. + bycatch wt. = sample weight

Prior Observers: There have been other methods for deriving a partial haul sample weight used in the past which are <u>no longer acceptable</u>. On a number of vessels there are two conveyor belts moving fish out of common fish bin. If you monitor one belt, you <u>cannot</u> 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 one 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. The third method which is no longer acceptable is timing either a crewman or a machine.

Basket Sampling

Criteria:

- When the catch is diverse in composition,
- you cannot whole or partial haul sample,
- for the preferable designation of a "Weighed" or "Basket" sample when a large portion of or the entire catch is actually weighed,
- or when the catch composition fits the definition of an Incentive Program fishery which stipulates that observers must use the "Basket" sampling 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. 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 a maximum of the total catch weight to a recommended minimum of 300 kg. If your sample weight is less than 300 kg your data will still be used if it was collected in a random, unbiased manner but an explanation will be requested. Be sure to record in the "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.

Since observers must avoid unconscious selection for certain sizes or certain species when obtaining samples, various methods have been used to obtain random, representative samples. On some ships it may be possible to get samples directly from the cod end by getting assistance from a crewman on the deck to hold a basket into the flow of fish as they fall from the net into a hatch opening in the deck. Another good method is to hold the basket where unsorted fish are falling from the live tank to a conveyor belt, or from one conveyor belt to another. 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. Sometimes the boards of a fish bin can be raised, allowing fish to spill out from a lower layer of fish into a basket, but be careful, this could be a size selective method.

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 allows you to gather your samples effectively from different parts of the catch.

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 and sort, count and/or 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) and the observer can work on all of the organisms contained in one of these checkers. If the blue baskets are used to collect fish on deck for a sample, be very careful to avoid size and personal bias in filling the baskets. 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 the basket.

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 plant sampling or when one species predominates in the sample. In this method, the unsorted fish are weighed, then 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 Weighed or Basket sample, the weight of a species group may only be obtained by actually weighing or by subtraction (of actually weighed fish). A species weight may not be obtained by the tally method.

Prohibited Species Sampling

Catch landed other than the target species is called incidental catch or bycatch. Among the species caught incidentally are those that have long been the target species of other U.S. fishermen. Therefore, these and species whose allowable catch is zero for protection are designated as "prohibited species" for groundfish vessels. Groundfish regulations state, " Each vessel must sort its catch as soon as possible after retrieval of the catch and, after allowing sampling by an observer (if any), shall return any catch of prohibited species or parts thereof to the sea immediately with a minimum of injury regardless of its condition."

Common Name:	Scientific Name:
Salmonids (includes steelhead)	Oncorhynchus spp.
Halibut	Hippoglossus stenolepis
King crab	Paralithodes spp. and Lithodes spp.
Tanner crab	Chionoecetes spp.
Herring	Clupea harengus pallasi

Also: 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 prohibited species listed above that are of particular importance for observer sampling are Pacific halibut, salmon, king crab, and Tanner or snow crab. As these are the target species of other fisheries, there is a great deal of interest concerning their number per ton of catch on domestic groundfish vessels. Determining the incidence of crab, halibut, and salmon is thus a high priority duty for observers. Since these species are normally relatively rare in the catch, whole-haul sample for prohibited species whenever possible.

Sampling for the incidence of prohibited species (crab, halibut and salmon) is just a specialized subset of species composition sampling even though it may be referred to as a separate operation. Remember that when sampling a haul, do not leave out any species or species group such as sampling only for prohibited species. Also, the four prohibited species groups do not have to have the same sample weight. For example, you may sample the whole haul for the more visually obvious species like halibut, salmon and King crab while basket sampling for the tanner crabs. Observers have experienced other types of problems in attempting to determine the incidence of prohibited species:

1. Presorting of the prohibited species by crew members on the trawl deck as the catch is emptied into the live tank is a bias problem for your sampling that must be dealt with. **Try to watch the dumping of each net you are going to sample to find out whether presorting is taking place.** If dumping a catch is done in stages, and you are working below decks, spot-check the operation and be aware of pauses in the routine that may indicate sorting activity on deck. Read the following section on presorting to choose a course of action.

2. If you are whole-haul sampling for prohibited species while trying to gather basket samples for the rest of the composition data, you may feel the need to be in two places at once. You will find it necessary to set aside (where?!) the basket-sampled catch as well as the prohibited spp. you are collecting for biological information so you can continue to monitor the catch for incidence of prohibited species. Space is often a limiting factor in establishing a method for sampling. Look and/or ask for a place to put your fish while you're working.

3. Occasionally a haul comes in with a high incidence of prohibited species. (i.e. >20 halibut, salmon or king crab and/or >50 Tanner crab.) You must decide whether it is possible to sort all of the prohibited species from the whole haul. If more than one prohibited species group is abundant, you should consider a smaller sample size. If there is a high incidental catch of only one prohibited species group, you could basket sample for that prohibited group and whole-haul sample for the others. Alternately, you might tally the numbers of the abundant prohibited species group(s) in the whole-haul sample and subsample for average weight and

biological information. Remember that you must at least have an accurate count (or, in the case of many small crab, an actual weight), of all of the prohibited species that occur within your sample weight.

Tanner crab, king crab and salmon must be grouped by species for catch message forms. If you sort from the catch an enormous amount (>300) of say, Tanner crab, and cannot separate them all into species groups, you will need to estimate the data for the unidentified crab based on a sub-sample. If 4 out of 95 crab are "other tanners," how many would be expected out of 562? (See 3US example 1.) Do this for both number and weight. Don't use average weights. Don't forget that the totals of numbers and weights on 3US must match the totals of the equivalent groups on the catch messages. Record these calculations on the worksheet part of Form 3US. The sub-sample should also be worked up for any other biological information required.

4. Sometimes halibut are too large or too numerous to weigh. In that case, measure the fish, look up the weight in the length/weight table for halibut and record the sum of the weights on form 3US. When there are lots of halibut, there may be many similar sized ones that can be counted and sub-sampled for average weight. Then there is often one or two really big fish (two meters or more) which the observer will measure and get a weight estimate from the table. (As in Form 3US, example 4.) This is fine so far, but the length data (Form 7US) must be from a **random** sample. To include the large ones with the randomly sub-sampled, "average-sized" ones constitutes a biased length sample! In this case, with one large halibut, toss a coin; for two or more large ones, relate the number of length measurements to include to the ratio of the number sub-sampled for length over the total number in the sample. Which of the large fish lengths to include, given two or more, is yet another random choice to make!

5. Sometimes a vessel will accidentally pick up a crab pot that has been snagged by the trawling gear. This incident would be recorded as a gear performance code two on form 2US (see instructions for the form). Also, note that you **do not count any crab that may be in the pot as part of your sampling for the incidence of King and Tanner crab.** You should note the incident in your logbook and include a description of the pot and identifying numbers, if any.

Sampling the Kodiak Catcher Boat Fleet

Sampling Kodiak Pollock Fisheries: Observers on shoreside delivery vessels out of Kodiak during pollock fisheries have a special set of circumstances that necessitate a specific sampling routine that is understood and followed by all observers. 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 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 here and it is very difficult to avoid sample bias when only part of a delivery is sampled. Therefore vessel and plant observers must carefully coordinate their work to completely sort observed deliveries. To accomplish this, 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. 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 arrange to relieve vessel observers on the sorting line and/or finish their samples for them as needed. In this way complete deliveries can be monitored for prohibited species. When sampling vessels delivering pollock to Sand Point, Chignik or other Gulf ports, this level of support may not be possible but plant and catcher boat observers could consider this as a sampling scheme suggestion.

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 its 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.

At the plant, there may be more bycatch in the delivery than expected and there may not be sufficient facilities, assistance, or time to sample the whole or even a large part of the delivery for all species. Additionally, there is the need for coordination between vessel and the plant observers who stand in for them. Coordination will work more smoothly if everyone is using the same routine. Therefore, we ask that observers sample for the composition of target and bycatch species at sea, basket sampling from unsorted catch.

Do not let the crew grab <u>any</u> fish from the net in front of you. 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, 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. Devote most of your energies to your composition sample -- your primary objective!

Typically, the crew will sort out the obvious prohibited species at sea and you will need to count, weigh, and measure them. From salmon take a scale sample and check for a clipped adipose fin indicating a coded wire tagged salmon. 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. As the ship delivers its catch, it will be necessary to sort the off-load only for the prohibited species.

Any catcher boat skipper may dump large amounts of catch at sea if they don't like the size of the target or the amount of bycatch in a net. When a vessel's catch exceeds its hold capacity they may try to bring in a deck load of fish held in the net. Some plants won't buy deck loads because of the fish getting too warm. So, sometimes skippers will top off their tanks and dump large portions of their last catch at sea. 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. This will also affect your catch message report on the CMA form. None of the species in the catch were 100% retained. If this happens, refer to the instructions for percent retained on the CMA form.

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. 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.

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. Sleep on board, even if your contractor has a place in town where you can stay. Delivery schedules and locations can change with little notice when the pressure is on to get back to fishing. <u>You should not leave and miss part of the off-load, unless a plant observer is ready to take over while you are away.</u>

If you are told the vessel won't off-load for some time, yet when you return you find they have off-loaded a portion of the delivery during your absence, get the weight of the off-loaded fish. Pumping out some fish and adding more cold seawater is often done to insure the temperature in the holds remains low enough to keep the fish chilled. Then find out what the plant personnel did with any prohibited species that have been sorted from your delivery.

If you have missed monitoring some of the off-load, the sample will have to be listed as a partial haul on each form 3US, since you did not monitor the entire delivery. <u>Do not</u> rely on plant personnel to have retained the bycatch sorted out while you were away. Experience has shown that this is too unreliable. If the prohibited species were placed back in your vessel's holds, <u>do not</u> expect that they were <u>all</u> of the prohibited fish from your off-load (or, all <u>from</u> your off-load) and use those numbers in any way. Plants have been known to put other vessel's fish in with yours, and often, prohibited fish or crab "disappear" if not guarded! You must ask about what has happened just to determine if the incidence of prohibited species in the remainder of the delivery has been skewed. If they put them back into the hold, consult with an Observer Program staff member as to how to handle the data. (Be sure to include the portion you did not monitor in your retained and total catch weights.)

Prohibited fish and crab found in monitoring these off-loads will have to be proportioned out by weight and number to the respective tows based on the relative catch weight proportions as well as your own judgement as to where they occurred. (If the ship took four hauls and you

think all of the salmon came from two hauls based on your sampling and observations, you could proportion the salmon to only those two haul weights.) Finally, 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.

Sampling the Dutch Harbor Catcher Boat Fleet

Sampling Pollock Fisheries: Observers on shoreside delivery catcher-only trawlers out of Dutch Harbor will be delivering to Alyeska Seafoods, the Unisea G1 or G2 plants, or Westward Seafoods. All of these plants have 100% observer coverage during the pollock and cod seasons. Since they are in such close proximity, the Unisea G1 and G2 plants usually have one observer covering both plants .

Many catcher vessels delivering pollock to Dutch Harbor plants do not sort their catch at sea except for occasional sharks to prevent the hoses from plugging when the delivery is pumped at the plant. In this case the observer may either whole-haul or partial haul the delivery at the plant. It is possible to whole haul at all of the plants in Dutch Harbor, but long deliveries (12 hours or more) will need assistance from the plant observer since whole-hauled deliveries must be monitored by an observer at all times. If a delivery cannot be whole-hauled because of excessive bycatch or an unreasonably long offload time, then a partial haul sample of at least one-third of the delivery is acceptable.

For catcher vessels that sort their catch onboard, prior to delivery, there are two sampling possibilities. If bycatch is sorted too quickly or there is more discard than the observer can reasonably weigh, the observer must basket sample at sea, taking care to collect samples from unsorted catch. If all the bycatch discarded at sea can be weighed by the observer, the delivery must be whole-haul sampled upon delivery at the plant. It is requested that the observer basket sample at sea as a back-up until he/she is sure that all discards can be weighed and whole-haul sampling is possible at the plant.

Please refer to the Kodiak vessel observer sampling text above for instructions on what to do if you miss monitoring part of a delivery and for proportioning delivery data.

Sampling Flatfish or Pacific Cod Aboard Catcher Boats

These fisheries differ 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 is to whole haul for prohibited species and basket sample for other species composition. Typically the crew will sort out the obvious prohibited species first and you will need to get their cooperation in not discarding the fish until you can count them (and get lengths, check for tags, collect some for average weight determinations and assess viability on halibut if possible). You can take a random subsample of the species to arrive at an average weight to apply to the discarded ones only counted. For halibut you can look up the weight in the length/weight table if you have obtained the length of each discarded one.

You won't be able to whole haul sample for species composition at sea for diverse catches but you may be able to get a larger sample size by using a checker bin of mixed fish for your sample. For sample weight, you could either take the area of the bin times the measured height of the fish in it, times the density for that haul or you could weigh the bycatch and count the predominant species in the checker bin, then apply species average weights taken from random subsamples to the tallied fish.

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. During your mid-cruise debriefing, advise your debriefer of the problems you encountered. The debriefer 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

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.

BIOLOGICAL DATA COLLECTED FROM PROHIBITED SPECIES

In addition to the numbers and weights of halibut, salmon, Tanner crab, and king crab per metric ton of catch, certain data are required on these groups by species, and in most cases, by sex. The additional data collected will consist of:

1. sex - except for halibut, for species composition Form 3US, designate halibut sex as "U"

2. measurements - measure the fork length of salmon and halibut; measure crab only if assigned to do so.

3. viability - all observers assess the condition of halibut in their samples along with the length measurement and record the length data on Form 7US by condition category, take viability data on crab if assigned this as a special project; any entries of salmon viability will have to be erased.

In most cases, it will be possible to obtain the data outlined above from all of the individuals observed in the prohibited species sample. However, in instances when there are too many of a given species group 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 50 Tanner crab per sample.** These are guideline numbers for minimum subsamples. Certainly, if you had only 65 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 incidence samples:

(a) Species identification--the six species which may be encountered are -- king, chum, sockeye, pink, coho, 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 the observer is not sure of the sex of a salmon or does not have enough time to sex it, the sex should also be listed as "unknown."

(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, (see "Length Frequencies" in a following section). 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, therefore, observers should take scale samples of the first 20 salmon of each species identified during the deployment period (regardless of the number of vessels the observer was on). The scale samples and data forms will also be used for ageing. Follow the collecting instructions in "Scale Samples and Random Stratified Otolith Samples" in a following section. Do not collect scales from salmon that are not part of your prohibited species sample unless they were tagged salmon.

(g) Check for missing adipose fin, fins that are clipped, brands, and tags. Salmon with these types of marks may also have been tagged with a coded wire in the snout. Follow the directions in the section on "Tagged Fish."

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 prohibited species incidence samples:

(a) Species identification--species 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 the observer is not sure of the sex of a crab or does not have enough time to sex it, the sex should also be listed as "U" for 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 in the "Tagged Fish and Crab" section.

(f) **When given as a special project**: Viability--an estimate of the survival chance of each crab. This estimate is based upon an appraisal of the condition of the crab upon release to the sea. For sampling refer to the guidelines for viability of halibut. Apply those same instructions when sampling for the viability of crab. Definitions of "excellent," "poor" and "dead" condition are listed below and are in the Appendix. Viability of crab

is recorded only on Form 3US. Viability and lengths of crab should be collected only by observers assigned this task as a special project.

(g) **When given as a special project:** Length--measure the 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 and measurements are taken only if given this as a special project. Lengths are recorded by sex not by condition on Form 7US.

Definition of King Crab and Tanner Crab Condition

Trawl, Longline, and Pot Vessel Catches

(1) Excellent: No sign of stress or dismemberment

(2) Poor: Alive but showing signs of stress--a few limbs may be missing; minor mouthpart movement may be the only sign of life

(3) Dead: No sign of life, or if alive, likely to die from major carapace fracture or dismemberments

Collecting Data From Halibut

(a) Numbers -- On Form 3US record the number of halibut that occurred in your species composition sample.

(b) Weight -- individual weights are not necessary, but you must obtain the total weight of halibut that occurred in the composition sample. Halibut that are too large to be weighed can be just measured and sometimes, (frequently on longline vessels) the length must be visually estimated. These lengths must then be looked up in the halibut length-weight table which follows (it's also in the Appendix) to obtain the corresponding weights. The total weights of halibut on 3US may then include these table weights of measured fish summed with scale weights of the halibut that could be weighed. Our preferences are: first that halibut should be actually weighed, second that they be actually measured, and tied for third preference is to estimate the length and use the length-weight table or apply an average weight to a count of halibut when the ones counted are all of a similar size.

(c) Lengths -- are measured and recorded to the nearest whole centimeter. Do not measure curvilinear length, take a straight-line measurement. Most if not all halibut lengths should be correlated with an appraisal of their condition as well (see next item below). Length frequencies of actually measured fish (no estimated lengths!) should be recorded by condition category on 7US (see 7US example). When possible, usually aboard trawl and pot vessels, take length measurements and viability estimates of all those in your sample unless faced with many halibut. In that case, measure a minimum of 20 and a maximum of 100 halibut per haul or set. Do not estimate viability and measure more than 20 halibut if they are alive and in good condition. If viability and length data

cannot be collected during sampling, a random sample of halibut from outside the sample or from a non-sampled haul or set may be collected for this purpose.

(d) Viability -- is an appraisal of the condition of the halibut - excellent ("E"), poor ("P"), or dead ("D"), **made at the point of their release back to the sea,** under their normal handling conditions. Catcher-only trawler observers sampling at processing plants should definitely record condition of halibut sorted out at the plant - unless they were delivered specifically because the observer had requested no presorting! Record halibut viability data from sampled hauls on Form 3US in columns 52 - 60. Record all measured halibut length and viability data on Form 7US.

If there were two halibut in a composition sample and they were examined for viability, and three **more** halibut from outside the sample were examined for their condition, two halibut would be recorded on 3US in columns 24 - 40 and five halibut would be recorded in the viability columns 52 - 60. Normally five halibut would be entered for that haul on 7US, assuming their lengths were measured, but if their lengths were not actually measured or if more halibut were measured but their condition was not assessed, the number of halibut on Form 7US may also be more or less than the 3US form. When the halibut entries in these three places cannot be cross-referenced, as in this example, please explain the data in the space for comments on Form 3US.

On 7US, record the condition code, "E", "P" or "D," instead of sex in column number 22. Actual measurements of halibut lengths are then recorded in ascending order under these condition categories. If no viability appraisal was made on some halibut but lengths were measured, record the lengths on Form 7US on a line with "U" in column 22 for condition.

(e) Do not sex halibut, not even the dead ones. Record the sex as "U" for unknown on Form 3US, column 19, and record the viability categories (E, P, D or U - when condition was not appraised) instead of M or F for sex in column 22 on Form 7US.

Viability of Halibut

One of our tasks is to assess the condition of halibut **upon release to the sea** as they are normally handled by the crew. If halibut are sorted out from the catch but then usually sit in a discard chute for a considerable time before going over the side, your condition appraisal should be done at the time of discard rather than at the time of sorting. However, as an observer's **primary** duty is to get accurate data on their incidence in the catch, you may need to hold them aside while you continue to sort or collect your sample, which may result in the halibut viability being affected by your sampling. If you cannot assess halibut condition during sampling, then when your primary work is done (and if you didn't sample the whole haul or set) try to take viability and length data from up to twenty halibut that weren't part of your sample weight but that were from the sampled haul or set. You may sample for viability of halibut in hauls not sampled for composition and this data will be used but it is of less use than viability and lengths taken on fish from a sampled haul or set. Remember, viability sampling should not take precedence over sampling for their incidental catch. Longline observers have specific instructions for viability and length sampling and monitoring for careful release of halibut.

Please refer to the longline section of this manual.

How halibut are handled is usually dependent on their size. Halibut that are a meter or more in size usually drop off of longline gear and are sorted out on the deck of a trawler, so these large ones may not be included in your viability data. Or on trawlers, presorted halibut may all be sampled for viability while only some of those that are dumped in with the catch are examined. This would result in data biased in favor of excellent condition. Carefully detail in your logbook circumstances like this that affect your data.

Trawler (including mothership) and pot vessel observers use the "Definition of Condition" table on the next page to determine the number of halibut in each category. The table for longline observers to use is in the longline section of this manual. Do not guess the condition of halibut that 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. Remember: the objective is to determine their condition upon normal release. It is <u>not</u> an assessment of their chances of survival.

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.

RELATIONSHIP OF HALIBUT LENGTHS TO WEIGHT (LIVE WEIGHT)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
10	.007	55	1.821	100	12.635
11	.010	56	1.930	101	13.049
12	.013	57	2.045	102	13.472
13	.017	58	2.163	103	13.905
14	.022	59	2.286	104	14.347
15	.027	60	2.414	105	14.799
16	.033	61	2.547	106	15.260
17	.040	62	2.685	107	15.731
18	.049	63	2.828	108	16.213
19	.058	64	2.976	109	16.705
20	.069	65	3.129	110	17.206
21	.080	66	3.288	111	17.718
22	.094	67	3.452	112	18.240
23	.108	68	3.621	113	18.773
24	.124	69	3.801	114	19.317
25	.141	70	3.978	115	19.871
26	.161	71	4.165	116	20.437
27	.182	72	4.358	117	21.013
28	.205	73	4.558	118	21.600
29	.229	74	4.763	119	22.200
30	.255	75	4.975	120	22.810
31	.284	76	5.193	121	23.431
32	.315	77	5.417	122	24.065
33	.348	78	5.649	123	24.710
34	.383	79	5.887	124	25.366
35	.421	80	6.132	125	26.035
36	.461	81	6.384	126	26.716
37	.504	82	6.642	127	27.409
38	.550	83	6.909	128	28.115
39	.598	84	7.182	129	28.832
40	.649	85	7.463	130	29.563
41	.715	86	7.751	131	30.306
42	.760	87	8.046	132	31.062
43	.820	88	8.350	133	31.831
44	.884	89	8.661	134	32.613
45	.950	90	8.981	135	33.408
46	1.021	91	9.307	136	34.216
47	1.095	92	9.644	137	35.038
48	1.172	93	9.987	138	35.874
49	1.253	94	10.340	139	36.723
50	1.337	95	10.700	140	37.586
51	1.426	96	11.070	141	38.463
52	1.519	97	11.447	142	39.354
53	1.615	98	11.834	143	40.259
54	1.716	99	12.230	144	41.178
				145	42.111

RELATIONSHIP OF HALIBUT LENGHTS TO WEIGHT (LIVE WEIGHTS)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
146	43.060	188	97.388	230	187.745
147	44.023	189	99.109	231	190.402
148	45.000	190	101.095	232	193.085
149	45.993	191	102.829	233	195.795
150	47.001	192	104.576	234	198.531
151	48.024	193	106.359	235	201.293
152	49.062	194	108.155	236	204.081
153	50.115	195	109.972	237	206.897
154	51.184	196	111.810	238	209.739
155	52.269	197	113.668	239	212.607
156	53.370	198	116.003	240	215.503
157	54.486	199	117.450	241	218.426
158	55.618	200	119.373	242	221.376
159	56.767	201	121.318	243	224.354
160	57.932	202	123.284	244	227.359
161	59.113	203	125.273	245	230.392
162	60.311	204	127.283	246	233.452
163	61.526	205	129.316	247	236.541
164	62.757	206	131.371	248	239.658
165	64.005	207	133.448	249	242.803
166	65.271	208	135.548	250	245.977
167	66.553	209	137.671		
168	67.830	210	139.817		
169	69.170	211	141.985		
170	70.505	212	144.177		
171	71.858	213	146.392		
172	73.229	214	148.631		
173	74.617	215	150.893		
174	76.024	216	153.179		
175	77.448	217	155.489		
176	78.891	218	157.822		
177	80.353	219	160.180		
178	81.833	220	162.562		
179	83.332	221	164.968		
180	84.850	222	167.399		
181	86.387	223	169.854		
182	87.943	224	172.334		
183	89.518	225	174.840		
184	91.113	226	177.370		
185	92.727	227	179.925		
186	94.360	228	182.506		
187	96.014	229	185.112		

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 trip of any fish or invertebrate, 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", (or "rockfish - unident.") 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.

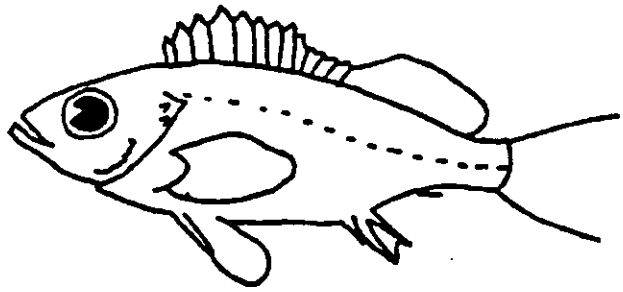
ROCKFISH SPECIES DESCRIPTION FORM

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.

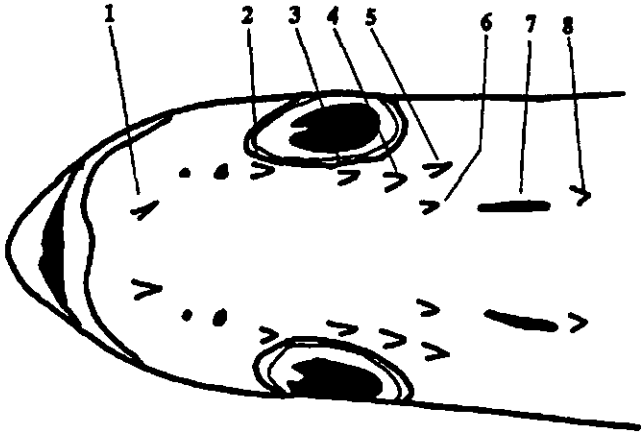
What color category of Hitz's would you place it in? _____

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.



Please indicate which pair 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: 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: _____

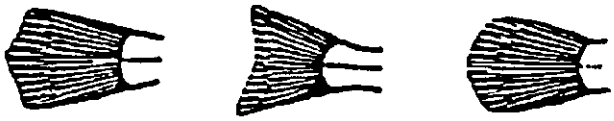
Was an example of this species brought back? Yes No
(Note: If this fish represents a range or depth extension, or a record in size, bring it back for species verification.)

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

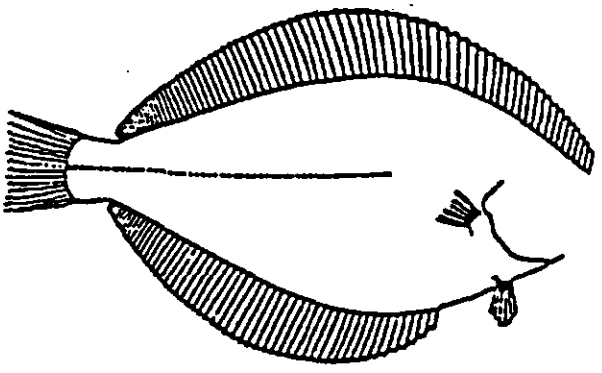
What is the shape of the posterior margin of the pectoral fin (on the eyed side)?
___ rounded
___ angular
___ pointed or extended (i.e. upper rays longer than lower rays)

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.

_____

_____

_____

_____

_____

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
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 CAMTSCHATICA
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
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
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
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
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
350	ROCKFISH, SHORTSPINE THORNYHEAD	SEBASTOLOBUS ALASCANUS
310	ROCKFISH, SILVERGRAY	SEBASTES BREVISPINIS
315	ROCKFISH, SPLITNOSE	SEBASTES DIPLOPROA
328	ROCKFISH, STRIPETAIL	SEBASTES SAXICOLA
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
240	SEARCHER, (RONQUIL) - UNIDENT.	BATHYMASTERIDAE
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	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
143	TURBOT - UNIDENT.	
102	TURBOT, GREENLAND (HALIBUT)	REINHARDTIUS HIPPOGLOSSOIDES
805	VIPERFISH - UNIDENT.	CHAULIODONTIDAE
757	WARBONNET, DECORATED	CHIROLOPHIS DECORATUS
899	WASTE FISH	
762	WEARYFISH, (PAPERBONES) - UNIDENT.	NOTOSUDIDAE
779	WOLFFISH - UNIDENT.	ANARHICHADIDAE
780	WOLF-EEL	ANARRHICHTHYS OCELLATUS
760	WRYMOUTH, GIANT	DELOLEPIS GIGANTEA
783	WRYMOUTH, DWARF	LYCONECTES ALEUTENSIS
999	Z SUMMATION LINE	CODE FOR FORM 3US ONLY

FORM 7US–LENGTH FREQUENCY OF MEASURED SPECIES

(Includes halibut, salmon, and crab measurements)

Jane Observer
Sea Gull

Cruise no.	Vessel code	Date		
		Year	Mo.	Day
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15
		94	09	17

1. Leading zeros in columns 12 and 14 only – as needed.
2. For motherships – leave columns 19–21 blank. For longliners – enter set no. in column 19.
3. Start a new row each time when entering data from a different sex, species, or haul.
4. Skip lines between species when space permits.
5. Start each day's measurements on a new side.

M = male
F = female
U = unknown sex
size groups: Fish by 1 cm.
Crabs by 5 mm
(1–5 = 3; 6–0 = 8)

Species name	Species code	Set/haul no.	Sex	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size group	Freq.	Size group	Freq.
	16–18	19 20 21	22	23–27	30–32	33–35	36–38	39–41	42–44	45–47	48–50	51–53	54–56	57–59	60–62	63–65	66–68	69–71
POLLOCK	201	101	M	261	32	1	33	2	34	5	35	2	36	2	37	2	39	1
	↓	↓	M	129	40	1	42	1	44	1								
↓	↓		F	300	33	4	34	9	35	12	37	4	38	1	43	2	45	3
POLLOCK	201		F	48	47	1												
OPILIO TANNER	5		M	247	73	1	83	1	88	1								
OPILIO TANNER	5		F	79	78	1												
BAIRDI TANNER	4		M	466	48	1	53	1	58	3	63	4	68	6	73	6	78	4
	↓		M	394	83	2	88	3	103	1	113	1						
↓	↓		F	468	43	1	48	2	58	1	63	6	68	8	73	10	78	9
BAIRDI TANNER	4		F	595	83	7	88	4	93	7	98	1	103	2	108	1		
PACIFIC HALIBUT	101		P	75	74	1												
P. HALIBUT	101		D	55	54	1												
KING SALMON	222		M	39	38	1												
"	222		F	44	43	1												
KING SALMON	222	101	U	41	40	1												
P. HALIBUT	101	103	P	77	76	1												
P. HALIBUT	101	103	D	397	57	3	59	1	64	1	67	2	69	2	71	1		
KING SALMON	222		M	223	52	1	53	1	58	1	56	1						
KING SALMON	222		F	144	41	1	47	1	53	1								
		↓																
CHUM SALMON	221	103	F	50	49	1												
P. HALIBUT	101	104	D	69	68	1												

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 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. **All observers:** Start each day's measurements on a new side of the two sided form. (Do use both sides of the page!).

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. Record the haul or set number in columns 19 - 21. All length frequency data must have a haul number assigned to it. Mothership observers: if item 2 in the heading of your 7US forms says to leave columns 19 - 21 blank, ignore that and enter the delivery number please. Catcher boat observers who could not collect fish for length measuring at sea must assign a haul number(s) (and corresponding date) to the data collected from the combined hauls delivered to the plant. Choose a haul from the area where most of the fish were caught.

4. Record lengths of sampling species, salmon (and crab, if assigned) by sex, coded "M" for male, "F" for female, and, if no sex is determined or the immaturity of the species makes sex identification impossible, code "U" for unknown. Do not sex halibut, not even the dead ones. Instead, record the viability categories, "E", "P" or "D" in column 22 for sex. When condition was not appraised but actual lengths of halibut were taken, record these lengths opposite a "U" in column 22.

5. The size group is the length measurement to the nearest whole centimeter for fish and to the nearest 5 millimeters for crab (1-5 mm = 3; 6-0 mm = 8). Record the size groupings in the shaded columns.

6. The 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 species/haul/sex designation.**

7. Start a new row each time there is a change in sex, haul number, or species, or when there are more than seven sizes in a group.

8. In the "keypunch check" columns 23 - 27, 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.

9. Note that more than one species can be recorded per page as long as each species is identified by name and code. **Skip a line between species unless it means going to a new page.**

10. Note that more than one haul can be recorded per sheet as long as the hauls all ended on the date written at the top of the page. Start each day's measurements on a new side and use both sides of the form.

11. Leading zeros should appear in the month, and day only (columns 12 and 14 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 observers should take length frequencies of all salmon and lengths and viability of halibut found in the prohibited species sample except when there are too many prohibited species to process in a reasonable length of time. For sub-sample guidelines, refer to the previous section titled "Biological Data Collected From Prohibited Species". A subsample should be a random sample as found in the catch. Do not select a single salmon (or crab) species for subsampling and do not bias a length sample for or against large halibut. Taking length data from the prohibited species in your samples is a higher priority than length frequency measurements of a sampling species.

Length frequencies are recorded by species and salmon (and crab, if assigned as a special project) are recorded by sex. Do not use, for instance, 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 and record this with their length measurement for Form 7US. The previous section, "Biological Data Collected from Prohibited Species" includes instructions for subsampling and a full listing of the data to gather for each group. Detailed instructions on taking scale samples for salmon follow in the section on scale sampling and Form 9US.

SELECTION OF A SAMPLING SPECIES

All observers are asked to take length frequencies. This includes 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 sampling <u>or from an unsampled haul or set</u>,** as long as they are randomly gathered. The selection of a sampling species for length frequency measurements of about 150 fish per day depends on your assigned special project and the target species of the vessel.

If you are not assigned an age structure (usually otoliths) collection as a special project,

your sampling species for length frequencies is the target species of the vessel. If you are assigned to collect age structures, your sampling species for length frequencies will be the same species you take age structures from throughout your sampling work aboard that vessel. There are additional considerations when your sampling species is not plentiful. Refer to the next section.

Assignments of an age structure collection will either be for a particular species or you will be given a table of roundfish and flatfish species-by-area to choose a sampling species from. If given a table, your choice will be dependent upon on what is abundant in the catches of your vessel. Age structure assignments will be for the "first half" or "second half" of your time at sea. The purpose of this is to spread out the sampling effort over time so this request can be adjusted as necessary to conform with your sampling aboard a vessel. Age structure collections are "by vessel" and so should be completed on one boat. Length frequency and all other data is also divided by vessel and so you may choose a new sampling species for length frequencies when you begin work aboard a different boat.

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 either a roundfish or a flatfish species. Others will be assigned to collect age structures from a particular species. While still others may be assigned a special project involving the collection of stomach samples, taking product recovery samples or other projects. Regardless of a special project assignment, all observers on catcher/processors should measure 150 lengths from a selected sampling species each day. Observers on longline, pot, or shoreside delivery vessels may not be able to measure as many fish.

If your special project assignment involves the collection of age structures, then the species that you choose, or are assigned for your collection, will be the same species that you daily collect 150 lengths from on board that vessel. If you are not assigned to collect age structures, then you should collect 150 lengths, on a daily basis, from the target species of your vessel. 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 group for that area which occurs most abundantly in the catch. This will make it easier for you to get 150 randomly collected lengths each day.

If an assigned species is not plentiful, your species composition sample may not contain sufficient fish for a good length frequency sample and you may have to gather fish from outside of your 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 obtain randomly selected fish from a larger sample population. Be sure to collect the additional fish required in an unbiased manner. If you cannot get 150 fish in a day of the sampling species, take lengths and age structures from those you did collect and, additionally, take approximately 150 lengths of the target species each day.

Try to work with the same sampling species throughout your work on any one vessel or plant, regardless of the area you are fishing. If your vessel should change fishing strategies,

move to a different fishing area or if you change ships, then you may choose a new sampling species. However, if you cannot continue the collection of age structures from a sampling species, don't keep a collection of fewer than 50 age structures. Dump it and start a new one. For instance, suppose that you started your sampling species age structure collection in area 513 when the ship was targeting on pollock. After only a few days, the ship moved to area 511 and began yellowfin sole operations. First examine a few catches to see if you could gather 100 - 150 pollock over the course of a day to continue a pollock collection. Also, the skipper might just be searching around and may return to better pollock catches. If this is not the case, you should examine your collection. If you have filled fewer than 50 vials with pollock otoliths, then dump the vials and start over with Pacific cod, another **roundfish** species*, which would be present with YFS as bycatch. If you have filled more than 50 vials, then keep the pollock collection and start a new collection of cod otoliths (and scales in the case of cod). *Roundfish otoliths are stored in a different solution than flatfish otoliths so it is best to pick another roundfish species of commercial value so you can use the storage media you were issued.

LENGTH FREQUENCY SAMPLING METHOD

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 are read to determine the corresponding age. The age/length relationship may be quite different for each sex of a species and may change from year to year.

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's preferred but not necessary that the fish be from a catch also sampled for composition. It is important, however, that any given sample is not selected on the basis of size.

Length frequencies are taken from fish that were collected in a random, non-size selective manner usually during your species composition sampling. Sex all the fish you have set aside for length measurements (refer to "Sexing Fish" in the Appendix). If you wanted to sample 50 fish for length frequencies and the sample you set aside only has 42 fish, don't bother collecting another eight fish. It is too easy to bias your sample by "picking" them out in an inappropriate manner. Group the fish into baskets by sex. 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).

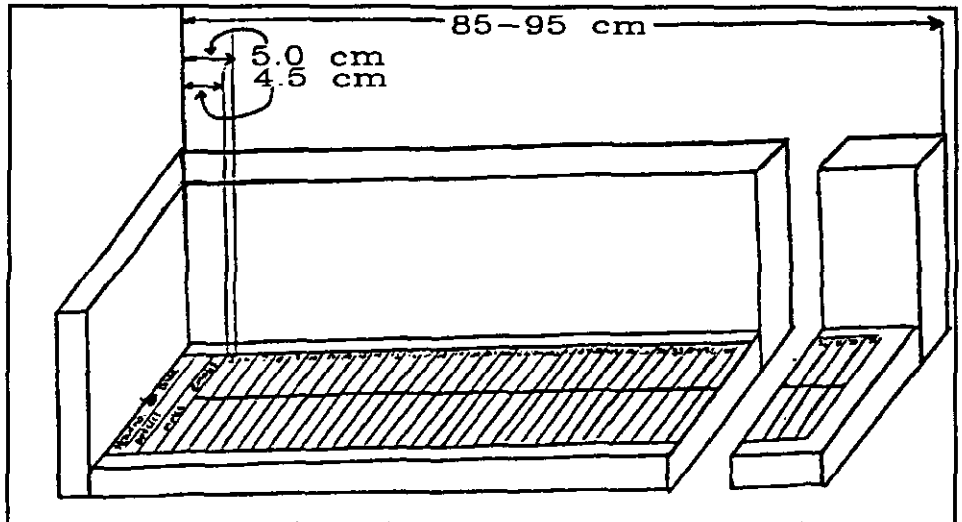
Next, set up a plastic strip on a measuring board, recording on it the haul number, date, and species. Observers on processors and trawlers must keep length frequency data for each tow separate. Record data from different hauls on different plastic strips. The plastic measuring strip is a long, narrow piece of white plastic divided into one centimeter spacings. The strip is attached by thumbtacks to a 3-sided, wood measuring board (bottom, end, and back boards). When using an aluminum measuring board, secure the plastic strip in place by putting a straightened paperclip through a hole pierced in the plastic which matches ones drilled in the aluminum. Re-check the position of the strip in relation to the upright at the end. For species

of fish whose length range is less than 75 cm, the strip must be positioned on the measuring board so that the first spacing line is at 4.5 cm from the board across the end and the **center** of the 5 cm space is at exactly 5.0 cm from the end board. Mark each 10th 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 the illustration following this section. To increase the length of a strip by ten centimeters, for instance, offset the strip so that the first spacing line is at 14.5 cm from the end board and the center of the first centimeter space is at 15 cm. The tenth centimeter units of the strip may then need to be renumbered accordingly.

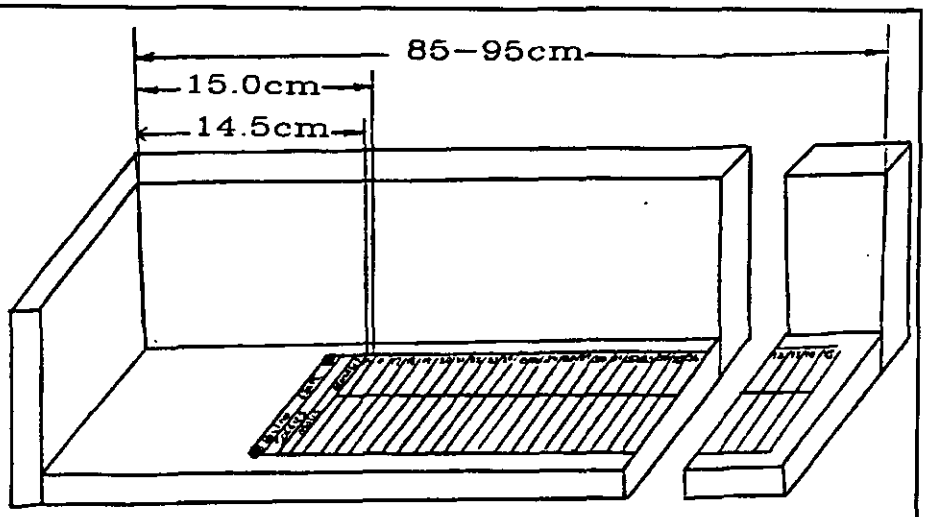
Take one of the baskets of sexed fish. Note that one side or half of the plastic strip is designated for males, and the other half for females. Position each fish on the measuring strip with jaws closed, snout against the end, dorsal surface against the back, and the fish body flat and straight. Spread the caudal fin with your hand to help determine the fork or midpoint of the fin's posterior margin. 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 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 right 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 "Scale Samples and Random Stratified Otolith Samples" in the following section.)

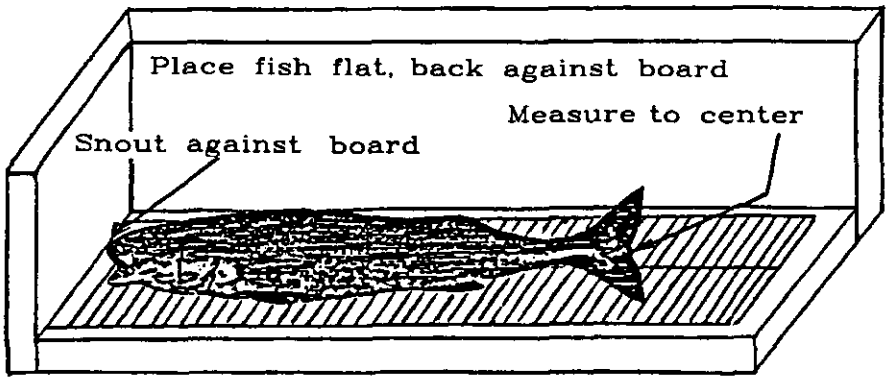
When starting to measure another basket of sexed fish, verify their sex and make sure you are recording their lengths on the appropriate half of the strip. At the end of sampling, the number of pencil strokes per sex, per centimeter length spacing will give the size group's frequency by sex.



Measuring strip set for most fish species.



Strip offset to measure larger fish.



Measurement of a roundfish on measuring board.

Jane Observer
"Sea Gull"

AREA 521

FORM 9US - BIOLOGICAL SAMPLING FORM

Cruise no.	Vessel code	Date Year	Date Mo.	Date Day	Species name	Species code	Specimen type	Sampling system
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23
		94	09	17	Walleye pollock	201	1	1

Total no. of specimens _____

Catalogue date _____

	Set/haul number 25 26 27	Specimen number 28 29 30	Sex 31	Length (cm) 32 33 34	Weight (kg) 35 36 37 38 39	Form 7 41	Maturity stage 42 43	Notes 44 45	Age 47 48 49	REMARKS
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					.					

SCALE SAMPLES AND RANDOM STRATIFIED OTOLITH SAMPLES

FORM 9US INSTRUCTIONS

Form 9US is used for recording biological information concerning individual fish. It will most often be used in recording the sex, length, and weight of fish whose age structures (scales, otoliths, or fin rays) are collected for future age determination. It is the record of associated data that must accompany scales of salmon caught incidentally as well as the age structure collections of a sampling species which may have been assigned to you.

1. Form 9US data sheets are filed separately by species and vessel. To make sure that you don't record coho salmon on the reverse side of a chinook salmon sheet, for instance, keep separate groups of pages for each species. 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) or 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 collecting age structures in this program. 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 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. Instead, you may be instructed to take age structures from every eighth, tenth, fifteenth (or other) fish to ensure that the fish selected are a random collection from the population at large. Salmon scale samples are an example of this because scale samples are taken from all of the salmon or a random subsample of all of the salmon.

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. Ignore "Total no. of specimens" and "Catalogue date," as this information will be filled in by others after you return.

9. On trawlers record the haul number in columns 25-27; on longline or pot vessels record the set number in those columns.

10. Note that data from several hauls/sets can be recorded per sheet as long as the hauls were begun to be retrieved or the set retrieval was completed on the date written on the top of the page and they were all taken from hauls/sets in the same area. Go to a new side only when all 37 lines are filled, when you are starting a new day, or a haul/set is in a different subarea.

11. 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.

12. 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.

13. It is best if the specimen data are recorded separately by sex on the form.

14. Record the sex of the fish using "M", "F", and "U" notation (M = male; F = female; U = unidentified).

15. Record the length of the fish to the nearest whole centimeter.

16. The weight is to be filled out to two decimal places. Add trailing zeros where necessary.

17. 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".

18. 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.

19. The columns to the right of maturity stage (columns 44 and above) 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 <u>their</u> notes in the "Remarks" section <u>beside</u> each line of entry.)

20. If you do not have the proper preservative for your age structures, as issued to you by this program, store your otoliths dry. Extra care must be taken to clean the otoliths before storing them dry. Rub them between your fingers and then rinse them to clean. You will be able to add the proper medium upon your return.

21. 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.

RANDOM STRATIFIED OTOLITH SAMPLING

Otoliths, or fish ear bones, are collected from a stratified sample of the catch for age determination later. These are read in a similar manner as tree rings to determine age. The fish you take age structures from are your biological sampling species and are a subsample of those in your length frequency sample. Thus, the use of the term "random stratified" which is used for a subsample, stratified by 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 <u>not</u> 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.

Otoliths are always collected while taking length-frequency measurements by sex from the sampling species. A running tally of your otolith collection on your plastic form 9 helps you keep track of what sizes and sex of fish are needed for your collection. (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 5.0 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, and place them in the vial. Place one set of two otoliths in 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.** Check the instructions for your sampling species in the table "Otolith and Scale Collection for Select Species" in the Appendix. 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 assigned to collect age structures, the species assigned will most likely be the target species of the vessel, or you will be asked to work on a specific species, or perhaps given several species to choose a sampling species from. If given a choice, your sampling species (one) will be dependent upon on what is abundant in the catches of your vessel. Age structure assignments will be for the "first half" or "second half" of your time at sea. The purpose of this is to spread out the sampling effort over time so this request can be adjusted as necessary to conform with your sampling aboard a 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 scheme used to identify the otoliths being collected. 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. If you have collected less than 50 age structures from a sampling species and you must disembark and start a new cruise, you should dump the age structures that have already been collected and start over on the new ship. (Note: You may be instructed to take two separate sets of otoliths--simply start your tally sheet over the second month.)

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 in the Appendix). 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.

Some fish with bony skulls and small otoliths, such as sablefish and some rockfish, may pose problems at first. You may want to use a small hacksaw instead of a knife. 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

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
65	M	32	.80	
66	M	40	.95	
67	M	35	.93	
68	M	34	.85	
69	M	34	.89	
70	M	42	.96	
71	M	44	.96	
72	M	33	.80	
73	M	35	.86	
74	M	34	.83	
75	F	34	.90	
76	F	35	.93	
77	F	33	.80	
78	F	43	.95	
79	F	34	.91	
80	F	45	1.05	
81	F	47	1.20	
82	F	43	.95	
83	F	34	.82	
84	F	38	.88	

Running Tally

cm	M	F	cm	M	F	cm	M	F
30			60			0		
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
39			69			9		
40			0			0		
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
49			9			9		
50			0			0		
1			1			1		
2			2			2		
3			3			3		
4			4			4		
5			5			5		
6			6			6		
7			7			7		
8			8			8		
59			9			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.

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.

SCALE SAMPLES

Salmon: For certain species of fish, the scale is the preferred structure for determining age; on some other species, otoliths are used. Scale samples should be taken from all salmonids in the incidence of prohibited species samples, or from a few of each species of salmon present in your sample. (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. "A" is the preferred zone, "B" is next in preference. Refer to the figures in the Appendix (Location of Preferred Scale Sampling Zones"). When there are no scales available in either zones A or B (on either side of the fish) then another area may be used.

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. For cod, use a clean, thin-edged instrument (knife, scalpel, forceps), scrape within the zone in an anterior direction (toward the head).

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.

Cod: From Pacific cod, scales as well as otoliths should be taken from a sample stratified by length and sex as explained in "Random Stratified Otolith Samples." Cod scales should be put into the vials of alcohol with the otoliths instead of into scale envelopes. The primary reason for this is to prevent the scales from sticking together so they can be mounted easily for reading. Thus it is important to insert the scales into the ethyl alcohol solution or at least cover them with solution before they dry rather than add the alcohol later after they have stuck to the vial and to each other.

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.

MARINE MAMMALS

FORM 10US - MARINE MAMMAL INCIDENTAL CATCH DATA

The Form 10US (in two parts) is filled out by all vessel observers for **any** marine mammal (or parts thereof) incidentally caught and for the recording of **any** harassment or any attempts to deter marine mammals from preying upon the catch. Also, all vessel observers record on the 10AUS each haul, delivery, or set randomly chosen which is monitored for incidental "take" of marine mammals, even if no marine mammals were seen. As in the incidence of other prohibited species, randomly selected, monitored catches are recorded because resource managers need to calculate the animals caught per unit of effort. ("Take" is defined as, to hunt, capture, kill or harass or to attempt these actions.)

Form 10US has two parts. **The 10A side of the form (as of 5/92) is for recording the randomly selected catches monitored for marine mammal interactions as well as any other occurrence of marine mammal catch, deterrence, or harassment whether in a monitored haul or not.** The back of the form 10B is for recording specimen data and remarks on occurrences entered on 10A. When a staff member reviews the Form 10US with the observer in debriefing, the debriefer will determine whether the incidents of deterrence or harassment are authorized or not. Cases of unauthorized harassment will be lined out on the 10AUS but will be dealt with as potential violations.

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. If you are informed about a marine mammal in a catch which you did not intend to sample, as of 5/92 these data are recorded on both the 10A and 10BUS.

For incidental catch rate monitoring on stern trawlers or on processing vessels 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 prevent presorting, and so they will know whether or not a marine mammal is in the catch, or is deterred or harassed. Some trawlers spill fish from only a couple sections of the codend 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 dumping, arrange to be notified of any unusual occurrences in the catch, insist on no presorting of catch and try to spot check the dumping operation as frequently as possible. Therefore, as a minimum, an entry should be made on 10AUS for every haul the observer samples for groundfish.

In addition, some observers will estimate the haul size for every codend that is brought on board to reliably estimate total catch size. In most cases the observer should watch those hauls being dumped so that additional entries can be made on Form 10A and 10BUS. 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.

Observers on longline and pot vessels do record their monitoring of set or string retrieval on Form 10US and information on any incidence of harassment or deterrence that occurs. Although it is less likely in these fisheries that marine mammals will become entangled or caught in the gear, it does happen, and the use of deterrence to protect the catch is most likely to occur on a longline vessel. Record whether or not any deterrence has been used for the portion of each set that you observed. Record the details of the use of deterrence on 10B--what form of deterrence was used, how effective it was, and whether the marine mammals appeared to be injured by it.

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. The percent of the set monitored is represented on 10AUS in column 23 by a single digit such as 5 for 50% or 8 for 80% of the set monitored. If the whole set is monitored for marine mammals, enter a zero for 100% in column 23. A zero entry is very different than a blank in column 23 which is used to record an incident in a non-monitored set. See also item 6. below.

Form 10A US

1. Fishery no. (col. 1 - 2) - Leave this code blank for the time being. (The fishery will be determined from the gear type, the area, and the depth fished (from 2US or 1US)).

2. Cruise no., vessel code, year (col. 3 - 13) - Fill in the cruise number (when known), vessel code and year in the heading; start a new sheet for each new vessel or cruise.

3. Date, haul/delivery/set number (col. 14 - 20) - Record the date and haul, delivery, or set number for each catch for which you know whether or not marine mammals were deterred or taken. Do **not** put a slash between your entries for month and day.

4. Marine mammal species - Write the common name of the marine mammal species involved. Write "None" if no marine mammals were taken or subjected to deterrence. With the exception of col. 23 for longline and pot observers, no further entries are made on 10US if "none" are observed. If you are not sure of an identification, use the broader classification, such as unidentified pinniped or unidentified dolphin/porpoise. If more than one species of marine mammal was involved in the haul, set, or delivery, enter the second species on a separate line.

5. Marine mammal species code (col. 21 - 22) - Record the corresponding code (see attached table) for the marine mammal species you recorded in #4 above.

6. Percent monitored (longline and pot observers only, col. 23) - record the first digit of the percent sampled, estimated roughly to the nearest ten percent. For example, if 40% of the skates, hooks, or pots retrieved were monitored for marine mammals, enter "4" in column 23. If the entire set was monitored, enter a zero. If a marine mammal is

deterred, harassed, or caught when the observer is not monitoring, leave column 23 blank and fill in all other appropriate information. Observers sampling trawl catches do not use this column.

7. Number of marine mammals (col. 24 - 39) - Except for the deterred category, a marine mammal recorded in one of these categories should not appear in any of the other categories--the categories are mutually exclusive. It is possible that an animal that was earlier deterred (or at least subjected to deterrence) might later become entrapped or be lethally removed.

Col. 24 - 25, Deterred/Harassed: Animals 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.

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 10US and reported to your debriefer.**

Col. 26 - 27, 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.

Col. 28 - 29, 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.

Col. 30 - 31, 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.

Col. 32 - 33, Unknown Condition: Those animals that are entangled or entrapped, but are lost or discarded before the observer is able to judge the animals' condition.

Col 34 - 35, 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.

Col. 36 - 37, Lethal Removal (not entangled or entrapped): 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.

Col. 38 - 39, Lethal Removal (entangled or entrapped): 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.

8. Did you observe MM (Y/N)? (col. 40) - Record "Y" here if you actually saw the animal, and "N" if you did not.

9. Random MM Hauls (Y/N)? (col. 41) - A "Y" (for "yes") entry here indicates that this catch was selected for monitoring before it could be known whether or not there would be a marine mammal caught, deterred, or harassed. Lines of data with a "Y" entry in column 41 will be summed for the incidental catch rate analysis. If you are not monitoring the catch and you happen to observe a marine mammal event or are called to the deck because of one, record the incident and enter "N" for "no" in this column.

10. Column 42 - This is for office use only, after you have turned in your forms. Please leave this column blank.

Form 10BUS

Form 10BUS (the back of Form 10AUS) has space for specimen information and for remarks about marine mammal entries on the front. The only marine mammal occurrence of catch, deterrence, or harassment which is not entered on 10A is the catch of marine mammal bones which are clean of any flesh. This may be documented on the 10BUS however. Use this form for all events entered on 10A. For example, fill out one Form 10B record (there is room for three records on the form) for every animal from which measurements or specimens were taken and for all remarks about an incident (see item 9. on Remarks, below). Use additional Form 10BUS's if you need more than three records to describe the Form 10A data.

1. Fishery no., cruise no., vessel code, year, date, haul/delivery/set number, marine mammal species code (col. 1 - 22) - Copy these data directly from the associated form 10AUS.

2. Haul sampled for fish (Y/N)? (col. 23) - Code "Y" here if you sampled the catch of fish for composition, and "N" if you did not.

3. Did you observe the marine mammal (Y/N)? (col. 24) - Record "Y" here if you actually saw the marine mammal, and "N" if you did not.

4. Sex (M, F, or U in col. 25): Record the sex of the animals. Code "U" if the sex is unknown. If multiple animals of different sex were deterred, it is not necessary to make separate 10B records. One record using the code "U" is sufficient in this instance.

5. Lengths: curvilinear and/or standard (col. 26-31) - Record the animal's length (in cm) in the appropriate field. (You may wish to refer to a following section, "Length Measurements of Seals and Sea Lions".)

6. Tooth collected (Y/N)? (col. 32) - Record "Y" if you collected a tooth; otherwise record "N". If "N", please indicate in the Remarks section why you did not take the snout or tooth.

7. Photo taken (Y/N)? (col. 33) - Record "Y" if you took photographs; otherwise, record "N".

8. Haul Position (col. 34 - 43) - Enter the latitude and longitude of each haul or set from which there are specimen data or remarks on marine mammals.

9. Remarks: **This is the most important part of recording the interaction.** Use this area to record the specific details of the interaction, and what characteristics were used to identify the animal.

   State whether or not you observed the marine mammal. If you did not observe the animal, briefly explain why not, and where you got your information. Was this a haul or set that you intended to monitor 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:
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?

Jane Observer
Sea Gull

Fishery #		Cruise #					Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11	12	13
											9	4

Form 10AUS - Marine Mammal Incidental Catch Data

Date - month & day	Haul, delivery, or set number	Marine mammal species (if none observed - write none)	Marine Mammal species code	% monitored (longline only)	Number of marine mammals: Deterred	Released or escaped alive (not injured)	Released or escaped alive (injured)	Freshly dead (entangled or entrapped)	Unknown condition	Previously dead	Lethal removal (not entangled or entrapped)	Lethal removal (entangled or entrapped)	Did you observe MM (Y/N)?	Random MM hauls (Y/N)?	Confirmed by MM staff (y/n)
14 |15 16 |17	18 | 19 | 20		21| 22	23	24|25	26 | 27	28 | 29	30 | 31	32 | 33	34 | 35	36 | 37	38 | 39	40	41	42
0917	101	NONE													
0917	102	Northern Sealion	EJ					1					Y	Y	
0917	103	Northern Sealion	EJ					1					Y	Y	
0917	105	Northern Sealion	EJ					1					Y	Y	
0917	105	Fur Seal, northern	CU					1					Y	Y	
0920	109	NONE													
0921	112	Fur Seal	CU					1					N	N	
0921	113	NONE													
0921	114	NONE													
0922	118	NONE													
0922	119	Northern Fur Seal	CU							1			Y	Y	

The number and type of entries on this form are not realistic for any one vessel but are shown just as an example of the different records that are possible.

Form 10BUS - Specimen data and remarks on marine mammal subject to deterrence or taken in catch

Fishery #		Cruise #				Vessel code					Year	
1	2	3	4	5	6	7	8	9	10	11	12	13
											9	4

Describe features used in identification; circumstances and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date - month & day	Haul, delivery, or set number	Marine mammal species code	Hauls sampled for fish (Y/N)?	Did you observe MM (Y/N)?	Sex (M, F, or U)?	Lengths: Curvilinear length in centimeters	Lengths: Standard length in centimeters	Tooth taken (Y/N)?	Photo taken (Y/N)?	Haul position: Latitude	Haul position: E or W	Haul position: Longitude
14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37	38 | 39 | 40 | 41 | 42 | 43	
0917	105	EJ	Y	Y	M		260	Y	Y	5838	W	17654

Remarks : (see manual for list of required information)

Sea lion was found as haul dumped. It was not decomposed and only wounds were near mouth. Animal was over 2 meters long, light brown color, large foreflippers, external ears.

14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43
0917	105	CU	Y	Y	M		132	Y	Y	5838 W 17654

Remarks : (see manual for list of required information)

Dark brown color w/o markings, external ears. Really long hind flippers, round head with big eyes and short snout. Came up entangled in the net webbing, on the outside of net. No wounds, freshly dead.

14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43
0921	112	CU	N	N	U			N	N	5841 W 17653

Remarks : (see manual for list of required information)

I was asleep during haul 112 retrieval. A decomposed (flipper missing and coat torn, bad smell) fur seal was trawled up. Crew members said it was almost 2 meters long and "looked just like the last one we got, only more torn up.", meaning haul 105 CU.

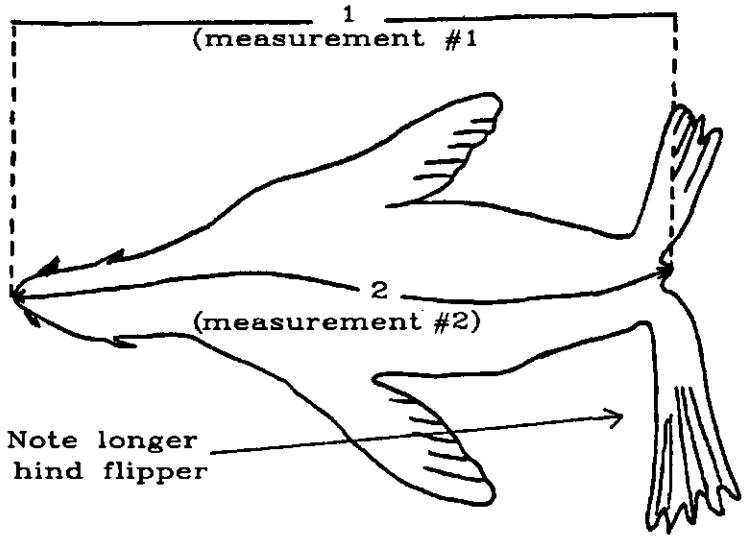
Common and Scientific Names and Species Codes for Marine Mammals
(NE indicates no equivalent)

Code	Common Name	Scientific Name
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
UX	Unidentified small whale	NE
PM	Sperm whale	Physeter macrocephalus

(List continues on the next page)

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
UZ	Unidentified large whale	NE
UW	Unidentified whale	NE
UM	Polar bear	Ursus maritimus
ZZ	Unidentified marine mammal	NE

Length Measurements of Seals and Sea Lions

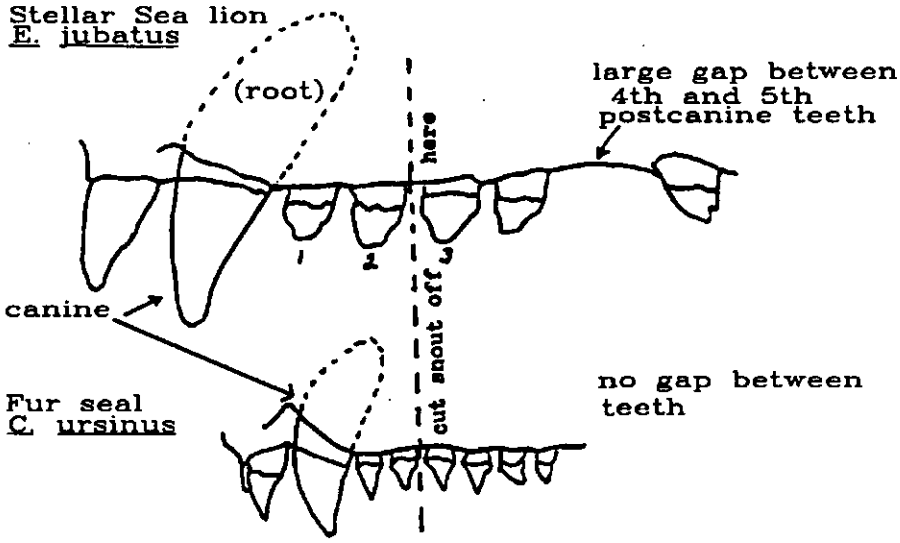


Upper half of the diagram is a Stellar Sea Lion, the lower half a Northern Fur Seal.

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. Skin and cut off the snout, taking care not to damage the root of the canine tooth.

2. 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).

3. 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.

4. Do not preserve the snout in formaldehyde.

FORM 11US - MARINE MAMMAL SIGHTING FORM

This form is designed to gain information about marine mammals sighted, other than those subject to harassment or brought up in the fishing gear. Most 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 all species of marine mammals that you might 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 make a complete description with copious notes and illustrations as necessary, to fully describe any new species of marine mammal sighted. Records of species which are not fully documented and have not been previously encountered, will probably not be verifiable at a later date.

Note: Do not fill in shaded boxes.

1. NAME: In the upper left hand corner of the form, write the observer's and vessel's names. In addition, enter the cruise number and vessel code in columns 65-72 at the bottom of the page.

2. DATE (7 - 12): Note proper sequence (yr./mo./day)

   TIME (13 - 16): Time of sighting is logged when the animal is first seen. Times should be logged in Alaska local time (ALT).

3. LATITUDE (18 - 22): To tenths of minutes, if possible.

4. LONGITUDE (24 - 30): Include "1" for the one hundred degrees of longitude, unlike the haul and set summary forms. Also 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.

5. SPECIES: Write in both the common and scientific name of the animals. Do not enter a species name unless you are absolutely positive. If you are the least bit unsure of the animal's identity, enter as "unident. large whale", "unident. porpoise", etc. Remember that an erroneous identification is worse than none at all. It is very important that you list all of the characteristics that led you to an identification of the marine mammal. Important things to make notes on are listed in number 17 "Identification" of these instructions. If more than one species are sighted at the same time, note the association (if any) in the comments section and fill out a separate sighting form for each species.

6. NUMBER SIGHTED: If unable to count the animals, estimate the number seen in terms of a range (e.g., 30 + or - 5). For Dall's porpoise, note if you see more roostertails than the actual number of animals that come to the boat. (There is evidence that schools may split up.)

7. INITIAL SIGHT 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 marine mammal? Examples are:
   - blows
   - splashes
   - the animal's body
   - roostertail splashes
   - flukes or fins
   - presence of birds above

8. ANGLE FROM BOW (47 - 49): Consider the ship a 360 degree circle when recording sighting angle; dead ahead being 000 degrees and dead astern being 180 degrees.

9. INITIAL SIGHTING DISTANCE: Note distance in nautical miles, yards or meters - whichever you are most comfortable with. Convert to 10's of meters, no decimals, and place in boxes 50 - 52. Round to nearest 10 meters. Remember that boxes 47-52 are right justified (e.g., l00 meters = l0 in boxes 51 - 52).

10. VISIBILITY: Note visibility in miles (mi.) or kilometers (km), if good weather, or in meters (m) or yards (yd), if poor (e.g., fog).

11. BEAUFORT SCALE: From the scale of sea and wind conditions (listed on a following page), choose the Beaufort scale number that best describes the conditions during your sighting. (Note: The Beaufort scale actually goes up through 10 - storm, 11 - violent storm, and 12 - hurricane, but these codes are not appropriate for sightings.)

12. VISIBILITY CODE: Do not fill in (box is shaded).

13. WEATHER: Rain, fog, blue skies, overcast, etc. Also note wind speed if available.

14. SURFACE WATER TEMPERATURE (54-56): Record the temperature in degrees Celsius rounded off to the nearest whole degree. If below freezing, place a "-" in box 54. If above freezing, place "+" in box 54. The surface water temperature can be obtained by the ship's engineer from the engine inlet thermometer. $C^{\circ} = 5/9(F^{\circ} - 32)$.

15. PLATFORM CODE: Do not fill in (box is shaded).

16. TIME ZONE: Do not fill in (box is shaded).

17. IDENTIFICATION: This section is one of the most 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!

Important things to look for and make notes on when attempting to make an identification are: (Make notes under "17. Comments" and circle the characteristics on back of the Sighting Form)

A. Shape and size of dorsal fin and its position on the body. If possible, also note size and shape of tail and flippers.

B. 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 Stellar sea lion" or "slightly smaller than adult male killer whale."

C. General shape of body (slender or robust).

D. Shape and size of snout. Is it long or short (estimated length in inches)? Is there a definite break between snout and forehead? Is the forehead markedly bulbous?

E. Color pattern on fins and body (stripes, spots, patches, mottling).

F. Shape, location, and direction of spout. Is it single or double? Where is spout located on head? Does it lean forward or go straight up?

G. Scars and scratch marks

BEHAVIOR COMMENTS: Also be generous with narrative of animal behavior. If there are several animals, are they in a tight school, a loose school, or scattered either singly or in small groups? Do the animals approach the vessel and ride the bow wave? Note 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 leave "tracks" or swirls on the surface when they are submerged? 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? **Note how close the animal approached the vessel.** Were the marine mammals attracted to the ship by the net retrieval? Were they feeding off discarded fish and fish parts? Are these mammals possibly the same ones that you have previously reported seeing?

18. Enter your cruise number and vessel code (when known) in columns 65 - 72.

Beaufort Wind Force Scale[1]

Beaufort Scale	Wind Description	Wind Speed (Knots)	Sea Conditions	Wave Ht. (in ft.)
0	Calm	0 - 1	Sea smooth and mirror-like	-
1	Light air	1 - 3	Scale-like ripples without foam crests.	1/4
2	Light breeze	4 - 6	Small, short wavelets; crests have a glassy appearance and do not break.	1/2
3	Gentle breeze	7 - 10	Large wavelets; some crests begin to break; foam of glassy appearance. Occasional white foam crests.	2
4	Moderate breeze	11 - 16	Small waves, becoming longer; fairly frequent white foam crests.	4
5	Fresh breeze	17 - 21	Moderate waves, taking a more pronounced long form; many white foam crests; there may be some spray.	6
6	Strong breeze	22 - 27	Large waves begin to form; white foam crests are more extensive everywhere; there may be some spray.	10
7	Near gale	28 - 33	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind; spindrift (wind-blown sea spray) begins.	14
8	Gale	34 - 40	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well marked streaks along the direction of the wind.	18
9	Strong gale	41 - 47	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble, and roll over; spray may reduce visibility.	23

[1]Piloting, Seamanship and Small Boat Handling by Chapman. Copyright 1977, The Hearst Corporation, New York, N.Y.

Form 11US - Marine Mammal Sighting Form

DO NOT FILL IN SHADED ☐ BOXES

Record ID [ ][ ][ ][ ][ ][ ] (1 2 3 4 5 6)

1. Observer Name Charlie Tuna

Vessel Name American Boat

2. Date (Yr./Mo./Day) and time (ALT) of Sighting — year / month / day: [9][4][1][0][1][1] (7 8 9 10 11 12); time in ALT: [1][3][0][0] (13 14 15 16)

3. Latitude (degrees/minutes/10ths) - N or S — degrees / min / 10ths: [5][4][5][9][4] (18 19 20 21 22); [N] (23)

4. Longitude (degrees/minutes/10ths) - E or W — degrees / min / 10ths: [1][5][7][3][6][8] (24 25 26 27 28 29); E/W: [W] (30)

5. Species Unidentified Balenoptera Balenoides sp.
Common Name / Scientific Name [ ][ ] (33 34) Tentative [ ] (35)

6. Number Sighted 7 + or - 2 C.I. [ ] (36) [ ][ ][ ][ ] (37 38 39 40)

7. Initial Sight Cue Blows and bodies surfacing in a concentrated area [ ][ ] (45 46)

8. Angle From Bow [ ][9][0] (47 48 49) 9. Initial Sighting Distance 2 mi [3][2][2] (50 51 52) 10's of meters

10. Visibility 5 mi 11. Beaufort Scale 3 12. Visibility Code [ ] (53)

13. Weather and Wind Speed Cloudy, Lt. rain, 10knts 14. Surface Water Temp. (°C) [+] (54) [0][9] (55 56)

15. Platform Code [1][9][9][4] 16. Time Zone [ ] (61) [ ][ ] (62 63)

How did you identify animal(s)? Simply sketch and describe animal, associated organisms, any behavior (include closest approach), comments.

Straight tall blows, very falcate dorsal fin. 7±2 animals about 2 miles off starboard beam heading slowly away from our ship. Observed blows followed by dorsal fin after blow disappeared. Chief officer pointed out a large concentration of plankton on the fish finder.


Dorsal fin


Blow

Cruise Number and Vessel Code

[1][8][1][3][A][5][2][1][ ][ ][ ][ ][ ][ ][ ][ ] (65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80)

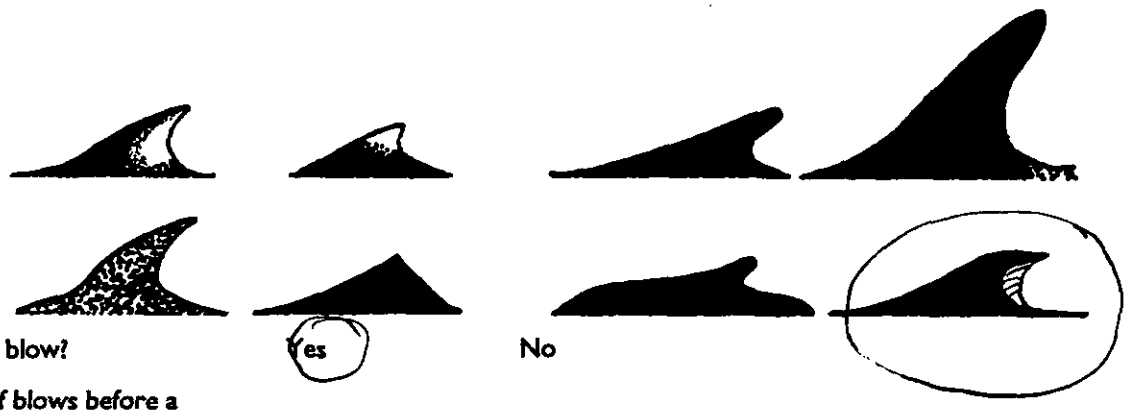
To aid in your identification of whales and porpoises, circle the characteristics corresponding to the features you observed

Body length (estimation): <10 feet (10-25 feet) 50-80 feet

Dorsal fin? (Yes) No

Shape of dorsal fin:

Porpoises/dolphins 1 — 2 feet **Whales** 0 — 5 feet

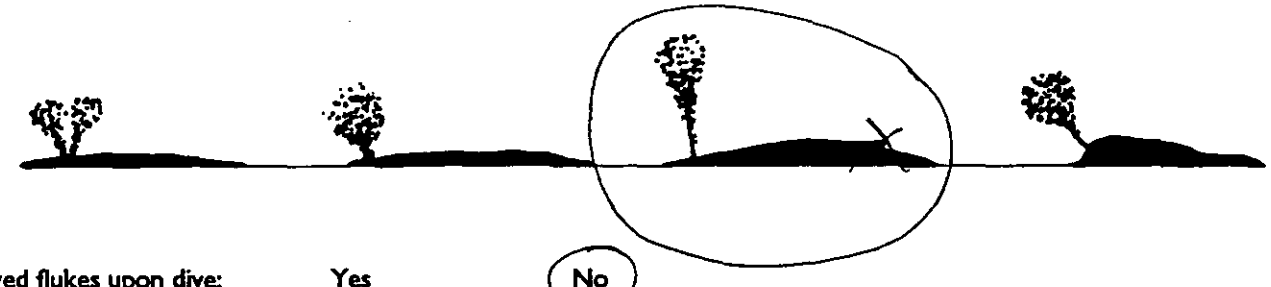


Prominent blow? (Yes) No

Number of blows before a long dive: N/A 1-3 4-7 8-15

Length of dive: (≤2 min.) 5-7 min. 10-20 min.

Shape of blow:



Showed flukes upon dive: Yes (No)

Other behavior characteristics: No specific behavior; Bow riding; Following vessel; Slow rolling; Breaching; Porpoising; Stern riding; Other Feeding ?

Distinctive markings (scarring, white patches,etc.):

None Observed

BIRDS

INTRODUCTION

The National Marine Fisheries Service and U.S. Fish & Wildlife Service are cooperating to obtain accurate information on 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 begun in 1990 are being expanded for the 1993 season. The major change is that we are asking observers to provide more 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 of these 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, 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.

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 indicates that the species most likely to be trapped by longline gear in Alaskan waters are: black-footed and Laysan albatrosses; northern fulmars; short-tailed and sooty shearwaters; black-legged kittiwakes; and glaucous-winged and herring gulls. Common and thick-billed murres, and marbled and Kittlitz's murrelets are the species most likely to be taken in nets 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. Many species that are closely related are nearly 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 (plural = taxa; singular = taxon), 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 taxa. 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 code can be accompanied by noting 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 identified to determine either 1) which of the broad species groups (taxa) the specimen(s) belongs to, or 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 species that you feel confident of and be sure to list the characters used to make the identification in the seabird section of your logbook. All birds of the same taxon 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 for trawl (manual section 3), longline (manual section 5), or pot (manual section 5) vessels.

OTHER MORTALITY FACTORS

There are anecdotal notes referring to bird mortality caused from birds flying into vessels. Comments range from the occasional bird found on deck to stories of massive flocks flying into vessels, also 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, 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 these data. 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 taxa, 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 in your logbook section on birds. To fulfill the objectives outlined above, you should record:

1. Species identification: Use the materials provided in your identification manual and the codes established for the different taxa to record the species or species group involved. Provide verification by listing the characters used to make the identification.

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 taxa 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.); time and duration of event; if at night were vessel lights on, how many lights, and relative brightness (illuminating the deck or just running lights); vessel location; and weather (clear, fog, or rain; wind speed and direction).

OTHER ITEMS OF CONCERN

Banded Birds: The U.S. Fish and Wildlife Service maintains a database on all banded birds. Recoveries of these bands provides valuable data on distribution, movements, survival rates, and other information. Please use your observer logbook to record information on banded birds. If birds are recovered alive, handle with care, record as much information as possible taking care not to harm the 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. 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.

Record in your logbook the following information: species, date, location, sea surface temperature, legband information (band number, type, and location), and if the specimen was saved. To assist with observations of banded birds, colored plastic bands are sometimes used, either singly or in conjunction with other bands, colored or numbered. These bands are 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.

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 glaucus gull, are quite numerous, especially around fishing vessels where they feed on offal as the catch is processed. It is unnecessary, and in fact overly burdensome, for observers to record sightings of these species. There are, however, five species of special concern which possibly occur in marine areas used by commercial fishing fleets. These species are the short-tailed albatross, red-legged kittiwake, marbled murrelet, spectacled eider, and Steller's eider. Under the Endangered Species act, a species or population can be listed as endangered or threatened. Further, a species or population could be a candidate for listing, where it would be classified as category one or two depending upon the status of the review. Category one indicates the available data are under review or review is pending, category two indicates additional data are required. 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. Note, however, that marbled and Kittlitz's murrelets are extremely difficult to differentiate. Other species, however, exhibit characters which are diagnostic, enabling accurate identifications even from a distance.

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.

   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.

Taxa group	Species Code
Loon unident (Gaviformes)	844
Grebe unident (Podicipedformes)	846
Tubenoses unid (Procellariformes)	848
Albatross unident (Diomedeidae)	849
*Short-tailed albatross	850
Laysan albatross	851
Black-footed albatross	852
Shearwater/petrel unident	853
Northern Fulmar	854
Storm-petrel unident	858
Cormorant	861
Waterfowl unident (Anseriformes)	863
**Spectacled eider	864
**Steller's eider	865
Shorebird unident	867
Phalarope unident	868
Jaeger/skua unident	871
Gull unident (Larinae)	874
*Red-legged kittiwake	875
*Black-legged kittiwake	876
Tern unident (Sterninae)	880
Alcid unident (Alcidae)	883
Guillemot unident (Cepphus sp.)	884
Murre unident (Uria sp.)	887
Puffin unident (Fratercula sp.)	890
Auklet/murrelet unident	893
Marbled murrelet	894
Seabird unident	897
Land bird unident	898

* Record also as adult = A, sub-adult = S, immature = I, or unknown = U.

** Record also as male = M, female = F, or unknown = U.

OBSERVING ON LONGLINE AND POT FISHING VESSELS

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.

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 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 sablefish (also called black cod), Pacific cod, or Greenland turbot. Halibut are primarily fished with longline gear also but as they are managed separately from groundfish species, observer coverage is not required during halibut season openings.

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. 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 the 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 target species 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 normally use their own catch estimates for the "Official" Total Catch.

On some boats, observers may be able to sample whole sets and then no extrapolation is necessary. 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, your **independent** catch weight estimate is based on sample data, extrapolated to the whole set using the following proportion. See the section on longline species composition sampling to reference how sample weight is obtained on longline/pot vessels.

$$\frac{\text{Weight sampled}}{\text{Hooks or pots sampled}} = \frac{\text{Estimated total catch wt.}}{\text{Total hooks or pots retrieved}}$$

Keep in mind that a catch estimate derived from this formula relies on hooks retrieved. If you have verified how many hooks were set per skate or magazine, remember to subtract for gear lost or hooks entangled and unfishable. (If some of the gear is lost or tangled, list that set with a gear performance code 5 on the 1US and note what happened in the margin and in your logbook.)

If the observer's catch weight estimate is used as the official total catch weight, 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. If accurate production data are available for an unsampled set, those data, with the OTCs and retained catch weights from similar sets that were sampled can be utilized in the formulas that follow for obtaining catch weight of an 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.

$$\frac{\Sigma \text{ sample wt. of sampled sets}}{\Sigma \text{ sampled hooks or pots in sampled sets}} = \frac{\text{Total catch wt. of an unsampled set}}{\text{No. of hooks or pots in an unsampled set}}$$

When your species composition of the sampled portion of a set does not seem representative of the whole set, you may decide that the ship's estimate of retained catch for the set plus an estimate of only the bycatch and longline drop-offs extrapolated from the observer's samples yields a more accurate estimate of total catch. Then use the following formula for the bycatch and dropoffs:

$$\frac{\text{Wt. of bycatch + drop-offs in sample}}{\text{No. of hooks or pots sampled}} = \frac{\text{Bycatch + drop-offs in set}}{\text{Total hooks or pots in set}}$$

Next, sum the: Round wt. of retained catch + the extrapolated bycatch and drop-off wt. in set = Official Total Catch

The first two equations are used to extrapolate a total catch weight based on fishing effort (number of hooks). The last formula above utilizes primarily the round weight of retained catch and uses fishing effort only for extrapolating bycatch. The following equations utilize only the composition sample weight and the retained catch weight. You might use these equations if you are not confident of the hook count in the set.

$$\frac{\text{Total sample weight}}{\text{Weight of retained fish in sample}} = \frac{\text{Total catch weight}}{\text{Wt. of retained fish in set}}$$

For unsampled sets, you could then use:

$$\frac{\Sigma \text{ Sample weights of like sets}}{\Sigma \text{ Retained fish wt. in samples}} = \frac{\text{OTC of an Unsampled set}}{\text{Rnd wt. of ret. fish in unsamp. set}}$$

Since an important variable in the equations for the official and observer's catch estimates are the number of hooks or pots retrieved per set, 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 are lost, the number of hooks per skate will change and the number of skates or units of gear will probably be less. This needs to be recorded on the 1US form. Check the number of hooks/set more often if you note gear lost, skates cut, or the crew not replacing hooks 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, depending on whether broken hooks are also counted and whether their number is significant. Verify hooks counted by the machine against your own tally of some of the skates when not sampling. Hooks subsequently lost will have to be subtracted from the machine tally.

2. Once a week or more often, take sample counts on as many skates (or tubs) as you can and multiply the average number of hooks per skate times the total number of skates.

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.

Retained Catch Estimates - This is the round weight, in metric tons, of the catch retained on board the ship. Most observers find it easier and most accurate to use their own estimates based on sampling. If you keep track separately of the target species being landed versus the ones dropping off the line, you can easily multiply the tallied landed target species by its average weight and then extrapolate that sampled weight to the whole set using:

$$\frac{\text{\# retained fish landed} \times \text{average weight of that fish}}{\text{\# hooks sampled}} \times \text{Total number of hooks in set}$$

If your vessel makes accurate estimates of retained weight per set, and you have frequently verified their counts and weights, you might use the ship's weight of retained fish (converted to round weight) for RTC. On catcher/processors, the retained catch might be the total product weight converted to round weight using product recovery rates. On catcher vessels, as a last resort, you might use the delivery weight (converted to round weight) divided proportionately among the sets. If you do use non-whole fish weight and have to use a product recovery weight to convert the data to round weight, you need to sample to determine the

correct prr (see appendix for sampling instructions) or work with ship's personnel to verify their rate. Use the NMFS prr table only as a last resort. Those numbers represent averaged rates and very likely do not apply to your individual vessel.

On unsampled sets, an adjustment factor calculation from similar sets can be used:

$$\frac{\Sigma \text{ retained wt. of sampled sets}}{\Sigma \text{ sampled hooks or pots in sampled sets}} = \frac{\text{Retained wt. of unsampled set}}{\text{No. of hooks/pots in an unsampled set}}$$

Cruise number					Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11
									9	3

Observer Name OLIVIA OBSERVER

Vessel Name SWELL

Page 1 of 3 for transmission

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Page 1 of _____ for vessel

1. Leading zeros in columns 12, 14, and 33 to 36 only.
2. Skip a line after each day.
3. On days with no sets retrieved, enter date, noon position in columns 24 to 32 and set number = 0
4. Two digits are required in columns 63+64, 68+69, and 73+74.
5. For depth in column 41 use: M = meters and F = fathoms

Seas sampled	Date MO.	Date DAY	Set #	Gear type	Gear performance	Processing mode	Location code	End position of set: Latitude (N)	E or W	End position of set: Longitude (100)	Soak time hrs|min	Avg. bottom depth	M or F	# of skates in set or total # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Retained Catch: round weight in metric tons	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	ADF&G statistical area
	12|13	14|15	16 - 18	19-20	21	22	23	24 - 27	28	29 - 32	33 - 36	37 - 40	41	42 - 44	45 - 48	49 - 52	56 - 60	61|62|63|64	65|66|67|68|69	70|71|72|73|74	75 - 80
✓	10	22	7	8	1	1	R	5534	W	6842	10|45	325	F	10	300	140	1400	1.62	2.80	2.80	685530
✓	10	22	8	8	1	1	R	5542	"	6842	12|10	285	"	10	"	"	1400	.78	1.95	1.95	"
✓	10	22	9	8	1	1	R	5528	"	6821	12|20	165	F	10	"	"	1400	1.57	3.64	3.64	685530
											|									
✓	10	23	10	8	1	1	R	5456	"	6711	11|50	186	F	10	"	"	1400	1.53	2.80	2.80	675430
✓	10	23	11	8	1	1	R	5524	"	6802	13|20	127	F	12	"	"	1680	1.76	3.40	3.40	685500
											|									
✓	10	24	12	8	1	1	R	5428	"	6702	10|20	215	F	10	"	"	1400	1.82	3.91	3.91	675400
✓	10	24	13	8	1	1	R	5445	W	6711	10|45	290	F	12	300	140	1680	1.51	3.88	3.88	675430
✓	12	10	57	6	1	3	R	5436	W	6710	12|40	124	F	20				3.84	5.10	5.10	675430
✓	12	10	58	6	1	3	R	5418	W	6520	06|35	130	F	20				4.00	4.80	4.80	655401
											|									
	12	11	0				N	5420	W	6518	ARRIVED BEST SEAFOODS, DUTCH HARBOR						1230 ALT.				655401
											DELIVERY COMPLETE 12/11 AT 1600 ALT										
✓	12	12	59	6	1	3	R	5418	W	6520	16|30	126	F	20				2.91	3.65	3.65	655401
✓	12	12	60	6	1	3	R	5417	W	6542	17|10	134	F	30				2.98	3.65	3.65	665409
											|									

Example of longline vessel ↑

Example of vessel using pots ↓

REVISED 11/91

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. Do not type or telex the shaded columns when sending your weekly message. Fill in all columns, shaded and white.

2. The identifying cruise number and vessel code will be assigned after you return and each vessel you are on will have a different vessel code. Keep the data for each vessel separate.

3. Place a check mark in the far left column to indicate which sets of longline or pot sets you sampled.

4. A given set number should be used only once - no duplicates. The set numbers must be in numerical sequence. Make sure that the set numbers do not exceed 3 digits. All sets must be recorded. A set number must be assigned to every set. If you reach set number 999, the next set should be "1", not "0." Set number "0" means that the vessel did not finish retrieving any set that day.

5. Enter the gear type:
   - 6 - pot or trap vessel
   - 8 - longline vessel

6. 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

7. Enter the processing mode: (Indicates where the utilized fish from that set are processed)

   - 1 - Most of the processing is done on board the catcher vessel (a catcher/processor). The products are placed in a freezer hold and the trip usually lasts more than a few days.

   - 3 - Retained catch is delivered to a processing plant (shorebased or "floater"). The catch is kept on ice or in RSW (refrigerated seawater) tanks, not frozen.

   - 5 - The fishing vessel sells the majority of their catch to other fishing vessels for bait.

8. For the location code, enter R if the location in columns 25 - 33 is the location that the last of the set was retrieved or N if it is a noon position on a nonfishing day.

9. If no set retrieval is completed on a given day (due to bad weather, transfer of cargo, traveling, etc.), enter the noon position of the vessel in columns 24 - 32 and enter 0 in the set number column. In columns 33 - 74, comment on the reason there was no fishing. All days at sea must be accounted for in this manner.

When your vessel returns to port for a delivery or the completion of a trip, enter the time the vessel pulls up to the dock or processor and, if delivering catch, the processor (and location) delivered to and the delivery completion date on a line of Form 1US.

10. 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.

11. Enter the soak time of the set - the time interval from the time the first part of the line was laid until the time the last of the set 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 and minutes; the two digit hour designation (use leading zeros as necessary), should be entered in columns 33 and 34 to the left of the dashed line, and the minutes (use leading zeros again as necessary) should be entered in columns 35 and 36 to the right of the dashed line. For example, a soak time of 38 hours and 5 minutes would be entered as 38|05.

12. 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.

13. The average bottom depth (cols 37 - 40) can be recorded in either fathoms (more likely) or meters, depending on the depth recording instruments that the vessel has, and in some cases, what units they are set at. Make sure that you indicate the units (fathoms or meters) with an "F" or an "M" in column 41 for every depth that you record.

14. **Longline vessels only:**
The number of skates (columns 42 - 44) should represent the number of units of longline that are retrieved from the set, not necessarily the number that are set. Keep track of the number of skates that are lost and note that on your form 1US, in your logbook and written final report.

The skate length (columns 45 - 48) should represent the length of groundline that the average skate 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). If the set consists of skates of different lengths, record the mean length (proportional average).

The average number of hooks per skate should be recorded in columns 49 - 52. This number usually remains constant throughout the cruise. Sometimes a line consists of alternating skates with different numbers of hooks - find out what the pattern is and note this in your final report.

Record the total number of hooks in the set in columns 56 - 60.

15. **Pot/trap vessels only:**
Record the number of pot/traps retrieved per set or string in columns 42 - 44. 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 columns 45 - 48, 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).

16. Retained catch: total weight (round or whole weight in metric tons) of the catch retained by the vessel for making a product or for delivery to a processor. This figure should always be filled in, even for nonsampled sets, and must be recorded to two decimal places. Give a complete description in your report of how these figures were obtained.

17. Official total catch (mt.): 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.

18. 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 preceeding Catch Rate Estimates section for a detailed description of the extrapolation.) Record to two decimal places.

19. Enter the 6 digit ADF&G statistical area for the end position of the set (cols 24 - 32). Refer to the ADF&G statistical area charts for your determination of the correct area.

20. **1US format:** Leading zeros should be in the date (cols 12 & 14) and the soak time (cols 33 - 35) only, as needed. Skip a line after each day. Any notes or comments (other than notes for deliveries, in port days or non-fishing days) should be placed in a part of the form that is not keypunched.

SPECIES COMPOSITION SAMPLING ON LONGLINERS

The Fishing - Unlike the situation on a trawler, all of the fish from a longline set are not dumped at once into a bin. 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 composition on a longline set. Longliners sometimes set their line at an angle on a slope. From 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 with depth (and, to a lesser extent, other factors) should be considered in choosing a sampling strategy. Thus, it is important to track the portions of sets sampled in your logbook so you can look back and review your work and insure that all parts of similar sets are eventually sampled. Watch particularly for the tendency not to sample the last portion of set retrievals. Try to get as large a sample size as possible.

If your vessel is retrieving one long to six short sets per day on the average, it is your goal to sample one third or more of most of the sets. Some observers are able to sample whole sets routinely on certain vessels, saving them OTC extrapolations. 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 whole or partial set sample listing. 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, birds and garbage.

Sampling - 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. If the vessel hauls the line over the ship's rail, find a safe spot to stand at the rail. 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 or skates you have sampled since this number is a measure of your sample size and is essential in calculating RTC or OTC. Start and stop all sampling at skate ends. It should be easy to determine where the skates are tied together. If you cannot determine skates sampled, 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.

Tally sampling is the most practical method for observers on longliners. Determine which species dominates 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).

Count separately the target species that drop off before the roller and are missed by the gaffer. The count of the target species drop-offs allows you to calculate the retained catch versus the total catch of the target. Other species drop-offs from the line have to be accounted for on the plastic tally sheet. Write down their identification (see "Drop-off Fish Identification" section following) and estimate their weight.

Halibut will almost always be released from the line and not landed. There are regulations regarding their careful release (see following halibut sections) and the rollerman will not be bringing these aboard. Treat halibut released from the line in a similar manner as other drop-off fish: tally them on the plastic sheet, but in their case, estimate their length rather than estimating weight. Estimations of length have been found to be much more accurate than weight estimations. You can look up the halibut weight from the length/weight table in the appendix. For improving your method of length estimation, see "Special Problem: Halibut" section following.

The most abundant species that you choose for tallying will not need to be brought aboard during your sampling period. Later, you will collect a subsample of these to determine their weight. Have the rollerman bring in the other, non-tallied species during each sampling period for later counting and weighing.

On a plastic sheet record any non-tallied species that drop off the line and estimate their weights. Note also how many units of gear (skates, magazines or hooks) were retrieved during the sampling period using marks on your plastic sheet. At the end of a sampling period, an observer should have:

a total count of the dominant species
counts of drop-offs from the line
halibut lengths (refer to "Special Problem: Halibut")
number of skates or hooks sampled
bycatch collected in baskets to sort, count and weigh.

Sampling involves tallying predominant fish, estimating halibut lengths, counting and weighing the landed bycatch and obtaining accurate average weights for the tallied species. Each part of this sampling is very important. Remember to not sacrifice accuracy on one aspect of sampling in order to spend more time on some other duty.

Obtaining Unbiased Samples - To sample a set in the least biased manner, 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. In fact, 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.

As a last resort in sampling, tally some single portion (1/3 or more) of the set, but to avoid bias, 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.

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. Each set should be individually sampled for average weight of the tallied species.

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).

Drop-Off Fish Identification - 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. 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 their weights, use the average weight of the species you believe it might have been. 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.

FORM 3US - SPECIES COMPOSITION FOR LONGLINE or POT VESSELS

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

Species:	Sablefish	Grenadier				
No. weighed:	50	60				
Wt. of above:	145.5	211.30				
Avg. weight:	2.910	3.5217				

Other calc.; comments: Sampled 7 out of 10 Skates (980 hooks). Tallied Sablefish and Grenadier.

Cruise no.			Vessel code			Year		Mo.		Day		Set no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		3	2	1	A	5	5	5	9	3	1	0	2	2			9

ST = Sampling type
L = Longline
T = Trap/pot
V = Viability only

Check those seen:
- Halibut ☑
- Salmon ☐
- King crab ☑
- Tanner crab ☐

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	No. of hooks or pots sampled	Viability: Number excellent	Viability: Number poor	Viability: Number dead
	19	20–22	23	24–29	30–40	41–51	52–54	55–57	58–60
(Keypunch check)		999		821	2551.40	Set wt. 3640.00	16	10	1
Halibut	U	101	L	33	99.12	980	16	10	1
Salmon, unident.	U	220		0	0.0				
Golden King Crab	M	8		1	1.70				
Tanner Crab	U	3		0	0.0				
Skate		90		8	20.74				
Sablefish		203		269	782.79				
Grenadier		80		426	1500.24				
Shortraker R.F.		326		1	2.70				
Arrowtooth Flounder		141		13	28.61				
Shortspine Thornyhead		350	↓	60	79.30	↓			
Pollock		201	L	10	36.20	980			

FORM 3US - INSTRUCTIONS FOR LONGLINE OR 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 will be presented.

1. Column 23: note the sampling type code. Use an "L" for longline and a "T" for trap/pot vessel. **Do not use "W" for whole set or "P" for partial set sampling.** The halibut (and crab, if assigned) examined for viability may be those in your composition sample or they may be from a different portion of the sampled set. If your halibut viability and length data are collected from a non-sampled (for species composition) set, enter the data on the 7US form only. Do not fill out 3US forms for viability data only!

2. Columns 41 - 51: 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 sampled times the average number of hooks per skate or tallying the number of empty hooks retrieved during sampling and summing that number with the total number of organisms tallied for total hook count.

3. A reminder: just as for the trawler form, it is necessary to indicate the sample size for halibut, salmon, king crab, and Tanner crab, even if you do not see individuals of those species in your samples. 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 0.0 for the weight. Use the check-off boxes above the viability column to remind yourself to record those groups not seen.

CATCH MESSAGE FORMS A AND B 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. You do not fill in the marine mammal column on the CMB form for pot or longline vessels.

OTHER SAMPLING REQUIREMENTS

Length frequencies - The requested workload of taking sexed lengths of approximately 150 of your sampling 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 as many as possible up to 150 per day, and sex as many as you can.

If the fish are being headed and gutted, try working with the crew, taking a length measurement then examining the viscera visible when the fish is headed or gutted to determine the sex or cut the fish diagonally just under the pectoral fins and peer in at the gonads. This cut is similar to the cut the crew makes in heading a fish and will not spoil the product. Sexed lengths are much more useful to us and so these are preferred but if this is impossible, try to sex some of the measured fish (random subsample) and take un-sexed length measurements of the rest. If this too is impossible, unsexed lengths are better than no length data. **Remember that the length frequency sample does not have to be a sub-set of the composition sample. Fish measured for length frequency may be taken from a set not sampled for composition.**

Special Problem: Halibut - Many longline fishermen target on halibut during halibut openings and are very protective of their halibut bycatch when fishing groundfish. They will be reluctant to bring halibut aboard for you to sample. Talk to the skipper and rollerman about the importance of the viability study (see following section) and the necessity of having halibut "in-hand" for you to determine viability and obtain an accurate weight and length.

If the tallied halibut are of the same size as the ones landed and weighed, simply count the non-landed halibut in your sample and multiply that number times the average weight of the landed halibut. If the halibut caught are of all sizes, estimate the length of each halibut for use in converting to weight from the length/weight table (in appendix). As halibut sizes usually vary widely, average weight may not be as accurate as individual visual length estimates made as the halibut come up, before they are released from the hooks.

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 used a marked 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 aren't guesses but reliable data since fisheries are being closed based on halibut weight caught! Record the length estimates on your plastic sheet during sampling. Remember that estimated length data is never recorded on Form 7US.

Halibut viability - The halibut viability study is quite straightforward on trawlers and pot vessels because halibut are landed and you can thoroughly examine them for condition. For longliners however, there are regulations requiring the careful release of halibut before they come over the roller. Halibut will normally never be landed. You need to work with the rollermen in getting some landed for you to examine.

Your goal in the viability study is to ascertain the condition of randomly chosen halibut just before the vessel's standard method of release (record the "normal" damage to the fish caused by standard fishing practices). If halibut are normally not landed by the crew, then be certain to not count in the condition determination any damage to the fish caused by your request to have it landed (do not count new wounds caused by your study as part of the condition prior to normal release). **It is very important that you never guess the viability of a halibut hanging from the line.** You must get your hands on the fish and check for wounds, sand fleas and gill condition. The halibut condition descriptions follow.

Ask the crew to carefully land up to 20 per set, or try to examine at least 20 per day for this study. The viability study benefits all longline fishermen, providing accurate data used when setting prohibited species caps for longline vessels. Observers are the only ones collecting these data on halibut condition so it is important that some be landed for the data. When halibut are landed at your request, take a length measurement and determine the viability, then return the fish to the sea. Because these duties will occupy all of your attentions, it is best that you not try to accomplish other sampling duties at the same time as sampling for halibut viability and length. Therefore, on longliners, the halibut sampled for viability and length are usually not the same individuals as in your tally sample.

Definition Of Halibut Condition
(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.

Monitoring the Halibut Release Techniques - All observers are asked to monitor the vessel's compliance to the regulation covering all groundfish fisheries -- "Each vessel must sort its catch as soon as possible after retrieval of the catch and, after allowing sampling by an observer (if any), shall return any catch of prohibited species or part thereof to the sea immediately with a minimum of injury regardless of its condition." However, longline fishermen now have a regulation which defines "careful release" techniques for which observers are also asked to monitor their compliance.

Longliners are required to release halibut by either straightening the hooks, twisting the hook from the mouth of the fish before it comes over the roller, or cutting the gangion. For the specific wording of this regulation, refer to the Summary of Federal Groundfish Fishing Regulations in this manual, the last item under General Prohibitions. Record in your logbook for your final report the normal handling of halibut and the techniques used for their release. If halibut are not carefully released by one of the described methods, note how many are not carefully released and the total number of halibut for the observation period. In your daily log notes, record the circumstances according to the section titled "Steps To take If You Suspect A Violation" in this manual.

Monitoring for marine mammals - Marine mammal catch occasionally occurs on longline and pot fishing vessels. An elephant seal was entangled in the longline of an observed vessel and sea otters 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. (Remember, when there is predation on a longline set, the gear performance code on the 1US needs to be changed also.) There may be attempts to deter the whales. Record deterrence or catch of marine mammals on form 10US.

As with other marine mammal sightings, fish predation information should be recorded on form 11US. Watch for fish that have been bitten or scraped by teeth. Record how many fish for the set (or at least the sample) were lost with what evidence of loss. Do not include just empty hooks as loss! When only fish heads 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 on the 3US worksheet. Sighting conditions, species identification, and individual identification of killer whales stripping longline sets, and circumstances and behavior take on added importance for assessing predation.

On the 10US record the percent of the set you monitored for marine mammal interaction. Estimate the percent monitored to the nearest ten percent and then list the percent as one number: 10% is listed as "1", 20% as"2", and 100% as "0". If you have monitored more of the set than you have sampled for species composition, you will need a note in a non-keypunched part of the page indicating that.

SPECIES COMPOSITION SAMPLING ABOARD 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 into some sort of container. The crew then remove the desired species, usually just Pacific cod, and throw any other 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.

PROCESSING PLANT OBSERVER INSTRUCTIONS

As a result of the implementation of amendments to the Fishery Management Plans for the Groundfish Fishery of the Gulf of Alaska and Bering Sea and Aleutian Islands Area, managers of processing plants that monthly receive 1,000 mt or more of groundfish are required to have an observer present at the facility each day it receives or processes groundfish. Managers of processing facilities that monthly receive between 500 mt and 1,000 mt of groundfish must have an observer present at the facility for 30 percent of the days it receives or processes groundfish during that month. Therefore, plant observer coverage days are days that the observer is present and the plant receives or processes groundfish. For each day you provide coverage some work should be performed (see "Duties" below). Some of these plants may also receive deliveries of crab, halibut or salmon. 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, while others may cover two 100% coverage plants that are owned by the same company and are in close proximity to each other.

PLANT OBSERVER DUTIES AND PRIORITIES

Collecting Delivery Information: The Form A Port Sample Summary Form corresponds 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 whether or not those deliveries were sampled by the observer. All days must also be accounted for on Form A, including days when no deliveries are made. The plant sampler is expected to contact the skipper of each vessel delivering groundfish to arrange for the collection of needed data from the observer aboard or the vessel logs.

Assisting Catcher Boat Observers With Sampling: Plant observers are expected to plan and schedule their time so as to be able to assist each vessel observer that samples at the plant. Plant observers should coordinate the assistance of the plant personnel, check the calibration of plant scales, and arrange for the set-up of totes, scales, etc. as needed. Plant observers might fill out a Form 3US, summarizing their delivery sampling for a vessel observer, but the responsibility for proportioning the data by haul, other data entries and catch messages rests with the vessel observer. Additional instructions follow.

Length Frequencies: 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.

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 - PORT SAMPLE SUMMARY FORM

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. ADF&G fish ticket and NMFS processing plant log entries should preferably not be used. If fish ticket data must be utilized, be very careful to interpret them correctly, researching the sources of the information and conducting at least spot-check verifications. (See the discussion of fish tickets under "Catcher-Only Trawlers, Retained Catch Estimation" in section two of this manual.)

1. Maintain a separate set of Form A's for each plant. (At Unisea, Dutch Harbor - G1 and G2 are considered separate plants, keep separate sets of data for each one.) At the top of each set of forms, enter your name and the name of the processing plant. You should make an entry for every delivery made to the plant, whether or not it was sampled. You must also have an entry for every day, with a note for days having no deliveries.

2. **Port sampler no. (col. 3 - 5) and Processing plant code (col. 6 - 9):** This information will be given to you by your contractor at the cruise end. On Forms 3US, 7US and 9US the Port sampler no. will substitute for the "Cruise no." and the Processing plant code will substitute for the "Vessel Code".

3. **Year (col. 13 - 14):** Enter the last two digits of the year.

4. 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 must enter one or more lines of data for each delivery and each day, not just the ones that you were able to sample.) Also place a check in the column labeled "Observer Onboard", if the delivered catch has been sampled by an onboard observer. This will enable staff at NMFS to easily know if the delivery had been previously sampled at sea.

5. ***Delivery no. (col. 10 - 12):*** Enter the delivery number which applies to the catch being delivered to the plant. Delivery numbers for each plant should be sequential and unique. A delivery number may be repeated on a second or third line if there are substantial amounts of more than one utilized species in one 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.

6. **Delivery date (col. 15 - 18):** 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. It is the <u>delivery</u> date of the fish measured and sampled that you should use on Forms 7US and 9US. This will not necessarily be the date you sampled.

   The delivery date <u>should</u> coincide with the date that is used in the NMFS processing plant logs and on the ADF&G fish ticket. If a discrepency with their entries is minor, such as the starting-of-delivery date instead of the completion date, ignore it. If the discrepency is more than that, document **who's** responsible, **what** is being entered, **when** and **why**.

Vessel Name	ADF&G
Auriga	56153
StarLite	34931
Arcturus	45978
Resolute	17402

FORM A - PORT SAMPLE SUMMARY FORM

Port Sampler No.	3	4	5	Processing Plant Code	6	7	8	9	Year	13	14
					D	H	!	5		9	3

Shoreside Sampled	Observer Onboard	Delivery No.	Delivery Date: Month	Delivery Date: Day	Gear Type	NMFS Area Code	ADF&G Stat. Area	No. of Tows	Ave. Dur. (mins)	Total Wt. Delivered	LB / MT	Sample Sp. Code	Sorted Y/N	Wt. of Sample sp. Discarded at sea	Wt. of Sample sp. Delivered	LB / MT	Main Product	~~Abbreviation~~ of Delivering Vessel ADF&G Permit No.
		10 - 12	15 16	17 18	19 - 20	21 - 23	24 - 29	30 31	32 - 35	36 - 42	43 44	45 - 47	48	49 - 55	56 - 62	63 64	65 - 66	67 - 81
✓		43	04	07	1	517	655430	5	249	187297	LB	202	N		187234	LB	23	45978
				08	NO	DELIVERIES												
		44		09	1	517		7	253	198127		202	N		198101		23	45978
✓	✓	45		10			665402	6	270	215639		201	N		192045		30	56153
✓	✓	45		10	↓	↓	665402	6	270	215639		202	Y	250	23580		23	56153
	✓	46		10	1	517	655430	12	258	165663		201	N		165324		30	34931
				11	NO	DELIVERIES												
✓		47		12	1	521	705600	9	132	258165		202	N		258093		23	45978
	✓	48		13	1	521	715600	5	143	264643		201	Y	10000	260218		30	56153
	✓	48	↓	13	1	521	715600	5	143	264643	↓	202	N		4387	↓	23	56153
✓	✓	49	04	14	8	515	665401	12	1440	8349	LB	202	N		8349	LB	23	17402
					EXAMPLE FROM PLANT THAT WEIGHS IN MT:													
✓		111	07	09	2	521	705600	4	252	98.7	MT	201	N		98.7	MT	30	34931
✓	✓	112	07	09	1	521	715600	6	290	87.3	MT	202	Y	5.2	86.5	MT	23	56153

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: (check 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 (98, 99, 98, 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																		

When vessels deliver to more than one plant: If you discover that a vessel is delivering fish caught in one trip to more than one plant, you should enter Form A information on only one set of Form A's, preferably the Form A's for the plant where most of the catch was delivered. Note on the back of Form A, or on an attached sheet, the amounts of fish delivered to each plant, but enter on the Form A the total amount delivered to all of the plants, the total amount of sample species delivered to all of the plants, and the total number of tows made during the trip. Additional guidelines for sampling these deliveries follows in the "Sampling Instructions" section.

7. **Gear type (col. 19 - 20):** 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

If you are unsure of the gear type, take notes, leave this column blank for the time being, and discuss it with NMFS staff.

8. **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 (*) and note the areas fished on the back of Form A. Do not divide delivery data by area.

9. **ADF&G statistical area:** Refer to the ADF&G maps supplied during training. Plot the end position of haul or set from the NMFS Catcher Vessel log, using the more detailed map whenever possible, and record the 6-digit statistical area code for the area in which most of the fish were caught. 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 (*) and note on the back of Form A all of the areas where hauls were made.

10. **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.

11. **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.

12. **Total weight delivered (lbs 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 PRR to estimate the round

weight of the fish before cutting. 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 NMFS processing plant logs. (See the note above regarding how to handle cases in which a vessel delivers catch from a single trip to several different processing plants.) In most cases, this should be the same as the sum of the groups reported on the ADF&G fish ticket, but make sure that this includes all of the discards from the plant.

13. **Sample species code:** This is the species composition code number (not the report group code!) for the main target species. This is your sample species for length frequency measurements. Subsequent information on the line in columns 48 - 66 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 45. Do not record all species listed on the fish ticket for the delivery. As a general guideline, do not enter a species which makes up less than 25% of the catch delivered. (An exception would be when assigned to gather biological data on a particular species.)

14. **Sorted? (Y or N):** This question refers to whether or not any of the individuals of the species in columns 45 - 47 were sorted out of the catch and discarded at sea. Fishermen might discard undersized individuals, or fish of a given sex. Other sorting of the target (sampling) species which might affect the length frequency data such as size sorting into different holds before delivery should also be labeled "Y" in column 48. This does not refer to any sorting and discarding of other species, such as prohibited species or some other unwanted species. 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.

15. **Weight of sample species discarded at sea:** If the species in question was sorted for size or sex (as indicated with a Y for "Yes" in column 48), or if some of the catch was dumped because the holds were already full, the fish were too old, or for some other reason, indicate the approximate amount in lb or mt, consistent with delivery weight units, that was discarded at sea. This information might be in the NMFS ship log and thereby in the processing plant logs but is notoriously under-reported.

16. **Weight of sampling species delivered (lbs or mt):** As with Total Weight Delivered, **record the round or fresh weight of the target species.** 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.

17. **Main product:** the code for the main product that is made by the plant from the species in question. 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.)

18. **Abbreviation of delivering vessel:** Presently we are substituting the ADF&G boat number of the delivering vessel into this column to differentiate vessels with the same

name in the data base. You can find ADF&G boat numbers on the NMFS vessel and plant logbook pages.

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. Any 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 should be aware of vessel delivery schedules so that they may be available to assist each vessel observer that samples at the plant. Assistance may include obtaining delivery weight information for observers, sending observer catch messages and helping observers sample for species composition. For example, an observer may want to sample a whole delivery that may take anywhere from 12 to 20 hours to complete. The plant observer should be available to relieve the boat observer for several hours (depending on the length of the delivery) for meals, rest, or to complete catch messages. If a plant observer is covering more than one plant, it may be necessary to coordinate delivery assistance between plants in order to ensure that observers with long deliveries have help. It is important to establish a message board or system so the plant and vessel observers can communicate with each other when one of the observers is not available. This is especially helpful for vessel observers who cannot send their own catch messages because of office hours or quick vessel departures.

When sampling for composition at a plant, vessel observers (and plant observers assisting them) must not rely on plant personnel to sort, save and or count fish unless they are working under the immediate supervision of the observer. **Do not use weights of non-target species that are recorded in the ADF&G Fish Tickets or the "Alaska Groundfish Daily Cumulative Production Logbook" for species composition.** These logs can be useful for comparison of figures, but they cannot be used as a substitute for an observer's sampling effort.

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. They should 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? Can bycatch missed during sampling be picked up afterwards from processors? How are prohibited species returned to sea? If target species are sorted before weighing, the weight totals for several grades of fish will have to be summed for delivery weight. List in your log the various types and grades of products produced.

Check the calibration of delivery scales and whether plant personnel subtract a percentage of the weight for water. If they do, is there water in with the fish at the weighing point? If there is water, sampling (such as three tests per week?) needs to be done to determine whether the percentage for water weight is reasonable. If the validity of the percentage for water cannot be documented, observers should simply use the scale weight and should not subtract any percentage for water.

Length Frequency Sampling:

Collect lengths from the main utilized species being delivered to the plant, preferably from boats that don't have observers on board. It is important to always ask whether any of the target species were sorted out at sea (see Form A, column 48). Sorted deliveries should be avoided for length frequency sampling if possible but if sorted fish are all that is available, take length data. Length frequency data from plant observers goes into a separate file from vessel observer data. That is why a plant observer's length sampling cannot substitute for the vessel observer's sampling of the same delivery (or vice versa).

If more than one target species is being delivered to the plant you may take length frequencies from more than one species, however, 150 - 200 length measurements are needed from each species that you collect lengths from on that 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 random, unbiased sampling; therefore select fish from several samples spaced throughout the delivery. If you are sampling at a plant that requires 100% observer coverage, you should strive to collect 150 - 200 lengths per day. When you are sampling at a plant that requires 30% observer coverage, you should collect at least 150 - 200 lengths for each day that you work at that plant. Since the plant only requires approximately one-third of the sampling effort, it will most likely be sampled only every third day or so.

On the top of the 7US form write the name and ADF&G boat number of the catcher vessel whose fish were measured. The date of the data is the delivery completion date which may not be the date you measured the fish. Under set/haul no. (7US, column 19 - 21) enter the delivery number from Form A.

When a vessel delivers to more than one plant, length measurements and otoliths may be taken from both of the deliveries (in fact, it might be a good idea, because you would be apt to sample catch from different parts of the hold), but enter the port sampler number, plant code, and delivery number on the Form 7 and 9US's corresponding to the Form A where the delivery is recorded. (Refer to "When vessels deliver to more than one plant" in item 6. above.) Note what you did on a non-keypunched portion of the forms. The two or more length frequency samples from the different plants may be kept as separate length frequencies on the Form 7US's--the computer can add them together if necessary, or they may be analyzed separately for variance. Make sure that you do not have any overlapping vial numbers when you assign otoliths to a different plant.

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.

The "roundfish" species of the highest priority for age structure collections are: Pollock, Pacific cod and all rockfish species including thornyheads (Sebastalobus spp.). 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.

PLANT COVERAGE SHEET AND WEEKLY REPORT

The coverage sheet and weekly report are shown on the next page. The Plant Coverage Sheet is a summary which can only be completed at the end of an observer's contract at a plant. The example therefore, shows the Plant Coverage Sheet only partially completed. A plant observer's weekly report consists simply of coverage information as shown on the form example. For your weekly message, the one line per plant observed is all that is required. We want to hear from each observer every week though, so send us a message even if you have no coverage for a report week.

If you observe at more than one plant, once your entries for coverage days have been checked during debriefing, you will need to make a copy of the Plant Coverage Sheet and Weekly Report pages for each set of data, i.e. for each plant you worked at.

Please note:
See from the example that a dash between dates indicates that coverage begins on the first date, ends on the last date and includes all the days in between. A comma between dates indicates coverage for only the dates listed.

PLANT COVERAGE SHEET

End of Contract Summary:

Observer Name Tracy Ann Thomas Contractor ORU

Cruise # 2010

Proc. Plant Codes	1st Day Coverage	Last Day Coverage	Total Coverage Days at Plant
KD03	5/5/93		
KD09	5/4/93		

WEEKLY PLANT REPORT

Each week, please record a new line of entry for each plant you worked at that week. Record the plant name and location, whether it is a 100% or 30% plant (if known) and the week ending date. Then, list the dates of coverage within that week, and from this the total number of days of coverage for that week for each plant. For plants, a coverage day is defined as any day on which a plant receives or processes groundfish and the observer is present. For each day you provide coverage some work should be performed; i.e. collecting Form A information, helping a vessel observer, doing length measurements, age structure collection, or density sampling.

Plant Name & Location Kodiak	100% or 30% Plant	Week End Date	List Each Date of Coverage for the Week	Total Days of Coverage in Week
All Alaskan Seafoods	100%	5/8/93	5/5 - 5/8/93	4
Eastpoint Seafoods	30%	5/8/93	5/4, 5/6, 5/8	3
All Alaskan	100%	5/15	5/9 - 5/15	7
Eastpoint	30%	5/15	5/11, 5/12, 5/14	3

DOMESTIC OBSERVER PLANT REPORT [7/22/92 version]

This is a list of the questions. **Do not** fill in the answers below the questions - use the **answer sheets**. One set of answer sheets follows these questions. If you observed at more than one plant, you should make a copy of the answer sheets before using them. Before starting, make sure the version date (above) for the questions matches that of the answer sheets.

SAMPLER # _____ OBSERVER_____

(Remember, do not fill this information in here, use your answer sheet!)

PLANT CODE _____ PLANT NAME _____

PLANT LOCATION _____ COVERAGE REQUIREMENT ____%

SHOREBASED PLANT? Y ___ N ___ FLOATING PROCESSOR? Y ____ N ____

DATE COVERAGE BEGAN _____ DATE COVERAGE ENDED _____

TOTAL NUMBER OF DAYS WITH DELIVERIES COMPLETED _____

TOTAL NUMBER OF DAYS SAMPLED _____

I. PLANT PERSONNEL

List key personnel and their job descriptions. If there were certain people you dealt with for different aspects of your job list the areas of their help.

NAME/ JOB/ AREA OF HELP: (5 blanks are provided on the answer sheets.)

II. DELIVERY VESSELS

List the vessels that delivered to your plant and their ADF&G permit numbers. Thirty blanks are provided on the answer sheets. If there were more than thirty, list them on a separate sheet of paper and attach it to the answer sheet.

III. PLANT OPERATIONS

For the remaining questions, use the answer sheet and circle all answers that apply. Some questions have multiple answers.

1. How were fish removed from the catcher boats?
   a. pump system
   b. brail nets
   c. shoveled into totes
   d. other_____

2. What was the approximate average delivery weight in metric tons?
   a. <5
   b. 5-10
   c. 11-20
   d. 21-50
   e. 51-100
   f. 101-150
   g. 151-200
   h. >200

3. How did the plant determine delivery weights?
   a. fish pumped into hopper, weighed before sorting/processing
   b. fish pumped or brailed into totes, weighed before sorting/processing
   c. brail nets weighed from hanging scale before sorting/processing
   d. in-line or belt scale used prior to sorting/processing
   e. fish weighed after sorting
   f. delivery weight backcalculated from product weight
   g. skipper hail weight
   h. observer data
   i. other_____

4. What was the average amount of time, in hours, it took to offload a vessel?
   a. <3
   b. 3-5
   c. 6-8
   d. 9-11
   e. 12-15
   f. 16-20
   g. 21-25
   h. >25

5. What was the average amount of time, in hours, it took the plant to sort a single delivery?
   a. <3
   b. 3-5
   c. 6-8
   d. 9-11
   e. 12-15
   f. 16-20
   g. 21-25
   h. >25
   i. deliveries presorted at sea

For questions 6 - 13 use the following key to show which species were made into products:

a. pollock
b. Pacific cod
c. sablefish
d. Atka mackerel
e. hake
f. rock sole
g. yellowfin sole
h. Greenland turbot
i. other flatfish
j. rockfish (any Sebastes or Sebastolobus)
k. other _____
l. no species

For **each** processing method circle the letter(s) of the fish species utilized. If a particular product wasn't made, circle "l." indicating "no species" were made into that product.

6. frozen whole	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
7. headed only	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
8. head and gut	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
9. salting	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
10. fillet	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
11. surimi	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
12. roe	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.
13. fish meal	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.

If you answered "k. other", list the question number(s) and species codes(s)

---

14. Did this plant receive sablefish which had been headed and gutted?
    a. yes
    b. no

15. How did this plant dispose of non-target species (other than prohibited species) and fish waste?
    a. made into fish meal
    b. returned to catcher vessel
    c. trucked or barged away
    d. dumped into water

IV. OBSERVER SAMPLING

1. Were you responsible for covering another plant or plants at the same time you were covering this plant?
    a. yes b. no - skip to question 4

2. How many 100% plants were you covering simultaneously with this plant?
   a. none
   b. one
   c. two
   d. three

3. How many 30% plants were you covering simultaneously with this plant?
   a. none
   b. one
   c. two
   d. three
   e. four

4. Were you responsible for covering any catcher vessels at the same time you were covering this plant?
   a. yes b. no - skip to question 8

5. If yes, did you share responsibilities with other observers?
   a. yes
   b. no

6. How many other observers at a time were involved in sharing responsibilities?
   a. none
   b. one
   c. two
   d. three
   e. four

7. How many 30% boats were you covering simultaneously with this plant?
   a. none
   b. one
   c. two

8. How did you assist the observers on vessels delivering to your plant?
   a. no observers on delivery vessels
   b. no assistance given to observers on delivery vessels
   c. provided fish ticket or logbook information on weights
   d. provided discard information
   e. provided prohibited species information
   f. assisted in sampling whole deliveries

9. Was there a plant scale available for you to use?
   a. yes
   b. no

10. Circle the letter or letters of any plant or vessel practices which made it difficult for you to complete your duties.
    a. no difficulties encountered
    b. obtaining Form A information from skippers
    c. logbook or fish ticket data not reliable
    d. logbook not completed as required in a timely manner
    e. deliveries presorted for species and/or size
    f. fish delivered partially processed
    g. deliveries not weighed
    h. plant holding fish for long periods before processing
    i. very long processing time
    j. sexing, taking otoliths not allowed (whole fish desired)

V. SAFETY

1. Were you shown the location of safety equipment in the plant?
    a. yes
    b. no

2. Who showed you?
    a. plant manager
    b. other plant personnel
    c. contractor
    d. another observer
    e. NMFS personnel
    f. vessel personnel on floating processor

3. Were you told what to do in case of an emergency?
    a. yes
    b. no

4. Who told you?
    a. plant manager
    b. other plant personnel
    c. contractor
    d. another observer
    e. NMFS personnel
    f. vessel personnel on floating processor

5. Were you warned about potential safety hazards in the plant?
    a. yes
    b. no

6. Who warned you?
   a. plant manager
   b. other plant personnel
   c. contractor
   d. another observer
   e. NMFS personnel
   f. vessel personnel on floating processor

7. Was your main work area in a hazardous location?
   a. yes b. no

8. If yes, what made it hazardous?
   a. proximity to processing or dock machinery
   b. proximity to other hazardous areas, i.e. freezers, generators, electric panels, etc.
   c. forklift traffic
   d. cold or exposed to weather
   e. high levels of noise
   f. slick floors
   g. other_____

VI. MISCELLANEOUS

For the following questions circle the appropriate letter(s) on your answer sheet. Some responses will require a written explanation in your logbook. If you have already dealt with NMFS Enforcement concerning any of these questions, please note that in your logbook in lieu of detailed response.

1. How were your weekly messages transmitted?
   a. FAX
   b. telephone
   c. mail
   d. telex
   e. other_____

2. If you did not transmit your weekly messages yourself, was there any difficulty in having them transmitted in a timely manner?
   a. yes
   b. no

Please document message transmission difficulties in your logbook.

3. Did you ever weigh sample units of product?
   a. yes
   b. no

4. If you used a plant scale, did you check the calibration?
   a. yes
   b. no
   c. plant scale not used

Describe in your logbook how your sample weights compared to the plant's, and results of any scale calibrations.

VII. PLANT LOGBOOK

1. Did you inspect the Daily Cumulative Production Logbook?
   a. yes
   b. no

2. Did the plant maintain the logbook in an accurate and timely manner?
   a. yes
   b. no

3. How did the plant determine the amount of discards, including prohibited species?
   a. actual weights of discards
   b. visual estimates of discards
   c. observer data
   d. discard weight not determined

4. Did you notice any discrepancies between the plant logbook and your own observations?
   a. yes
   b. no

5. If you noticed discrepancies, did you try to find the reason(s) for the differences?
   a. yes
   b. no

6. Were you ever denied access to the plant logbook?
   a. yes
   b. no

Please document all plant logbook difficulties, including discrepancies noticed and the reasons for them.

VIII. PROHIBITED SPECIES

1. Did you observe the handling of prohibited species when you weren't sampling?
   a. yes
   b. no

2. Did you observe any retention or consumption of prohibited species by plant personnel?
   a. yes b. no

3. How did this plant dispose of prohibited species?
   a. returned to catcher boats
   b. discarded into water
   c. disposition unknown
   d. all prohibited species sorted out before delivery

Please comment in your logbook on handling and disposition of prohibited species at this plant.

IX. OTHER POSSIBLE VIOLATIONS

1. Were you ever offered any monetary or other type of inducement to alter your data or routine?
   a. yes b. no

2. If yes, was it from plant, vessel or fishing company personnel or your contractor?
   a. plant/vessel/company
   b. contractor

Please document the details in your logbook.

3. Were you subject to any of the following impediments at this plant? Circle the letters of all that apply.

   a. no impediments encountered
   b. verbal harassment
   c. physical harassment
   d. sexual harassment
   e. interference with sampling
   f. denial of access to equipment, personnel or plant areas
   g. intimidation, threats or coercion
   h. biasing of samples
   i. refusal of reasonable assistance
   j. refusal to notify observer of deliveries
   k. destruction or theft of property

Please document details in your logbook.

4. Did you observe any of the following being dumped into the water?
   a. processing waste
   b. unused fish
   c. plastics
   d. oil
   e. no dumping observed

Please describe circumstances and quantities of any dumping in your logbook.

5. Did you advise any plant personnel about any violations or inform them of any observed violations?

   a. yes
   b. no

Please describe the circumstances in your logbook.

Answer the following questions in detail in your logbook.

1. Describe the flow of fish from the boat into the plant. This should be fairly detailed and include the method used to get the fish out of the hold, where the fish are held before they start processing, where and when the fish are sorted and weighed.

2. Describe your sampling methods, where you sampled, what types of sampling you did. Also include any routine plant practices which made your duties difficult to complete (i.e. holding fish for days before beginning processing, not notifying you of deliveries, etc.).

3. Summarize any safety problems or concerns you had regarding sampling at this plant.

4. If you routinely assisted observers on vessels delivering to your plant, comment on how you worked out sampling. If there were any observers who refused your assistance, or if there were other difficulties with the arrangement, please comment.

5. Please comment on the workload of a plant observer - too much, too little, what is easy, what is difficult.

Please make any additional comments you feel should be brought to the attention of NMFS Observer Program or Enforcement.

DOMESTIC OBSERVER PLANT REPORT ANSWER FORM [7/22/92 version]

SAMPLER #_____ OBSERVER _____

PLANT CODE_____ PLANT NAME _____

PLANT LOCATION_____COVERAGE REQUIREMENT _____%

SHOREBASED PLANT? Y__ N__ FLOATING PROCESSOR? Y__ N__

DATE COVERAGE BEGAN _____ DATE COVERAGE ENDED _____

TOTAL NUMBER OF DAYS WITH DELIVERIES_____

TOTAL NUMBER OF DAYS SAMPLED _____

I. PLANT PERSONNEL

NAME/JOB/AREA OF HELP:

1. _____

2. _____

3. _____

4. _____

5. _____

II. DELIVERY VESSELS

Name/ADF&G#	Name/ADF&G#
1._____	2._____
3._____	4._____
5._____	6._____
7._____	8._____
9._____	10._____
11._____	12._____

13._____ 14._____

15._____ 16._____

17._____ 18._____

19._____ 20._____

21._____ 22._____

23._____ 24._____

25._____ 26._____

27._____ 28._____

29._____ 30._____

If there were more than thirty, list them on a separate sheet of paper and attach it to these answer sheets.

III. PLANT OPERATIONS

1. A. B. C. D.
2. A. B. C. D. E. F. G. H.
3. A. B. C. D. E. F. G. H. I.
4. A. B. C. D. E. F. G. H.
5. A. B. C. D. E. F. G. H. I.
6. A. B. C. D. E. F. G. H. I. J. K. L.
7. A. B. C. D. E. F. G. H. I. J. K. L.
8. A. B. C. D. E. F. G. H. I. J. K. L.
9. A. B. C. D. E. F. G. H. I. J. K. L.
10. A. B. C. D. E. F. G. H. I. J. K. L.
11. A. B. C. D. E. F. G. H. I. J. K. L.
12. A. B. C. D. E. F. G. H. I. J. K. L.
13. A. B. C. D. E. F. G. H. I. J. K. L.

If you circled "K" (other), write down the question number(s) and species code(s)_____

14. A. B.
15. A. B. C. D.

IV. OBSERVER SAMPLING

1. A. B. - If "B." skip to question 4.
2. A. B. C. D.
3. A. B. C. D. E.
4. A. B. - If "B." skip to question 8.
5. A. B.
6. A. B. C. D. E.
7. A. B. C.
8. A. B. C. D. E. F.
9. A. B.
10. A. B. C. D. E. F. G. H. I. J.

V. SAFETY

1. A. B.
2. A. B. C. D. E. F.
3. A. B.
4. A. B. C. D. E. F.
5. A. B.
6. A. B. C. D. E. F.
7. A. B.
8. A. B. C. D. E. F. G._____

VI. MISCELLANEOUS

1. A. B. C. D. E.
2. A. B.
3. A. B.
4. A. B. C.

VII. PLANT LOGBOOK

1. A. B.
2. A. B.
3. A. B. C. D.
4. A. B.
5. A. B.
6. A. B.

VIII. PROHIBITED SPECIES

1. A. B.
2. A. B.
3. A. B. C. D.

IX. OTHER POSSIBLE VIOLATIONS

1. A. B.
2. A. B.
3. A. B. C. D. E. F. G. H. I. J. K.
4. A. B. C. D. E.
5. A. B.

INSERT MOTHERSHIP AND CATCHER BOAT OBSERVER INSTRUCTIONS HERE

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 Alaska Fisheries Science Center 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. A 1US or 2US form with transit information or a note on plain paper will suffice for weeks of no fishing.

Section 6 Topics:

TELEPHONE, RAPIDFAX, TELEX NUMBERS, ETC.

Alaska Fisheries Science Center (for sending or phoning catch messages; for between-trip debriefing or sampling questions) :

Telex: 230329422 callback=NWASC-SEA
(backup telex in Bldg.#1 at NWAFC = 9104442786)
Fax: (206) 526-4066 or 526-4207, backup faxes: 526-6723 and 526-4004
Phones: **(206) 526-4205.** During working hours, program staff members will accept collect calls. For calls after-hours, a message recorder is on this line. 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 mailing us copies of catch message forms as soon as you return to port. Keep your originals!**

Sampling questions: Karen Teig, Mike Brown, or Sheryl Corey (206) 526-4191 or Heather Weikart, (206) 526-4213
Debriefing, (206) 526-4192 Seattle Gear Room (206) 526-6827
Bob Maier, Program manager, (206) 526-6695

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

Alaska Regional Office

Telex: 62296000 callback = NMFS AKR JNU
Fax: (907) 586-7131
Phone: (907) 586-7229
Address: National Marine Fisheries Service, F/AKR
P.O. Box 21668
Juneau, AK 99802 - 1668

Observer Program 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

Dutch Harbor: Charlie Yustin &
Tracy Schall
FTS Office Complex, Suite 104
Dutch Harbor, AK 99692
Phone: 907-581-2060, or -2063
Fax: 907-581-2066
VHF Channel 6, M - Sat, 0800 - 1600
SSB Call Sign: WYI (Whiskey, Yankee, India)
4146.0 KHz from 10-11 AM, M - Sat
6227.0 KHz from 2-3 PM, M - Sat

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.

TRANSMISSION OF WEEKLY CATCH MESSAGES

For Alaskan waters, the report week is **SUNDAY through SATURDAY, Alaska Local Time and date** regardless of the date the message is actually sent. (If your vessel goes into the Washington, Oregon, and California coastal area to fish, observers must obtain a packet of instructions for that area.) Which hauls or sets to attribute to a report week varies by vessel type. Refer to the following section: "Determination of Report Week" for explanation. **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.

Catch messages can be sent to NMFS Observer Program office in Seattle by *computer/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 may receive software instruction from the Seattle program office or will have to get instructions when aboard, 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 and Catch Message Forms A and B 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 will have to type in their data and must refer to the Typed Message formatting instructions following the catch message forms A and B 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 or Kodiak 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 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.

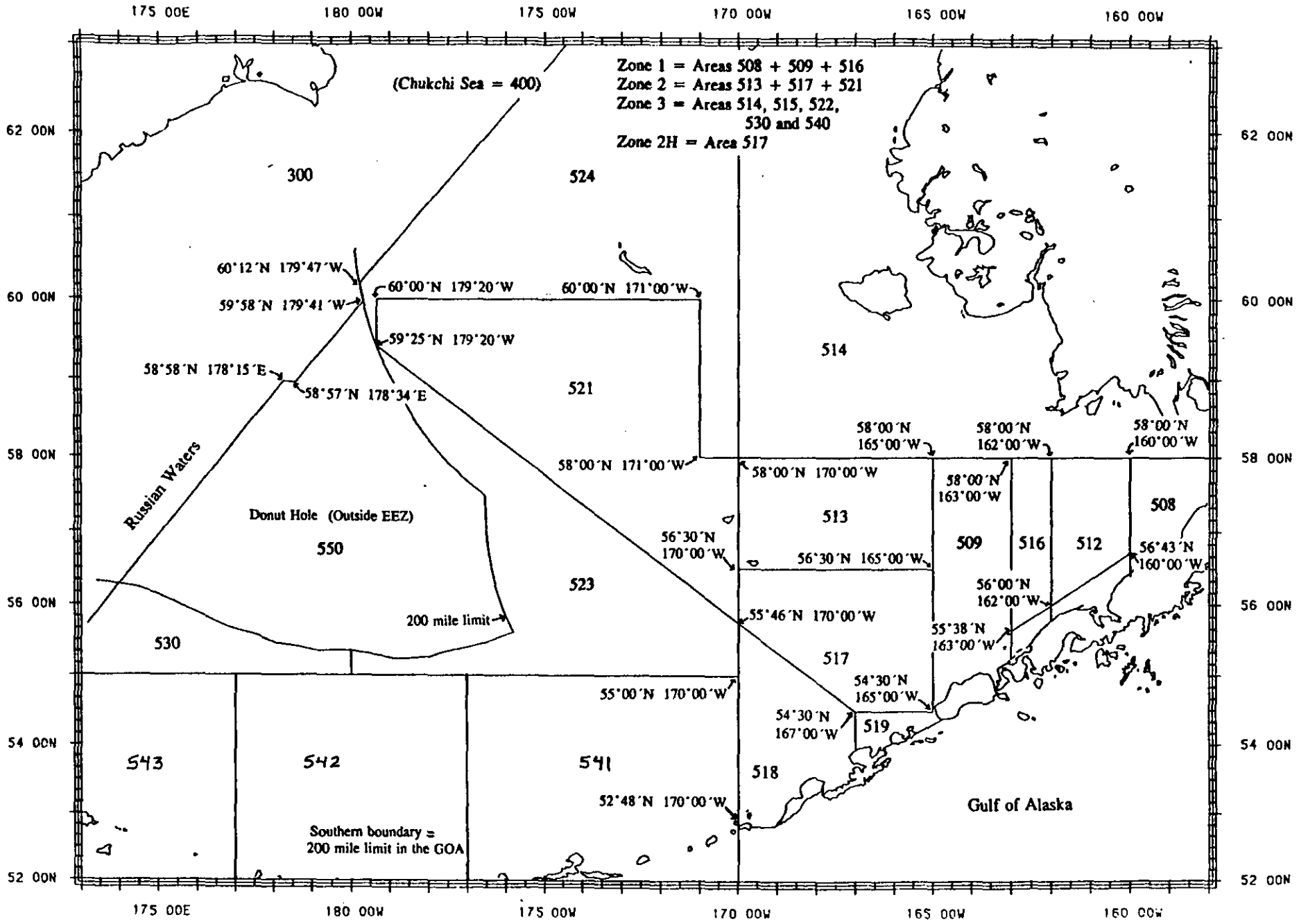
For voice transmissions of data by telephone or radiotelephone, the data will have to be summarized. Use the Catch Message Form for Voice Communications (CMV) explained in this section. Whenever catch (or any other) information is being relayed by radiotelephone, anyone can listen in. You must remember 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 mailing in a copy of your 1US or 2US, CMA and CMB forms. (Always keep your original forms until final debriefing.) Addressed, postage paid envelopes are provided. For your records, keep a copy of all data and messages sent and messages received.

Along with catch reports observers can include any questions or information relating to observer work. For example, observers on 30% coverage vessels need to include a note about which of their assigned vessels they did and did not sample on that week. If there is no catch report for a week, send us a message about that. Questions about observer sampling or responsibilities, information about health problems, or logistical information are common along with catch messages. To help us understand your situation, include parameters such as average catch size, composition, and the sources for your estimates when asking sampling questions. 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 immediately 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.

If you are transferred to a new ship during a report week, you must report the data for each ship separately. Preferably, you will be able to pass the catch information to us from port before boarding your next vessel. If this is not possible, and your next port call is more than a week away, you must transmit the CMV summary data form by code via the single sideband radio (as fax or telex transmissions are not usually available on these vessels).

Notes for Observers Aboard "Floaters"

Observers aboard floating processors may choose to coordinate the transmission of catch messages from observers on the catcher boat fleet by collecting all messages and sending them at the same time with their own message from the floater. This sort of arrangement may be the easiest and most efficient for all parties concerned.


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
Zone 3 = Areas 514, 515, 522, 530 and 540
Zone 2H = Area 517
(Chukchi Sea = 400)
300
524
514
521
523
530
550
543
542
541
513
509
516
512
508
517
519
518
Donut Hole (Outside EEZ)
Russian Waters
200 mile limit
Gulf of Alaska
Southern boundary = 200 mile limit in the GOA
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 165°00'W
58°00'N 162°00'W
58°00'N 160°00'W
58°00'N 170°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
55°00'N 170°00'W
54°30'N 165°00'W
54°30'N 167°00'W
52°48'N 170°00'W

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
Greenland turbot	Greenland turbot	turb	134
Arrowtooth flounder Kamchatka flounder	Arrowtooth flounder	arrow	121
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 Rougheye rockfish	Deepwater rockfish	deep rf	171
Northern rockfish Sharpchin rockfish	Northern-sharpchin	no chin	172
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. Invertebrates (except squid and octopus) Miscellaneous items	Non-allocated *	non	999
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.

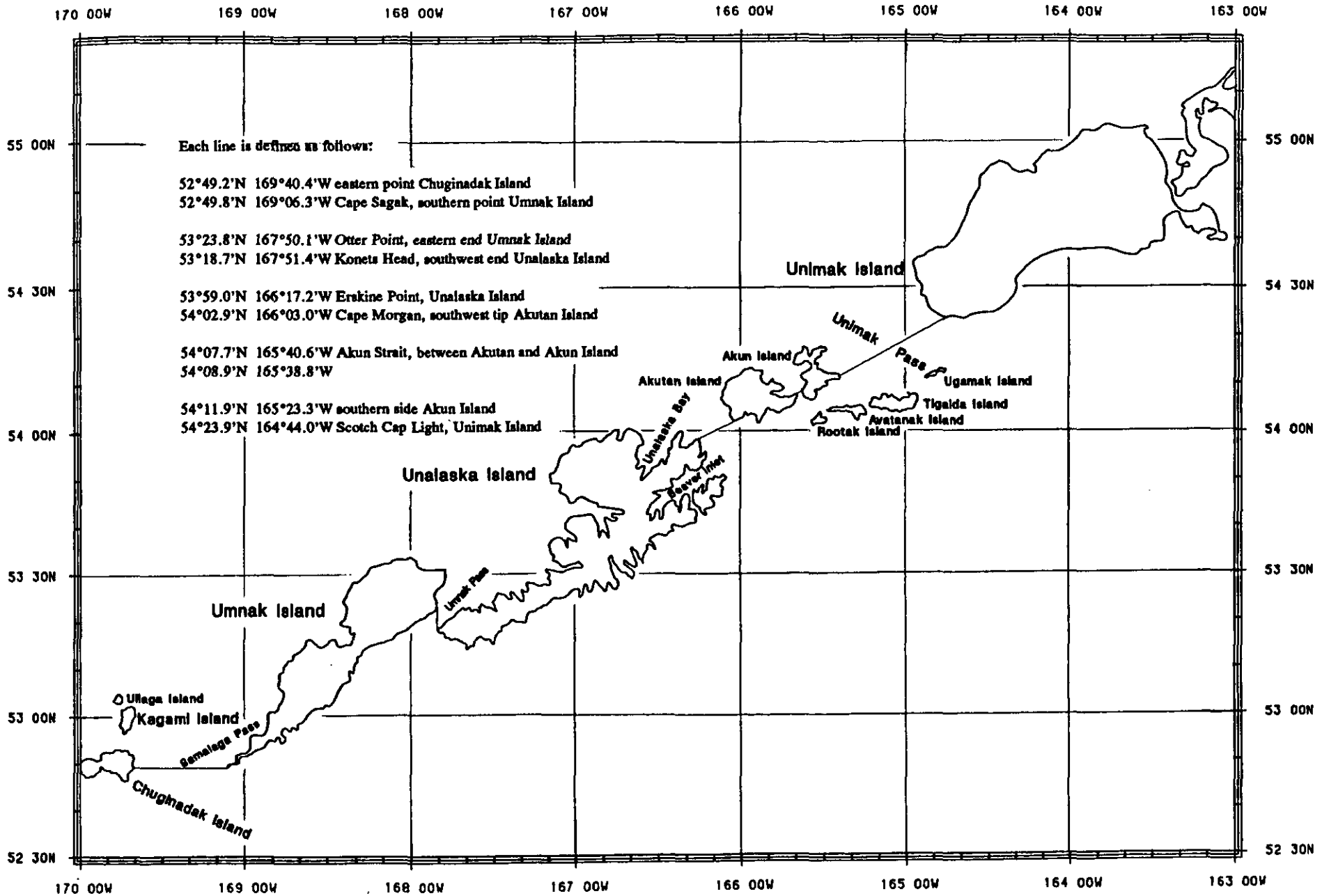
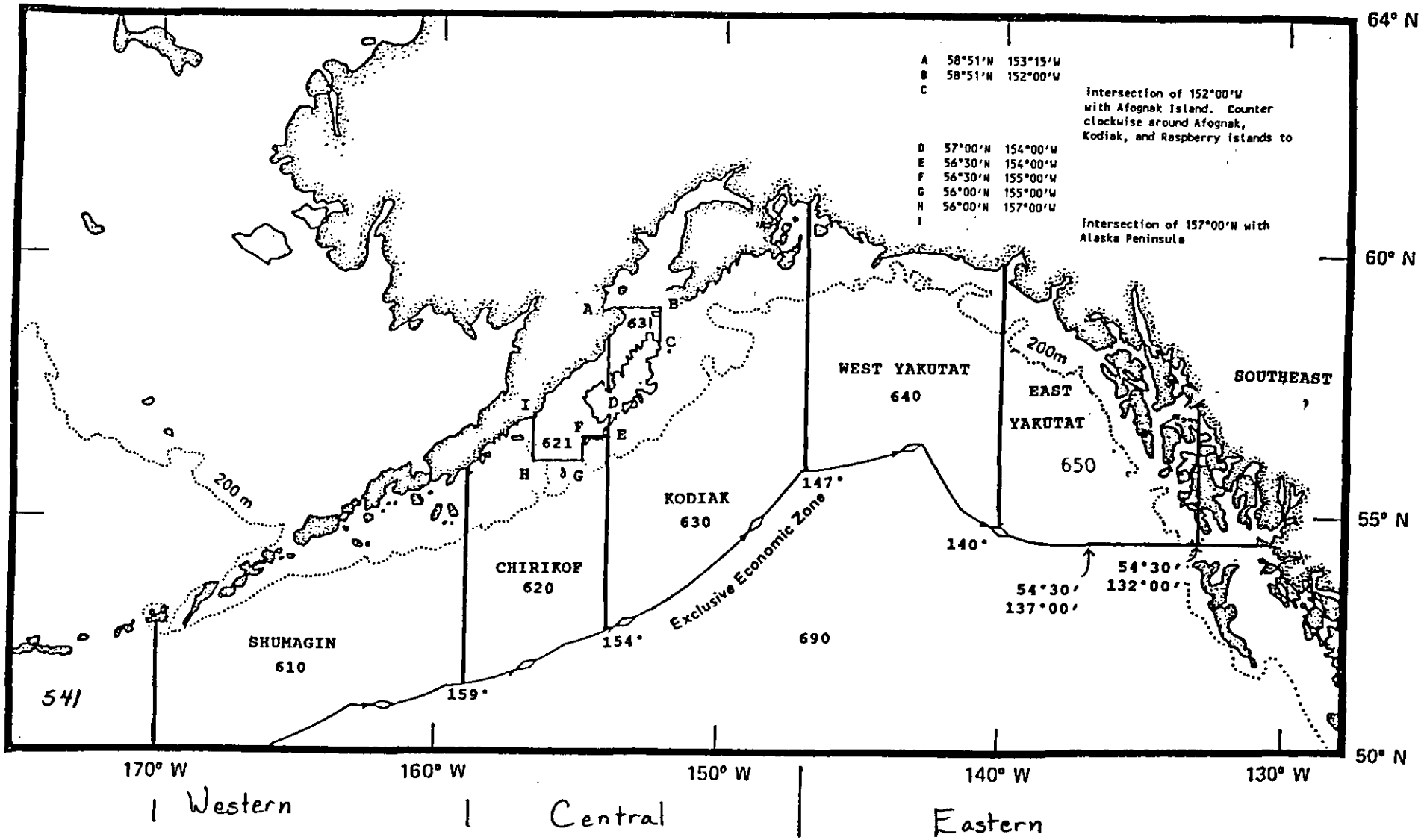


Figure 1 - boundary between Bering Sea and Gulf of Alaska.



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
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
Red banded rockfish (S. babcocki) 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.

CMA - SPECIES COMPOSITION

Observer Name Jane Observer Page 2 of 3 for transmission (Weekly Message) or Resubmission of Message Page _____ of _____ for vessel

Vessel Name Sea Gull Fax /Telex # 482-9356 ORC 221

Week Ending Date 9/17 Observer coverage Days 2 Date message was submitted 9/18

Office Use Only Cruise # Permit # Proc. Code

Check one of the following boxes or fill in name of shoreside plant or floating processor:

Aboard a catcher/processor? ☐

Aboard a mothership? ☐ Best Seafoods

Catcher boat? Delivering to: Dutch Harbor

GROUP ABBREVIATIONS		PROHIB	POP	NOGHIN	OTH	DEEPRF	OROCK	OFLAT	ARROW	NON	SQU	POLL	COD	SAB	YELL	RSOLE	
SPECIES GROUP CODES		900	141	172	100	171	139	120	121	999	875	270	110	710	127	123	
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	KG in SAMPLE
101	16000.0	115.92	4.90	18.7	92.3	3.20	4.5	11.85	5.0	1.4	3.60	9237.65	6450.98	0	0	0	
101	% of group retained	0	100	100	0	100	0	47	100	0	100	98	100	0	0	0	
103	398.0	121.2	.8	0	0	0	0	7.1	3.5	0	0	40.8	214.1	10.5	0	0	
103	% of group retained	0	100	0	0	0	0	0	100	0	0	97	100	0	0	0	
104	537.1	27.8	0	0	16.4	0	0	176.9	89.1	0	0	0	0	0	200.5	26.4	
104	% of group retained	0	0	0	0	0	0	100	100	0	0	0	0	0	100	15	
105	510.6	2.21	1.49	.84	0	2.6	1.04	0	0	.86	1.23	478.93	21.40	0	0	0	
105	% of group retained	0	100	100	0	100	100	0	0	0	100	100	100	0	0	0	
	% of group retained																
	% of group retained																
	% of group retained																

SPECIES COMPOSITION CATCH MESSAGE FORM A - INSTRUCTIONS

Determination of Report Week of Catch for Catch Messages

The way in which an observer attributes catch to a particular week varies according to vessel type. Domestic processors group and report their products in the NMFS daily cumulative production log based on the date the catch was made into product. We have attempted to approximate this by grouping the observer's data on Catch Message Forms A and B according to the following rules. Below are the options for the various vessel types. **(This grouping is not used for the observer's 2US or 3US forms.)**

Observers on catcher/processors (trawlers and longliners) and motherships attribute catch to the week according to when the retrieval of the trawl net begins or the retrieval of a longline set is completed. (example - if a catcher/processor sets a net on Saturday at 2300 ALT, but does not start retrieving the net until 0300 ALT on Sunday the catch would be attributed to the next week ending date.)

Observers on all catcher - only vessels (trawl, longline or pot) attribute catch according to when the final delivery of catch is completed. All of the hauls made during a trip are treated as one unit and this hold of fish from one trip is attributed to the week in which the last delivery of that trip's catch was completed. (Examples: A catcher boat makes tows on Thursday, Friday, and Saturday but does not finish its delivery to a shoreside plant until Sunday. Another catcher boat make tows on Saturday, and Sunday, and Monday and completes it's delivery to a floating processor on Monday. The observers on both of these vessels would attribute all of the catch to the next, or new, week ending date. Another possibility might be that a catcher boat delivers part of it's catch to Plant A on Saturday, but delivers the remainder of the catch to Plant B on Sunday. In this case, the catcher boat's observer would attribute all of the catch to the next week ending date and Plant B.)

In addition, the catch of each vessel is reported by its processor. Therefore, observers on catcher boats must attribute the catches of each trip to one processor. If the fish from one trip is sold in part to one processor and the remainder to another, the catch of the entire trip is attributed to the last processor delivered to. **If a catcher boat fishes and completes delivery of two trips within one week, and each delivery was made to a different processor, two sets of Catch Message Forms A and B will have to be made.** Normally, subsequent trips are delivered to the same processor and data for a second trip delivered in the same report week can be continued on the same set of CMA and CMB forms.

Start A New Set of Catch Message Forms

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
region - Bering (includes all of area 540), Gulf, or Coast
gear type - trawl, longline, pot
processor delivered to (catcher - only vessels)
catcher/processor vessel acts as a mothership or vice versa.
CDQ - a vessel starts, ends, or works more than one CDQ contract

A catch message is composed of the pertinent pages of Form 1US or 2US, data from Form 3US which is reformatted onto CMA and CMB for transmission and Halibut Viability Report. The following instructions for CMA pertain to the species composition samples for target and bycatch and your estimates of retained catch by report group. Two lines of information will be entered for each haul sampled on the Species Composition Catch Message Form.

1. Enter your name. Then in the "PAGE ____ OF ___ FOR THE TRANSMISSION" section, enter the total number of pages that you have for that transmission, starting with the haul or set forms and including the catch message forms CMA and CMB. This will allow us to be sure that we have received all the pages you intended to send.

2. Circle WEEKLY MESSAGE or RESUBMISSION OF MESSAGE to indicate which kind of message you are sending. On each resubmission, please circle each change you made.

3. "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.

4. On the next line, enter the name of your vessel.

5. Enter the fax or telex number of your vessel or plant. If you are on a shoreside delivery vessel enter the fax or telex number of the plant where you can be reached.

6. Enter the ORC (Observer Routing Code) number. The ORC is a three digit security code entry which will be explained to you in training.

7. The "Week Ending Date" should be entered next. For catch off Alaskan waters the week ending date is Saturday, for catches off of Washington and Oregon, the week ending date is Tuesday. Each report week is referenced by the week's ending date even if, for example, you were only reporting data for Monday and Tuesday of that week. Dates should have a slash between the month and the day. Leading zeros are not required. January 25th would be written as 1/25.

8. Enter the number of "Observer Coverage Days" for that report week as a whole number. (Any part-day of coverage is reported as one day.) For vessels, the observer coverage *begins the first day the boat sets their gear and ends when the vessel offloads* groundfish, returns to an Alaskan port, or leaves the U.S. EEZ off Alaska and adjacent waters of the State of Alaska. A shoreside vessel that makes their first tow on Wednesday and returns to Dutch Harbor on Saturday evening; the observer should report four (4) Observer Coverage Days. <u>This figure does not have to be divided by area, gear type or delivery.</u> Enter Coverage Days on each of the Catch Message Form A's for the transmission.

   For shoreside plants, Observer Coverage Days are the number of days on which groundfish were received or processed and the observer was present during the week.

9. "Date message was submitted" is the date (and time if you can fit it in) you gave your catch message to the communications person on your ship to transmit or the date you transmitted the message if you were the one to send it.

10. In the box to the right check your vessel type or, if your ship is a catcher-only vessel, enter the name of the plant or floating processor your vessel delivered to. If your vessel delivers the catch of one trip to more than one buyer, enter the name of the last processor delivered to. Longline and pot vessel observers must also check catcher/processor or list their processor name.

11. 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 preceding this section. Select the appropriate list of report groups by region. For each species recorded on 3US, refer to this list and find the corresponding report group and it's code.

    Write the species report group abbreviations and codes across the tops of the columns on the Form CMA for Species Composition. For subsequent samples, additional report groups may need to be added. Be sure to go back and "zero fill" as necessary, refer to items 15 and 16 below. **For each set of forms for a week (one week, region, and processor), all pages of CMA must have the same report groups, in the same order.**

12. 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.

13. Enter the sample weight of your species composition sample, in kilograms, from Form 3US. **If some or all of the prohibited species groups have a different, larger sample weight, those data are not entered on a Catch Message Form A, but will be on the Prohibited Species Catch Message Form B instead.**

14. Enter the weight for each species, or weight sum for each species group, in kilograms, from the sample data on Form 3US. 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 manual example.)

    Add the report group weights across the line. The sum of these weights must equal your species composition sample weight exactly.

15. On the second line for each sampled haul, enter the haul (or set) number again in the first column. Then enter the percentage of each species or species group retained. The percentage should be listed as a whole number. A figure of 100 indicates that all of the fish from that entire species group were retained for 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).

The percentage of each species or species group that is retained needs to be reported in the species composition section of the catch report. Observers are to determine the best estimate of the amount of whole fish of each report group category that is retained and to report that as a percent of the total catch of that report group in their catch message (to the nearest whole percent). If you consider your independent estimates to be less accurate than the ship's or processor's estimates, use their estimate in your catch message. However, continue to work to develop a more accurate technique of estimation, so that you can report your own estimates of the percentage retained in the catch report. (On the other hand, a higher priority must be given to good species composition and prohibited species sampling.)

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. If a catcher-only trawler dumps a significant portion of any haul back into the sea then none of the species groups of that haul were 100% retained. For example, if 30 tons of an 80 ton net was dumped, then only 5/8 or 63% of each species group was retained.

Observers on catcher/processors remember, if any part of the fish is retained then the entire fish is counted as retained. On catcher/processors, fish offal from processing which goes overboard is not counted as discard. However, if quantities of fish are dropping off of the processing line, and though they may be mangled, no parts of them are being retained as product, those should be considered discard. Technically, if a product such as headed and gutted fish are produced where the offal goes overboard and later that product is also thrown overboard in preference for another product, those discarded headed and gutted fish should also be classified as discard. The inconsistency of discarding on catcher/processors begs the conclusion that it would be much more defendable to calculate the round weight of retained catch, by species group, and divide it by total catch of that group to estimate the percentage retained.

Round weight of retained:

$$\frac{\text{product wt. of report group "Q"}}{\text{product recovery rate}} = \text{round wt. of retained report group "Q"}$$

Estimated total catch weight of report group:

$$\frac{\text{wt. of report group "Q" in sample}}{\text{sample weight}} \times \text{total catch, or OTC} = \text{total wt. of report group "Q"}$$

Percent retained of report group:

$$\frac{\text{round wt. of retained report group "Q"}}{\text{total wt. of report group "Q"}} = \%\ \text{retained of report group "Q"}$$

CMB - PROHIBITED SPECIES Page 3 of 4 for transmission (Weekly Message) or Resubmission of Message Page _____ of _____ for vessel

Observer Name Jane Observer

Vessel Name Sea Gull

Week Ending date 9/17

Office Use Only Cruise # Permit # Proc. Code

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 #
101	16.00	0	0	0	0	16.00	0	16.00	629	100.0	28	4.24	16.00	2	6.2	16.00	3	5.48	0	0	NU	
102	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	EJ	1
103	9.349	0	0	0	0	.398		.398	312	121.2	0	0	9.349	11	55.0	9.349	7	21.9	1	1.9	EJ	1
104	.537	20	6.8	0	0	.537		.537	28	2.1	187	15.3	.537	1	3.6	.537	0	0	0	0	NU	
105	18.62	0	0	0	0	.511	0	.511	7	2.21	0	0	18.62	24	247.0	18.62	0	0	0	0	EJ	1
105																					CU	1

Haul 101 Crab Extrapolation:

Bairdi #: 91 Bairdi / 95 Total × 562 unident. tanners = 538.34 Bairdi + 91 Bairdi in subsample = 629

Bairdi wt: 14.14 kg / 14.74 kg × 89.5 kg unidents. = 85.8568 kg Bairdi + 14.14 kg in subsample = 99.9968 kg

Opilio #: 4 opilio / 95 total × 562 unident = 23.66 Opilio + 4 fr. subsample = 28

Opilio wt.: 89.5 kg unident. tanners → 85.86 kg Calculated to be Bairdi = 3.64 kg Opilio

wt. from subsample + .6 kg Opilio

4.24 kg Opilio

revised 11/8

PROHIBITED SPECIES CATCH MESSAGE FORM B - INSTRUCTIONS

The following instructions pertain only to the data you have collected on the incidental catch of prohibited species (king crab, Tanner crab, halibut, salmon, and herring) and freshly dead or "lethally removed" marine mammals that are landed and their inclusion in the weekly catch message. 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 your name and the name of your vessel in the appropriate blanks.

2. Then enter the "Week Ending" or Saturday date of the report week just as on Form CMA. Each report week is referenced by the week's ending date even if, for example, you were only reporting data for Monday and Tuesday of that week. Dates should have a slash between the month and the day. Leading zeros are not required. January 25th would be written as 1/25.

3. On the top line, in the "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 and including the catch message forms CMA and CMB. This will allow us to be sure that we have received all the pages you intended to send.

4. Circle WEEKLY MESSAGE or RESUBMISSION OF MESSAGE to indicate which kind of message you are sending. On each resubmission, please circle each change you made.

5. "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.

6. 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 Groups	Meaning
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
PACIFIC HALIBUT	Pacific Halibut
CHINOOK SALMON	Chinook Salmon
OTHER SALMON	the other species of salmon including steelhead

Be careful with the sample weight for herring! On Form 3US, halibut, crab and salmon may have a larger sample weight than the target and other bycatch species. Herring will always have the **same** sample weight as target and other bycatch species. Make sure that the sample weight for herring is the same as the sample weight listed for this haul on CMA. It may often have a different sample weight than the rest of the report groups on CMB.

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.)

   If you subsampled a prohibited species group, you need to extrapolate the data up to the total number in the sample for each report group before entering the results on the worksheet. There is no column for "unidentified tanner crab" so you must extrapolate which unidentified crabs listed on the 3US would have been Bairdi tanners and which would have been "other" tanner crabs, based on your subsample of tanner crabs. For an example of the calculation, see the bottom of the CMB form example. The calculation shows the extrapolation of the unidentified tanner crab from example 1 of the 3US forms in this manual. Notice that you must proportion both the crab numbers and the weight based on the percentages in the subsample, otherwise, the numbers and weights on the CMB will not sum to the total numbers and weights on the 3US. Though the calculation has been shown here on the CMB form, these calculations belong in your observer logbook.

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 the incidental catch of marine mammals in monitored hauls. If none were caught, 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 lions (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.
101	yes	yes	no	NU
103	yes	yes	yes - EJ	EJ 1
104	yes	no	no	NU
not shown	yes	no	yes - EJ	NU
not shown	no	yes	no	no line of entry
102	no	yes	yes - EJ	EJ 1 (zero fill prohib. line)
not shown	no	no	yes - EJ	no line of entry
105	yes	yes	yes - EJ/CU	EJ 1 and on the next line list: CU 1

INSEASON HALIBUT\SALMON FORM INSTRUCTIONS

Dominant release method: C - crucifying or homing, G - cutting gangion, H - straightening hook, and T - twisting or shaking.

Sampling Method: S - Systematic, R - Random, O - Opportunistic.

						Hook and Line Only		Trawl Only		
BSAI or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	Release method	Sampling method	Sample Bias? Yes or No	Total Number of Chinook Salmon	Total Number of OTH Salmon

The halibut data on the Inseason Halibut \ Salmon 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 set. It is only necessary to send the viability form data with your weekly 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. Record your name and vessel name at the top. In the first column, record the region fished in this week. BSAI = 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.

2. The week ending date is always a Saturday. **At this point, when entering data for a new week, please draw a single line through all other weekly data.**

3. In the next three columns record the weekly summation of all of the halibut examined that were in excellent, poor and dead condition. Then 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.

4. Columns 7 and 8 are for all longline observers to complete. For "Release method" list the one-letter code (codes are listed above the columns) that represents the most predominant method of release used by the vessel crew that week.

5. Longline observers also must list the sampling method they chose for the halibut viability study. Sampling method explanations are in a handout; sampling method codes are listed above the columns. If more than one type of sampling method was used during the week, list the most predominant one. **Please explain your choice of sampling method in your logbook, along with any problems encountered when using that method. Log also, in a table format, the number of halibut you intended to sample but were not landed successfully (fell off before landing).** This helps the Halibut Commission to understand possible biases in the viability sampling.

6. The "Trawl Only" column is for trawler observers to indicate whether there was sample bias caused by inadvertant or deliberate presorting of halibut (halibut too large to go into the fish holds or those presorted on deck by the crew). If the presorting is consistant, frequent or major, put "Yes" in the column. If presorting is rare during the week's time, and involves few fish, write "No" in the column. A "Yes" in this column

serves to notify the Halibut Commission to look in your logbook for clarification on bias in your sample. Be certain to record the number of halibut you observed presorted and other pertinent information as instructed.

TYPED MESSAGE FORMAT FOR WEEKLY CATCH MESSAGES

If typing your message into a computer for satellite transmission or onto a telex machine, you must use the following standardized format for transmitting the data from catch message forms A and B and forms 1US and 2US. Refer to these instructions and examples before converting each week's catch 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

Type in only data from the white column headings and not data from the grey column headings of the Form 1US or 2US. For the column heading line, type a single space between each word, abbreviation or phrase. If you are typing a message for a longliner or pot vessel, type in the 1US headings **EXACTLY** as shown here:

Your name Vessel name
MTH DAY SET GT LATT ? LONG HR/MIN SKTS TOTALHKS CATCH

For observers on trawlers, type the heading **EXACTLY** as follows:

Your name Vessel name
MM MTH DAY HAUL GT LATT ? LONG MINS CATCH BOAT#

Next, set tab stops for easy typing of the data columns. Delete any previous tabs stops. **Set a tab** under the first letter of each word, phrase or abbreviation. You may be able to see the set tabs on the bottom of the screen.

To type the data, type in the number off the 1US or 2US for the appropriate column, hit the [TAB] key and type in the next number in that row of data. Enter a row of data, hit [RETURN] and type in the next row. Do not worry about right or left justifying your numbers in the columns; do not use leading or trailing zeros except where instructed on the 1US form. Simply type your number directly where the tab stops the cursor. OTC should always have a decimal and two digits behind the decimal. The "?" between "LATT" and "LONG" is to designate East or West longitude.

If your heading and tabs are set properly, every column should line up. Check the appearance of the data and each column of entries before sending the message. Any notes on non-fishing or delivery days **must** also be typed in oppposite the corresponding dates.

Observer Name OLIVIA OBSERVER

Vessel Name SWELL

Page 1 of 3 for transmission

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Page 1 of ____ for vessel

1. Leading zeros in columns 12, 14, and 33 to 36 only
2. Skip a line after each day.
3. On days with no sets retrieved, enter date, noon positions in columns 34 to 53 and set number = 0
4. Two digits are required in columns 63+64, 68+69, and 73+74
5. For depth in columns 41 use: M = meters and F = fathoms

Crean number				Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11
									9	3

Data type	Date MO.	Date DAY	Set #	Gear type	Gear performance	Processing mode	Location mode	End position of set Latitude (N)	E or W	End position of set Longitude (180)	Soak time hrs/min	Avg. bottom depth	M or F	# of skates in set or total # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Retained Catch: round weight in metric tons	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	ADF&G statistical area
12|13	14|15	16 - 18	19-20	21	22	23	24 - 27	28	29 - 32	33 - 36	37 - 40	41	42 - 44	45 - 48	49 - 52	56 - 60	61|62|63|64	65|66|67|68|69	70|71|72|73|74	75 - 80
√	10	22	7	8	1	1	R	5534	W	6842	10|45	325	F	10	300	140	1400	1.62	2.80	2.80	685530
√	10	22	8	8	1	1	R	5542	W	6842	12|10	285	↓	10	↓	↓	1400	.78	1.95	1.95	↓
√	10	22	9	8	1	1	R	5528	W	6821	12|20	165	F	10			1400	1.57	3.64	3.64	685530
√	10	23	10	8	1	1	R	5456	W	6711	11|50	186	F	10			1400	1.53	2.80	2.80	675430
√	10	23	11	8	1	1	R	5524	W	6802	13|20	127	F	12			1680	1.76	3.40	3.40	685500
√	10	24	12	8	1	1	R	5428	W	6702	10|20	215	F	10			1400	1.82	3.91	3.91	675400
√	10	24	13	8	1	1	R	5445	W	6711	10|45	290	F	12	300	140	1680	1.51	3.88	3.88	675430
Example of longline vessel ↑																		Example of vessel using pots ↓			
√	12	10	57	6	1	3	R	5436	W	6710	12|40	124	F	20				3.84	5.10	5.10	675430
√	12	10	58	6	1	3	R	5418	W	6520	6|35	130	F	20				4.00	4.80	4.80	655401
	12	11	0				N	5420	W	6518	ARRIVED BEST SEAFOODS DUTCH HARBOR 1230 ALT.										655401
											DELIVERY COMPLETE 12/11 AT 1600 ALT										
√	12	12	59	6	1	3	R	5418	W	6520	16|30	126	F	20				2.91	3.65	3.65	655401
√	12	12	60	6	1	3	R	5417	W	6542	17|10	134	F	30				2.98	3.65	3.65	665409

Form 1US appearance in Typed Message format:

Olivia Observer Swell

MTH	DAY	SET	GT	LATT ?		LONG	HR/MIN	SKTS	TOTALHKS	CATCH
10	22	7	8	5534	W	6842	10/45	10	1400	2.80
10	22	8	8	5542	W	6842	12/10	10	1400	1.95
10	22	9	8	5528	W	6821	12/20	10	1400	3.64
10	23	10	8	5456	W	6711	11/50	10	1400	2.80

Soak time should be entered: hours, slash, minutes.

Form 2US appearance in Typed Message format:

Jane Observer Sea Gull

MM	MTH	DAY	HAUL	GT	LATT ?	LONG	MINS	CATCH	BOAT#
Y	09	14	101	1	5838	W 7624	370	16.00	
N	09	14	102	1	5837	W 7630	190	8.25	
Y	09	14	103	1	5837	W 7607	260	20.00	
Y	09	14	104	1	5838	W 7647	200	12.00	
Y	09	14	105	1	5838	W 7654	235	18.62	

The column for "BOAT#" will only be filled in by observers on motherships.

Typed Message Format For Catch Message Form A

CMA - SPECIES COMPOSITION

Observer Name Jane Observer (1) Page 2 of 3 for transmission (Weekly Message) or Resubmission of Message Page ____ of ____ for vessel

Vessel Name Sea Gull (2) Fax /Telex # 482-9356 (3) ORC 221 (4)

Week Ending Date 9/17 (5) Observer coverage Days 2 (6) Date message was submitted (7) 9/18

Check one of the following boxes or fill in name of shoreside plant or floating processor

Aboard a catcher/processor? ☐

Aboard a mothership? ☐ Best Seafoods

Catcher boat? Delivering to: Dutch Harbor

Office Use Only Cruise # Permit # Proc. Code

GROUP ABBREVIATIONS		PROHIB	POP	NOGHN	OTH	DEEP RF	OROCK	OFLAT	ARROW	NON	SQU	POLL	COD	SAB	YELL	RSOLE	
SPECIES GROUP CODES		900	141	172	100	171	139	120	121	999	875	270	110	710	127	123	
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	KG in SAMPLE
101	16000.0	115.92	4.90	18.7	92.3	3.20	4.5	11.85	5.0	1.4	3.60	9287.65	6450.98	0	0	0	
101	% of group retained	0	100	100	0	100	0	47	100	0	100	98	100	0	0	0	
103	398.0	121.2	.8	0	0	0	0	7.1	3.5	0	0	40.8	214.1	10.5	0	0	
103	% of group retained	0	100	0	0	0	0	0	100	0	0	97	100	0	0	0	
104	537.1	27.8	0	0	16.4	0	0	176.9	89.1	0	0	0	0	0	200.5	26.4	
104	% of group retained	0	0	0	0	0	0	100	100	0	0	0	0	0	100	15	
105	510.6	2.21	1.49	.84	0	2.6	1.04	0	0	.86	1.23	478.93	21.40	0	0	0	
105	% of group retained	0	100	100	0	100	100	0	0	0	100	100	100	0	0	0	
	% of group retained																

(1)JANE OBSERVER(2)SEA GULL(3)482-9356(4)221(5)9/17(6)2(7)9/18(8)BEST SEAFOODS
900/141/172/100/171/139/120/121/999/875/270/110/710/127/123
101/16000.0/115.92/4.90/18.7/92.3/3.20/4.5/11.85/5.0/1.4/3.60/9287.65/6450.98/0/0/0
101/0/100/100/0/100/0/47/100/0/100/98/100/0/0/0
103/398.0/121.2/.8/0/0/0/0/7.1/3.5/0/0/40.8/214.1/10.5/0/0
103/0/100/0/0/0/0/0/100/0/0/97/100/0/0/0
104/537.1/27.8/0/0/16.4/0/0/176.9/89.1/0/0/0/0/0/200.5/26.4
104/0/0/0/0/0/0/100/100/0/0/0/0/0/0/100/15
105/510.6/2.21/1.49/.84/0/2.6/1.04/0/0/.86/1.23/478.93/21.4/0/0/0
105/0/100/100/0/100/100/0/0/0/100/100/100/0/0/0

When transmitting your weekly messages in Typed Message format, the order should be the 1US or 2US first, and then the catch message forms A and B. Note that the data lines look like the actual CMA and CMB form but with slashes to separate the columns.

The information in the heading of each form has been sequentially numbered as shown in the previous example. For instance, (5) represents "Week Ending Date" and the entry is (5)9/15 for this example. Type the numbers in parentheses before each heading item. The CMA heading will begin with the observer's name and end with: "(8)CP" if you are on a catcher processor, "(8)MS" if you are on a mothership, or (8) and the name of the processor your vessel delivered to. Type in the week ending date and the date the message was submitted for transmission with a slash between the month and day. 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 abbreviations for the 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

CAS PROHIBITED SPECIES Page 3 of 4 for transmission (Weekly Message) or Resubmission of Message Page ____ of ____ for vessel

(1) Observer Name Jane Observer

(2) Vessel Name Sea Gull

(3) Week Ending date 9/17

Office Use Only Cruise # Permit # Proc. Code

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 Mammal Code
101	16.00	0	0	0	0	16.00	0	16.00	629	100.0	28	4.24	16.00	2	6.2	16.00	3	5.48	0	0	NU
102	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	EJ 1
103	9.349	0	0	0	0	.398		.398	312	121.2	0	0	9.349	11	55.0	9.349	7	21.9	1	1.9	EJ 1
104	.537	20	6.8	0	0	.537	↓	.537	28	2.1	187	15.3	.537	1	3.6	.537	0	0	0	0	NU
105	18.62	0	0	0	0	.511	0	.511	7	2.21	0	0	18.62	24	247.0	18.62	0	0	0	0	EJ 1
105																					CU 1

Haul 101 Crab Extrapolation:

Bairdi #: 91 Bairdi / 95 Total × 562 unsubsampled tanners = 538.84 Bairdi + 91 Bairdi in subsample = 629

Bairdi wt: 14.14 kg / 14.74 kg × 89.5 kg unsubsampled tanners = 85.8568 kg Bairdi + 14.14 kg in subsample = 99.9968 kg

Opilio #: 4 opilio / 95 total × 562 unsubsampled = 23.64 Opilio + 4 fr. subsample = 28

Opilio wt: 89.5 kg unsubsampled tanners + 85.86 kg Calculated to be Bairdi = 3.64 kg Opilio wt. from subsample + .6 kg opilio

4.24 kg Opilio

(1)JANE OBSERVER(2)SEA GULL(3)9/17
101/16.00/0/0/0/0/16.00/0/16.00/629/100.0/28/4.24/16.00/2/6.2/16.00/3/5.48/0/0/NU
102/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/0/EJ/1
103/9.349/0/0/0/0/.398/0/.398/312/121.2/0/0/9.349/11/55.0/9.349/7/21.9/1/1.9/EJ/1
104/.537/20/6.8/0/0/.537/0/.537/28/2.1/187/15.3/.537/1/3.6/.537/0/0/0/0/NU
105/18.62/0/0/0/0/.511/0/.511/2.21/0/0/18.62/24/247.0/18.62/0/0/0/0/EJ/1/CU/1

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. Type a slash between the month and day of week ending date.

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 weights with slashes between them.

Typed Message Format For Halibut Viability Form

Dominant release method: C - crucifying or horning, G - cutting gangion, H - straightening hook, and T - twisting or shaking.

Sampling Method: S - Systematic, R - Random, O - Opportunistic.

						Hook and Line Only		Trawl Only		
BSAI or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	Release method	Sampling method	Sample Bias? Yes or No	Total Number of Chinook Salmon	Total Number of OTH Salmon
BSA	9/17/94	0	4	32	36			N		

REGION	WK DATE	EXC	POOR	DEAD	TOTAL	BIAS
BSA	9/17/94	0	4	32	36	N

Or for observers on longline vessels,

REGION	WK DATE	EXC	POOR	DEAD	TOTAL	REL	SAMP
BSA	9/17/94	0	4	32	36	H	S

Before typing this form in the telex format, please skip down about 10 spaces (hit [RETURN] ten times) to create a large gap between the CMB and the halibut data. Once reaching Seattle, the halibut portion of the catch message has to be cut off the transmission and forwarded to the Halibut Commission.

As with the 2US or 1US form, you will have to type the headings for the columns on the halibut viability form. Type the headings exactly as shown above, hitting the [TAB] key after each heading. At the end of the headings row, hit [RETURN] and type your data in the next row. Enter the data from your halibut form under each heading, with [TAB] (or more than one [TAB] to make the data line up under the typed heading) in between each entry. If you have fished in the Gulf of Alaska and the Bering Sea, enter separate lines of data for each region. If you have found no halibut of a certain condition category, enter a zero under that heading; do not leave it blank.

Remember, "TOTAL" halibut on the form means the number examined for viability. Check this total halibut number against the amount listed on the form 7US. They should be equal.

SPECIAL PROBLEMS

If Your Ship Fishes Outside of the EEZ

Continue to sample and send catch reports for any catches taken outside the EEZ. In the Bering Sea report the catch as coming from area 550 (Donut Hole) or 300 (Russian waters). Outside the EEZ in the Gulf of Alaska is area 690. Outside the EEZ along the Washington-Oregon coast is area 780. (For Alaskan waters, refer to the charts on previous pages.)

Catch Message Directions for Observers at Processing Plants

Messages from processing plant observers do not follow the same format as those from observers aboard domestic vessels. Refer to the instructions in the plant sampling section of this manual. Messages should include the following (at a minimum) for each plant that the observer worked at during the week:

Observer name, Plant name and location
Your fax/telex number
Week ending date
Dates of observer coverage (list each date)

CMV - WEEKLY CATCH MESSAGE FORM FOR VOICE COMMUNICATION

There are a few boats that do not have fax, satellite or telex communication systems and remain at sea three to four weeks at a time. These boats are mainly small longline catcher/processors. Sometimes, a vessel's fax or telex systems will break down. Observers in these situations will have to transmit their catch messages via the single sideband radio to our Kodiak office or through the marine operator to our Seattle office. Over the radio, observers will report a coded weekly summary - the CMV form, rather than the 1US or 2US, CMA and CMB forms. The CMV form is a simplification of the data required for ease of transmission. Therefore, the observer must summarize the catch and part of the sampling data by region (Bering versus Gulf) and by gear type. If the vessel fishes in the Bering and Gulf areas in one report week for instance, two CMV forms would have to be prepared to read from.

Totals of catch and sampling data for each region and gear type are entered into the shaded boxes on the CMV. The information in the shaded boxes is then translated, using the number-to-letter code given to each observer in training or briefing, and the alphabetic translation is written in the unshaded boxes underneath. Information entered in unshaded boxes such as names, gear type and species codes is also required but does not need to be coded. When reading the information that is alphabetically coded over the radiotelephone, use the phonetic alphabet for clarity (see Radio Procedure, in the Appendix of this manual). Finally, any catch messages which are transmitted by voice must be backed up by mailing the Seattle office a copy (keep your originals) of your 1US or 2US, CMA and CMB forms as soon as possible. Use the addressed, postage-paid envelopes provided with your gear.

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.

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(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

DAILY CATCH MESSAGES

During your deployment you may receive notification that you are to begin sending a daily catch message (CMD). Daily catch messages are used by the Fisheries Management Division of the Alaska Regional Office to manage groundfish quotas requiring more intensive monitoring than is provided by the weekly catch message procedure. Daily messages are an important aid in the effective management of fisheries that have small quotas or are subject to a prohibited species cap (PSC) closure. The accuracy and timeliness of the CMD are crucial factors in managing these fisheries so they can remain open to fishing effort as long as possible without exceeding the Total Allowable Catch (TAC) quotas or the PSC limits.

Normally, you will be notified by an NMFS news release when to begin sending daily catch messages and which report groups are to be sent. News releases are sent to all observer contractors, fishing companies and NMFS field offices. They are also posted on the NMFS computer bulletin board service which is accessible to anyone (including vessels at sea) with a personal computer and modem. Information on the computer bulletin board service is available to you in training or briefing. The lack of direct access to the computer bulletin board for some vessels is not a limiting factor regarding CMD notification. It is the responsibility of your observer contractor and the fishing companies to relay to you the notification from NMFS that daily observer reports are required.

Daily catch messages from Alaskan waters are to be sent using the CMD format provided (see example on a following page). **The CMD is to be sent to the Alaska Regional Office in Juneau, AK. DO NOT SEND THE CMD TO SEATTLE!** The address, FAX, telex and phone numbers are printed at the top of the CMD form and at the beginning of this section. The notification to begin daily reporting will specify when you are to start sending the reports. **The reports must be sent to Juneau by noon the following day and each day thereafter until notice is given to stop sending the daily messages.**

DAILY REPORTS ARE IN ADDITION TO THE NORMAL WEEKLY REPORT. YOU MUST CONTINUE TO SEND THE WEEKLY CATCH MESSAGES TO SEATTLE AS DESCRIBED ON THE PREVIOUS PAGES OF THIS MANUAL. REMEMBER: DAILIES TO JUNEAU; WEEKLIES TO SEATTLE!

For those vessels with a fax machine, use the side of the CMD form indicated for faxing to send to Juneau. The fax side of each form can be used several times by changing the "Date Sent" entry each day and adding the new daily information to the next line(s). If vessel personnel insist that you minimize the entries per page to be scanned by the fax machine, write or type each day's message out in the typed message style (see instructions which follow) on a plain piece of paper. Vessels with only telex capability would also use the typed message format to transmit the CMD each day.

For vessels with only unsecured voice transmission via SSB radio or highseas radiotelephone operator, use the side of the CMD formatted for voice communication and code the CMD information in fields 7 - 17 using your individual alphabetic code to protect confidentiality. When you are calling the message in, use the phonetic alphabet instead of just saying the letters (see Appendix, Radio Communications). During working hours and using the

marine operator you can call the Regional Office collect and ask to speak to someone in the Inseason Management Branch. If you cannot contact the Regional Office, the CMD can be sent through the NMFS field office in Kodiak or Dutch or the vessel will have to pay for a highseas operator call to the Seattle recording machine at night. The contact numbers for these offices are listed at the beginning of this Catch Message Section. As a last resort, relay the CMD through your contractor or the vessel's company office using your alphabetic code if necessary.

Instructions for Daily Catch Message Form

At the top of the form record your name, the vessel's name, the species you are fishing for and the date the report is transmitted (fields 1 - 4).

(5) CDQ Number: If your vessel is fishing for Community Development Quota, the contract they are operating under has an identifying number which must be entered on the upper right corner of the vessel log each day. It is possible your vessel could fish for more than one CDQ contract and then separate daily messages must be sent.

(6) Date: Enter the date for the data you are reporting. The notice you receive to begin sending daily reports will specify the date on which daily reports are to start. The fishing day runs from 0001 hours Alaska local time (Alt) to 0000 hours Alt. **YOU MUST ACCOUNT FOR ALL DAYS DURING THE PERIOD OF TIME THAT DAILY REPORTS ARE REQUIRED.** If the vessel did not fish for a particular day, enter the dates and write the reason in the empty data blocks. If the vessel fished but you did not sample, fill in the date, area(s) fished and the total catch weight. Record the reason for not sampling in the empty data blocks.

(7) NMFS Area: Enter the NMFS reporting area (620, 517 etc.) the vessel fished during the day. If the vessel fished in more than one area, use a following line to record the data for the second area. Areas fished are determined by plotting the haul retrieval positions on the area maps provided in this section.

(8) Total Daily Weight: For each area, record the sum of the OTC's of all hauls made in that area/day, sampled and unsampled hauls. Record this even if you did not sample. Record total catch weight in metric tons.

(9) Sampling Method: This column requires that you group your sample data for the day into whole and/or partial haul samples versus basket samples. This grouping is needed for CDQ daily messages and for messages from the whiting fishery but is not required for other fisheries unless specifically requested. It is easiest to note the sampling method from the 3US forms onto the CMA and do all of your sample summations from the CMA form.

(10) Total of Haul Weights Per Sampling Method: This is the sum of OTC's of sampled hauls according to sampling method. As with field (9) above, this column should only be used when in a CDQ or whiting fishery. These data allow the weighting of more diverse hauls to their haul size and sampling frequency for a more accurate extrapolation from sample data.

(11) Species Report Group Code: The notice to begin daily reporting will inform you which prohibited and other (if any) report groups to send information on. In field (9) **enter the abbreviated name** of the requested prohibited report group **as listed, above the column heading.** If more than one species report group is requested, use the next line for the second species, etc. If no prohibited species groups are requested, go on to field (13).

(12) Total Of Prohibited Species Sample Weights In Metric Tons: From CMB, sum and enter

the sample weight of the requested species for all samples of that area and day. Sample weights must be in metric tons as on CMB. If two or more report groups are requested, there may be different sample weight sums on each line.

(13) Total Number Of Prohibited Species In Samples: Enter the total number of the prohibited species group (see field 11) in your samples for the area and day. The report group most likely to be requested is halibut. For halibut, the managers may only need their weight and not the number of fish. Entering the number doesn't cause any problems but it may be omitted if not requested and you could just go on to field (14).

(14) Total Weight Of Prohibited Species (kg): Enter the total weight in kilograms of the prohibited group (11) in your samples for the area and day. It is easiest to sum the entries from the CMB from rather than from Form 3US.

(15) Species Report Group Code: Data on the target species report group is often requested. The code to be entered in this column would be the same numerical code used for CMA. If the notice to commence daily reporting doesn't ask for any species other than prohibited groups, leave fields (15), (16) and (17) off or blank.

(16) Total Of Species Composition Sample Weights (kg): From the CMA form, sum the sample weights for species composition samples of that area and day. Use separate lines for grouping the data by sample method if necessary and if requested.

(17) Total Weight Of Species Group In Samples (kg): Sum and record the weight of the requested species group specified in (15) from samples of that area and day (and by sampling method if necessary).

TYPED MESSAGE FORMAT: Transcribe data for each day as illustrated in this example. For this example, assume the message to the observer requested dailies on halibut, bairdi tanner crab and POP, and grouping the sampling data by sampling method was not required.

TO: NMFS, Juneau AK. Telex #62296000

(1) Jane Observer (2) Sea Gull (3) POP (4) 09/15
(6) 09/14 (7) 521 (8)74.87 (11)HBT (12)44.507 (13)38 (14)311.8
(11) BTAN (12).9457 (13)76 (14)25.50
(15) 141 (16)945.7 (17)607.38

Finish the daily report with a short text message, if necessary, and "End msg." Example:

Vessel stopped fishing at 2330 hrs. on 09/14. Enroute to Dutch Harbor for offload. End msg.

(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 _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for VOICE 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	
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

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
5430.00	16700.00
5430.43	16701.00
5430.86	16702.00
5431.29	16703.00
5431.72	16704.00
5432.14	16705.00
5432.57	16706.00
5433.00	16707.00
5433.43	16708.00
5433.86	16709.00
5434.29	16710.00
5434.71	16711.00
5435.14	16712.00
5435.57	16713.00
5436.00	16714.00
5436.43	16715.00
5436.85	16716.00
5437.28	16717.00
5437.71	16718.00
5438.14	16719.00
5438.56	16720.00
5438.99	16721.00
5439.42	16722.00
5439.85	16723.00
5440.27	16724.00
5440.70	16725.00
5441.13	16726.00
5441.55	16727.00
5441.98	16728.00
5442.41	16729.00
5442.83	16730.00
5443.26	16731.00
5443.69	16732.00
5444.11	16733.00
5444.54	16734.00
5444.97	16735.00
5445.39	16736.00
5445.82	16737.00
5446.25	16738.00
5446.67	16739.00
5447.10	16740.00
5447.52	16741.00
5447.95	16742.00
5448.38	16743.00
5448.80	16744.00
5449.23	16745.00
5449.65	16746.00
5450.08	16747.00
5450.50	16748.00
5450.93	16749.00
5451.35	16750.00
5451.78	16751.00
5452.20	16752.00
5452.63	16753.00
5453.05	16754.00
5453.48	16755.00
5453.90	16756.00
5454.33	16757.00

LAT COL. A	LONG COL. B
5454.75	16758.00
5455.18	16759.00
5455.60	16800.00
5456.03	16801.00
5456.45	16802.00
5456.87	16803.00
5457.30	16804.00
5457.72	16805.00
5458.15	16806.00
5458.57	16807.00
5458.99	16808.00
5459.42	16809.00
5459.84	16810.00
5500.27	16811.00
5500.69	16812.00
5501.11	16813.00
5501.54	16814.00
5501.96	16815.00
5502.38	16816.00
5502.81	16817.00
5503.23	16818.00
5503.65	16819.00
5504.08	16820.00
5504.50	16821.00
5504.92	16822.00
5505.34	16823.00
5505.77	16824.00
5506.19	16825.00
5506.61	16826.00
5507.03	16827.00
5507.46	16828.00
5507.88	16829.00
5508.30	16830.00
5508.72	16831.00
5509.15	16832.00
5509.57	16833.00
5509.99	16834.00
5510.41	16835.00
5510.83	16836.00
5511.26	16837.00
5511.68	16838.00
5512.10	16839.00
5512.52	16840.00
5512.94	16841.00
5513.36	16842.00
5513.78	16843.00
5514.21	16844.00
5514.63	16845.00
5515.05	16846.00
5515.47	16847.00
5515.89	16848.00
5516.31	16849.00
5516.73	16850.00
5517.15	16851.00
5517.57	16852.00
5517.99	16853.00
5518.41	16854.00
5518.83	16855.00
5519.25	16856.00
5519.67	16857.00

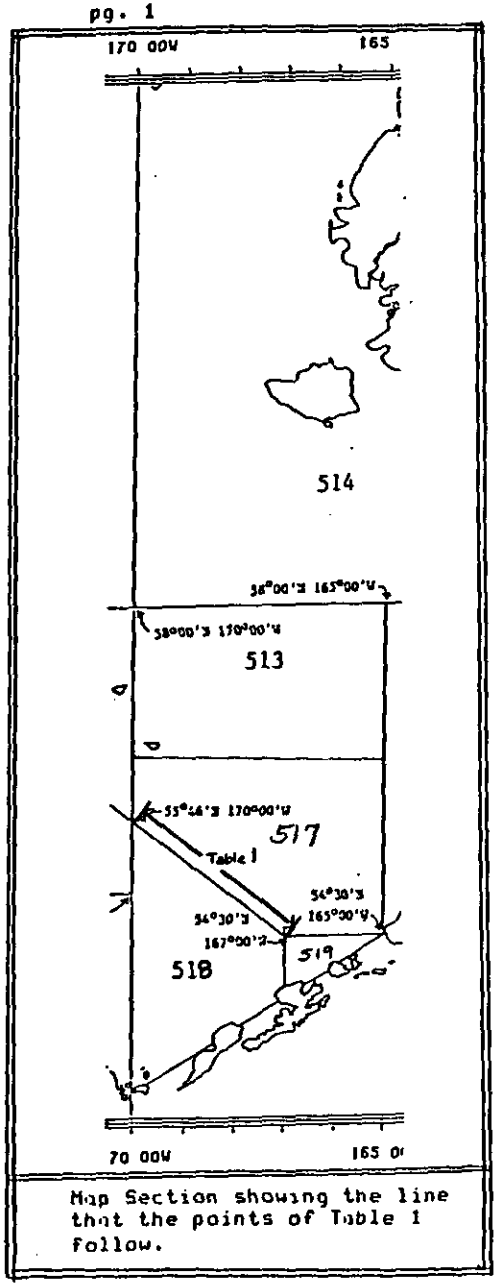
LAT COL. A	LONG COL. B
5520.09	16858.00
5520.51	16859.00
5520.93	16900.00
5521.35	16901.00
5521.77	16902.00
5522.19	16903.00
5522.61	16904.00
5523.03	16905.00
5523.45	16906.00
5523.87	16907.00
5524.29	16908.00
5524.71	16909.00
5525.13	16910.00
5525.55	16911.00
5525.97	16912.00
5526.39	16913.00
5526.81	16914.00
5527.23	16915.00
5527.64	16916.00
5528.06	16917.00
5528.48	16918.00
5528.90	16919.00
5529.32	16920.00
5529.74	16921.00
5530.16	16922.00
5530.57	16923.00
5530.99	16924.00
5531.41	16925.00
5531.83	16926.00
5532.25	16927.00
5532.66	16928.00
5533.08	16929.00
5533.50	16930.00
5533.92	16931.00
5534.34	16932.00
5534.75	16933.00
5535.17	16934.00
5535.59	16935.00
5536.01	16936.00
5536.42	16937.00
5536.84	16938.00
5537.26	16939.00
5537.67	16940.00
5538.09	16941.00
5538.51	16942.00
5538.93	16943.00
5539.34	16944.00
5539.76	16945.00
5540.18	16946.00
5540.59	16947.00
5541.01	16948.00
5541.42	16949.00
5541.84	16950.00
5542.26	16951.00
5542.67	16952.00
5543.09	16953.00
5543.51	16954.00
5543.92	16955.00
5544.34	16956.00
5544.75	16957.00

LAT COL. A	LONG COL. B
5545.17	16958.00
5545.58	16959.00
5546.00	17000.00

TABLE 1

plot of the points on the line intersecting between subareas 513 and 518, 519.

pg. 1



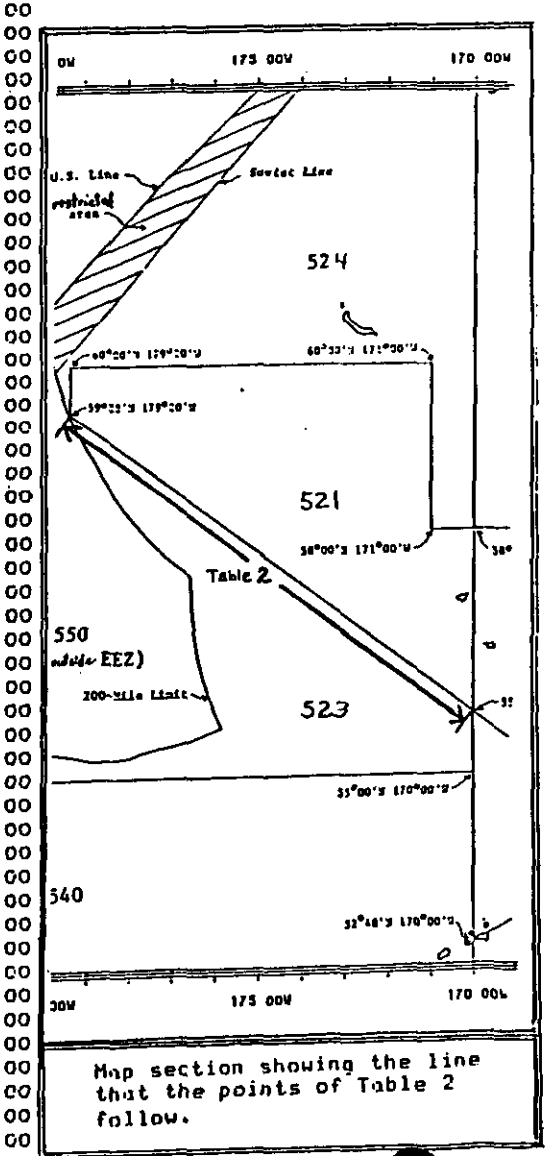
Map Section showing the line that the points of Table 1 follow.

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
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
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
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	17356.00
5721	17357.00
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 522.

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
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LAT COL. A	LONG COL. B
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LAT COL. A	LONG COL. B
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3923.51	17916.00
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COMPLIANCE MONITORING, OBSERVER LOGS, AND DEBRIEFING

Section 7 Topics:

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SUMMARY OF FEDERAL GROUNDFISH FISHING REGULATIONS FOR THE U.S. OFF ALASKA

Prepared on November 15, 1994 by:
Observer Program Staff

INTRODUCTION

This summary of regulations in not complete, nor quoted verbatim from federal law. It is a summary of various Code of Federal Regulations (50 CFR 611, 620, 672 and 675) and United States Code Annotated (16 USCA Chapter 38), simplified for the user's convenience. For further details, or to inspect a copy of the official codified regulations, consult a National Marine Fisheries Service office listed in the CONTACT POINTS section of this summary.

In many cases, copies of the various CFRs and USCAs are available in local libraries, and State or Federal Court Buildings. Further, the National Marine Fisheries Service periodically prints regulation booklets for each of the fisheries administered by NMFS. The regulations appearing in the regulation booklets and this summary may be changed at any time by emergency regulation, notice of closure, or regular amendments to the Fisheries Management Plans governing the fisheries. Supplementary changes to regulations will be available at offices of the National Marine Fisheries Service. Substantive supplementary changes to the regulations will, in addition to being printed in the Federal Register, be released to news media, and at times broadcast in U.S. Coast Guard Notice to Mariners. A current listing of federal fisheries closures may also be obtained through offices of the National Marine Fisheries Service.

This summary does not supersede, amend, or detract from federal regulations or law as printed in the Federal Register, Code of Federal Regulations, or the United States Code Annotated. 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 - §672.1 and §675.1

GROUNDFISH - summarized herein are regulations implementing the Fishery Management Plan for the Groundfish Fishery of the Gulf of Alaska and the Groundfish Fishery of the Bering Sea and Aleutian Islands area. These regulations are codified in Title 50 of the Code of Federal Regulations, Parts 672 and 675 and in Title 16 of the United States Code Annotated, Chapter 38.

PACIFIC HALIBUT - This summary does not address U.S. fishing for halibut with the exception of take incidental to fishing for groundfish. Fishing for halibut is regulated by the International Pacific Halibut Commission (IPHC). Regulations governing halibut fishing are codified in 50 CFR, Part 301, and IPHC regulation pamphlets published and distributed annually by IPHC.

SALMON - This summary does not address fishing for salmon with the exception of take incidental to fishing for groundfish. Net fishing for salmon by U.S. citizens is prohibited within the EEZ. Hook and line fishing for salmon within the EEZ is regulated by both federal and state law. Federal regulations governing salmon fishing are codified in 50 CFR, Parts 210 and 674.

DEFINITIONS

1. GEOGRAPHIC DEFINITIONS

EXCLUSIVE ECONOMIC ZONE OR FISHERIES CONSERVATION ZONE (EEZ/FCZ) are synonymous terms meaning that 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 from the baseline from which the territorial sea of the United States is measured (i.e., 3 - 200 nautical miles offshore).

GULF OF ALASKA (GOA) means is that of portion of the EEZ North Pacific Ocean exclusive of the Bering Sea, between 132 °40' W. longitude 170°00' W. longitude seaward of the State of Alaska.

BERING SEA AND ALEUTIAN ISLANDS MANAGEMENT AREA (BSA) means that 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.

ALEUTIAN ISLANDS SUBAREA (AI) means that portion of the BSA south of 55°00' N. latitude and west of 170°00' W. longitude.

BERING SEA SUBAREA (BS) means that portion of the BSA both north of 55°00' N. latitude and west of 170°00' W. longitude; and north of the Aleutian Island chain, east of 170°00' W. longitude.

REGULATORY AREA means any of three areas of the EEZ of the Gulf of Alaska. A map of the three regulatory areas (Eastern, Central, and Western) can be found in the Catch Message section of the manual.

REGULATORY DISTRICT means any of the three districts of the Eastern Regulatory area and the Shelikof Strait district of the Gulf of Alaska. A map of the three regulatory districts (Southeast Outside, East Yakutat, West Yakutat) can be found in the Catch Message section of the manual.

REPORTING AREA means the relevant Bering Sea and Aleutian Islands statistical area and, in addition to the State waters described in the relevant statistical area, all State waters between the shore and any inshore boundary of that statistical area.

BYCATCH LIMITATION ZONES means any of the three zones of the Bering Sea. A map of the bycatch limitation zone can be found in the Catch Message section of the manual.

Bycatch limitation zone 1 means BSA subareas 508, 509, and 516.
Bycatch limitation zone 2 means BSA subareas 513, 517, and 521.
Bycatch limitation zone 2H means BSA subarea 517

2. GENERAL DEFINITIONS

ADF&G means the Alaska Department of Fish and Game.

BREAST LINE means the rope or wire running along the forward edges of the side panels of the net, or along the forward edge of the side rope in a rope trawl (see figure 2 below).

DAILY REPORTING PERIOD OR DAY is the period from midnight until the following midnight using Alaska local time (ALT).

FISHING means any activity, 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. This would include the acts of scouting, processing and support.

FISH PRODUCT WEIGHT means the weight of the fish product to the nearest tenth of a metric ton (0.1 mt) based upon the number of production units and the weight of those units. Production units include pans, cartons, blocks, trays, cans, bags, and individually frozen fish. The weight of a production unit is based on the average weight of the product as determined by analyzing representative samples. The weight of the production unit does not include packaging. The weight of the production unit does include water added to the product and other additives reported to NMFS. NMFS may use the weight of the production units, with an allowance for water added not to exceed 5 percent of the weight of the production unit, to determine net weight, to calculate round weight equivalents and to calculate the standard product recover rates.

FISHING CIRCLE means the circumference of a trawl intersecting the center point on a fishing line, and that is perpendicular to the long axis of a trawl.

FISHING LINE means a length of chain or wire rope in the bottom front end of a trawl to which the webbing or lead ropes are attached (see figure 2 below).

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 below).

GROUND FISH means pollock, cod, any species of flatfish, any species of flounder and sole, Pacific Ocean Perch, thornyhead rockfish, other rockfish, sablefish, Atka mackerel, squid, octopus; all other marine invertebrates except, shrimp, scallops, snails, king crab, Tanner crab, Dungeness crab, horsehair crab, lyre crab, coral, and clams; and all other finfish except salmonids, steelhead trout, Pacific herring, and Pacific halibut.

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 means that part of the U.S. groundfish fishery off Alaska that includes:

(1) All shoreside processing operations;

(2) All processor vessels in Alaska State waters that process, at a single geographic location during a fishing year, pollock harvested in a directed fishery for pollock (includes BSAI and GOA), or Pacific cod in a directed fishery for Pacific cod harvested in the Gulf of Alaska; and

(3) All processor vessels that process, on a daily average during any weekly reporting period, less than 18 metric tons of Pacific cod harvested in the Gulf of Alaska and pollock in aggregate round weight equivalents, and are less than 125 feet in length overall.

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 off-loading 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 pots attached, or the taking of fish by means of such device.

OFFSHORE COMPONENT means all processor vessels in the U.S. groundfish fisheries off Alaska not included in the definition of inshore component.

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, head rope, and breast lines with less than 20 inches (50.8 cm) between knots, and as 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; or

(ii) Has no parallel lines spaced closer than 64 inches (162.6cm), from all points on the fishing, head rope, 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 length overall;

(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 length overall;

(5) Contains no configuration intended to reduce the stretched mesh sizes described in paragraphs (3) and (4) of this definition;

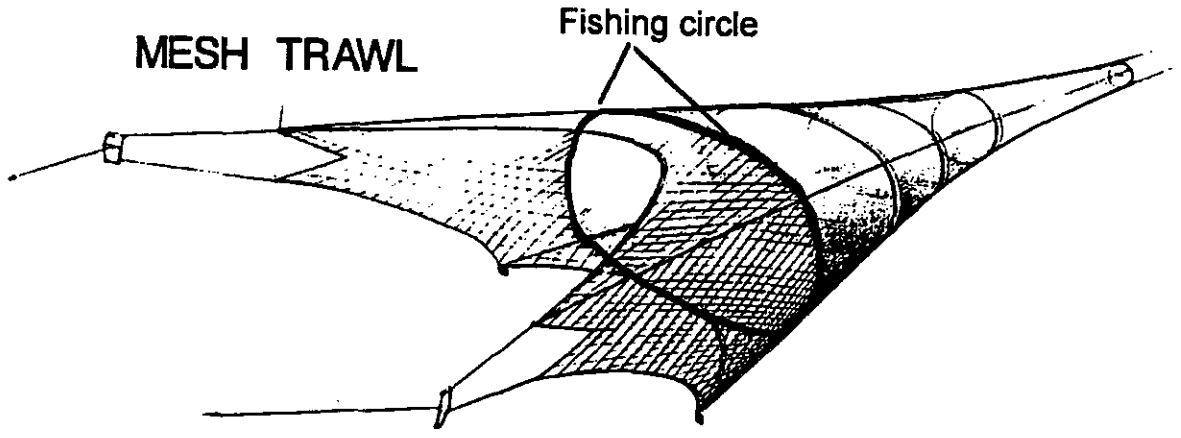
(6) Has no flotation other than floats capable of providing up to 200 pounds (90.7kg) of buoyancy to accommodate the use of a net-sounder device;

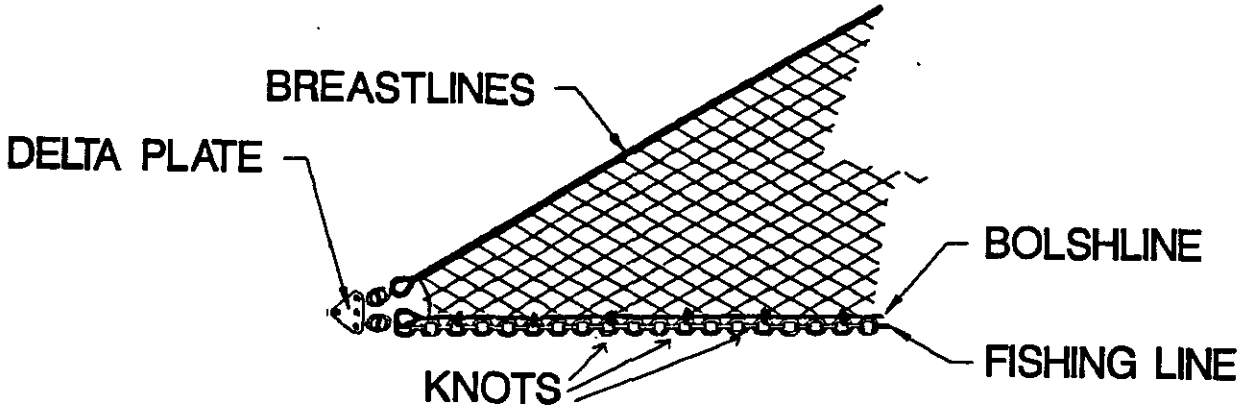
(7) Has no more than one fishing line and one foot rope for a total of no more than two weighted lines on the bottom of the trawl between the wing tips and the fishing circle;

(8) Has no metallic component except for hammerlocks or swivels of net-sounder device aft of the fishing circle and forward of any mesh greater than 5.5 inches (14.0cm) stretched measure;

(9) May have small mesh within 32 feet (9.8m) of the center of the head rope as needed for attaching instrumentation (e.g. net-sounder device); and

(10) May have weights on the wing tip.


MESH TRAWL
Fishing circle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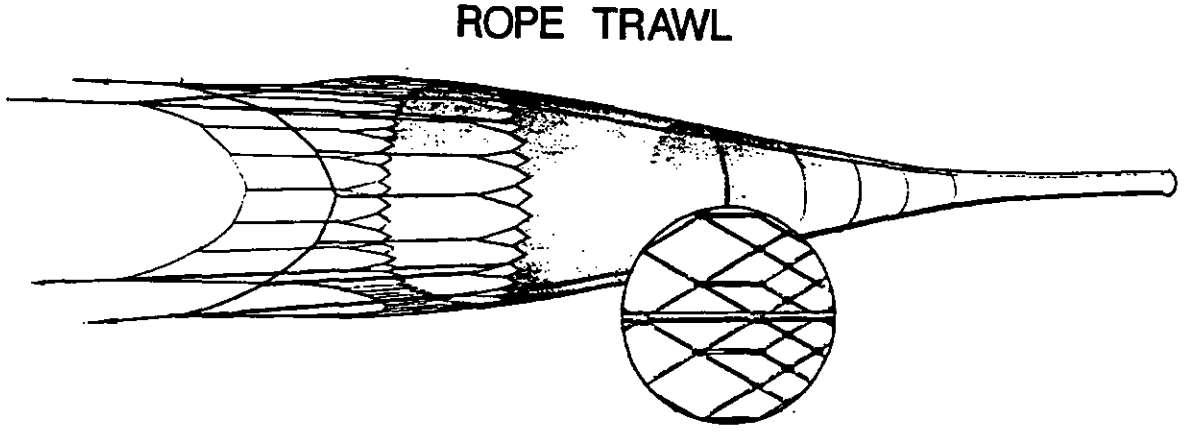
DELTA PLATE
BOLSHLINE
FISHING LINE
KNOTS


ROPE TRAWL

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.

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 heading and gutting unless additional preparation is done.

PROCESSOR VESSEL, unless otherwise restricted, includes any vessel which is used for, equipped to be used for, or of a type which is normally used for processing, including specifically catcher/processor vessels and mothership processor vessels.

NET-SONDE 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.

QUARTERLY REPORTING PERIOD OR QUARTER means a three month period; the first quarter is from January 1 through March 31, the second quarter is from April 1 through June 31, the third quarter is from July 1 through September 30, and the fourth quarter is from October 1 through December 31.

REPORTING AREA means the relevant Bering Sea, Aleutian Islands, Gulf of Alaska Manage Area as shown in the Catch Message Section of the manual.

STATISTICAL AREA means any one of the 12 statistical areas of the Bering Sea and Aleutian Islands management areas and any one of the five statistical areas of the Gulf of Alaska as shown in the Catch Message section of Observer manual.

STRETCHED MESH SIZE means the distance betwwen opposite knots of a four-sided mesh when opposite knots ate pulled tautly to remove slack.

TRAWL means a funnel-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 call 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 from midnight Sunday morning until midnight of the following Saturday night, Alaska local time (ALT).

WING TIP means the point where adjacent breast lines intersect or where a breast line intersects with the fishing line (see figure 2 above).

PERMITS - §672.4

1. GENERAL INFORMATION

All U.S. vessels that conduct fishing activities within the EEZ (including vessels that process only) must have a Federal Fisheries Permit. Cargo transport vessels and fuel tanker vessels that support groundfish fishing vessels must also have a Federal Fisheries Permit. The permit must be carried on board the vessel at all times.

The permits are free of charge and can be obtained by applying to the National Marine Fisheries Service, Office of Enforcement, Juneau, Alaska (see CONTACT POINTS section). Applications can be obtained at any of the Alaska Region offices of NMFS. The permits are valid for the calendar year (January 1 through December 31) and must be renewed annually.

In addition to other information the permit must state the gear type used and vessel purpose. Vessel purpose types are as follows:

HARVESTING/PROCESSING
HARVESTING ONLY
PROCESSING ONLY
SUPPORT ONLY

NMFS must be notified in writing of any changes in the permit information within 30 days of such change.

No person may use a vessel which has a groundfish permit to fish in the Donut Hole, or to possess fish in the EEZ that were caught in the Donut Hole. If a permit issued to a vessel is surrendered, that vessel may be used to fish in or possess fish caught from the Donut Hole.

REPORTING REQUIREMENTS FOR ALL VESSELS AND SHORESIDE PROCESSORS - §672.5 and §675.5

(a) Applicability and general requirements

(1) APPLICABILITY

The owners and operators of each vessel and the owners and managers of each shoreside processing facility are jointly and severally responsible for compliance with the recordkeeping and reporting requirements set forth under this section. Except as otherwise provided, this section applies

- to all vessels required to have a Federal groundfish fishing permit
- to all processor vessels and shoreside processing facilities that receive groundfish from vessels regulated under this part; and
- to any fishing or processing that involves any groundfish species, species group or prohibited species regulated under this part.

(2) GENERAL REQUIREMENTS

The operators and managers of vessels and shoreside processing facilities must comply with the recordkeeping, reporting, logbook and notice requirements of this section, must maintain timely and accurate records, reports, and logbooks required by this section, must maintain all required records, reports and logbooks in a legible manner and in English, and must maintain all required records, reports and logbooks based on Alaska Local Time (ALT). All reporting periods are calculated using ALT.

(3) REQUIREMENT OF AVAILABILITY FOR INSPECTION

The operator of a vessel and the manager of a shoreside processing facility must make available the original copy of any record, report, or logbook required under this section immediately upon the request of an authorized officer or observer at any time during which the record, report, or logbook is required to be maintained by the operator or manager.

(4) REQUIREMENT RELATED TO SUBMISSIONS.

Records and reports (i.e. the yellow pages of the ship's or plant's logbooks) which are required to be submitted to the Alaska Fisheries Science Center must be addressed or delivered to the National Marine Fisheries Service, 7600 Sand Point Way NE - Building 4, Seattle, Washington 98115.

LOGBOOKS - §672.5 and §675.5

The operator of any catcher vessel 5 net tons and larger, the operator of any processor vessel, and the manager of any shoreside processing facility that harvests or processes groundfish from any reporting area in the Gulf of Alaska or the Bering Sea and Aleutian Islands must meet the following recordkeeping requirements:

(1) GENERAL

(i) Retention of logbook records during the fishing year. The operator of a vessel must retain the original copy of all logbooks required under this section on board the vessel 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 that vessel. The manager of each shoreside processing facility must retain the original copy of all logbooks required under this section within the processing facility until the end of the fishing year and for as long after the end of the fishing year as fish and fish products recorded in the logbook are retained at the processing facility.

(ii) Prescribed logbooks. The Regional Director will prescribe and provide logbooks required under this section. The operator of a vessel and the manager of a shoreside processing facility must use these prescribed logbooks.

(iii) Entries and alterations in the logbooks. The operator or manager must maintain and record information as required by instructions in the logbooks and in accordance with this section. No person may remove any original page of any logbook. Any entry or recording of information which is required to be made in a logbook must be made in indelible ink. 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.

(2) DAILY FISHING LOGBOOK

(i) The operator of each catcher/processor and catcher vessel harvesting groundfish from any reporting area in the Gulf of Alaska or the Bering Sea and Aleutian Islands must maintain on board a daily fishing log of the effort and catch information of the vessel as described below. Daily effort entries are required for each day the vessel conducts fishing operations. Daily entries are not required for those days when the fishing vessel stays in port. Catcher/processor vessels will be provided with daily fishing logbooks that also record the daily production information.

(ii) Contents. The daily fishing log must record the information required by the instructions within each issued logbook. (See examples of logbooks given out in class.)

(iii) Maintenance. Entries in the daily fishing log as to trawl set number, time, position, and estimated catch weight must be recorded within two hours after completion of the applicable trawl or set. All other information required in the daily fishing log must be recorded by noon of the following day.

(iv) Discard information. Notwithstanding other time limits, all information required under this section must be recorded in the daily fishing logbook prior to the when the vessels catch is off-loaded. The 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.

(v) Quarterly submission. The operator of a catcher vessel or catcher/processor vessel must submit a copy of the daily fishing logbook on a quarterly basis to the Northwest and Alaska Fishery 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.

(3) DAILY CUMULATIVE PRODUCTION LOGBOOK

(i) The operator of each processor vessel and the manager of each shoreside processing facility that receives or processes groundfish from any reporting area in the Gulf of Alaska, or the Bering Sea and Aleutian Islands must maintain on the processor vessel or within the processing facility a daily cumulative production log of estimated catch receipt (if applicable), species discard amounts, and retained groundfish product information as described in the following paragraph (ii) of this section. Daily log entries are required for each day a processor vessel or facility receives or processes groundfish.

(ii) Contents. The daily cumulative production logbook must record the information required by the instructions within each issued logbook (See examples of logbooks handed out in class).

(iii) Maintenance. 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 under 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.

(iv) Quarterly submission. 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 Northwest and Alaska Fishery Center. The copy of the daily cumulative production 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.

(4) 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 off-loading, shipment, or receipt of any processed groundfish product, including quantities transferred or offloaded 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 product off-loading, shipment, or receipt.

(i) Product transfer logbooks; contents. The transfer logbook must record the following information:

(A) 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.

(B) 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.

(C) Identification information. When the 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.

(D) 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.

(E) 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.

(F) Second party information. Second party information must include information concerning the other parties involved in the transfer, including the name, Federal permit number, and 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.

(H) 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.

(ii) Submission. 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 transferred occurred.

REPORTING REQUIREMENTS FOR PROCESSING VESSELS AND PLANTS ONLY - §672.5 and §675.5

The operator or manger of any processing vessel or shoreside processor of the United States that harvests and/or processes groundfish caught from any reporting area in the Gulf of Alaska or the Bering Sea and Aleutian Islands must, in addition to the other requirements of this section, comply with the following requirements:

(1) ALASKA GROUNDFISH CHECK-IN/CHECK-OUT NOTICES

(i) Requirements. Prior to the commencement of any fishing activity in, or receipt of any groundfish from any Gulf of Alaska or the Bering Sea and Aleutians Islands reporting area during any fishing year, by any processor vessel, the operator of the vessel must provide a check-in notice to the Regional Director. Upon the completion of fishing activity in or the receipt of any groundfish from any Gulf of Alaska or Bering Sea and Aleutian Islands reporting area during any fishing year by any processor vessel, the operator of the vessel must provide a check-out notice to the Regional Director. When any shoreside processing facility completes receipt of groundfish from any Gulf of Alaska or Bering Sea and Aleutians Islands reporting area during any fishing year, the manager of the processing facility must provide a check-out notice to the Regional Director.

(ii) Contents. The notice of check-in or check-out must include the following information:

(A) 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.

(B) 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 commence. 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.

(C) 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.

(iii) Submission. The notices must be provided by means and in the manner predescribed by Regional Director.

(2) WEEKLY PRODUCTION REPORTS

(i) Processor Vessels. The operator of a processor vessel which conducts fishing activity in, or receives groundfish from, any Gulf of Alaska or Bering Sea and Aleutians Islands reporting area at any time during a fishing year must submit weekly production reports. Weekly production reports are required for a processor vessel for any week during the period beginning with the date specified in the check-in notice and ending after all groundfish harvested from and fish products prepared with any groundfish harvested from any reporting area are off-loaded. Weekly production reports are required during this period even if no groundfish are harvested or received or processed during a particular week. These weekly production reports should specify "zero" with respect to amounts harvested, received, or produced.

(ii) Shoreside Processors. The manager of a shoreside processing facility must submit weekly production report beginning with the first week of the year when the facility receives, any groundfish from the Gulf of Alaska or Bering Sea and Aleutians Islands reporting area and continuing until the end of the year or until the facility ceases groundfish production for the year. Weekly production reports are required during this period even if no groundfish is received or processed during a particular week. These weekly production reports should specify "zero" with respect to the amount harvested, received or produced.

(iii) Weekly production reports; contents. The weekly production report must have a separate page for each gear type used. Each page must include the following information:

(A) The name of the person submitting the report, a telephone number for that person, and either a facsimile or telex number for that person.

(B) Identification information. If the weekly production report is submitted for a processor vessel, this information must include the name and radio call sign of that vessel. If the weekly production report is submitted for a shoreside processing facility, this information must include the name of the plant.

(C) Federal permit number or ADF&G processor code, whichever is applicable.

(D) The end date of the weekly reporting period.

(E) 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).

(F) The reporting area or areas from which groundfish was harvested and retained during the weekly reporting period with the reporting area or areas specified for each groundfish species or species group.

(G) The number of days when fishing activities was conducted and when fish were received.

(H) The total estimated catch weight or catch receipt for each reporting area to the nearest metric ton (mt).

(I) 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 is specified, with one exception: species within the "other species" category must be reported by the species or species group listed in logbook instructions. All weights in the Weekly Production Report must be reported to at least the nearest 0.1 mt.

(J) The amount of each groundfish species, groundfish species group, or prohibited species listed, which is discarded in related fishing operations during the weekly reporting period.

(iv) Submission. The weekly production reports must be provided by the means and in the manner prescribed in the additional processor reporting instructions. Weekly production reports must be received by the Regional Director within one week after the end of the applicable weekly reporting period.

(3) DAILY PRODUCTION REPORT

(i) Requirement. Processor vessels and shoreside processing facilities that conduct fishing activity in or receive groundfish from any Gulf of Alaska or Bering Sea and Aleutians Islands reporting area must submit Daily Production Reports when requested to do so by the Regional Director.

(ii) Daily Production reports: contents. The Daily Production Reports must include the following information:

(A) The name of the representative submitting the report, a telephone number for that person, and either a facsimile or telex number for that person.

(B) Identification information. If the Daily Production Report is submitted for a processor vessel, this information must include the name, radio call sign, and Federal permit number of that vessel. If the daily report is submitted for a shoreside processing facility, this information must include the name and ADF&G processor code number of the plant.

(C) The gear type used to harvest the groundfish catch or catch receipt (pelagic trawl, non-pelagic trawl, hook-and-line, pot, jig/troll, or other).

(D) Date(s) of groundfish harvest or receipt.

(E) For each day, the reporting area or areas from which groundfish catch or receipts were harvested, with the reporting area or areas specified for each groundfish species or species group.

(F) The fish product weight of each product produced during a day, including species and product-type codes, for each groundfish species or species group for which a TAC is specified, with one exception: species within the "other species" category must be reported by species or species group listed in logbook instructions.

(G) The amount of each groundfish species or species group that is discarded in related fishing operations during a day.

(iii) Daily Production Report; submission. Daily Production Reports must be submitted to the Regional Director through the means and in the manner prescribed by the Regional Director.

GENERAL PROHIBITIONS - §620.7, §672.7, and §675.7

§620.7 - It is unlawful for any person to:

Fish for groundfish without a valid Federal Fisheries Permit as required by these regulations;

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 these 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.

§672.7 and §675.7 - It is unlawful for any person to:

Forcibly assault, resist, impede, intimidate, or interfere with an observer placed aboard a fishing vessel pursuant to these regulations;

Conduct any fishing contrary to a notice of inseason adjustment;

Fish for groundfish except in compliance with terms of the Observer Plan;

Fish for groundfish in an area with a vessel using a gear type when directed fishing for all groundfish by vessels using that gear type is closed;

Process pollock that were harvested in a directed pollock fishery conducted in a federal reporting area of the GOA or BSAI on a processor in Alaska State Waters under the inshore component at a location other than the one at which this species was first processed in any year;

Process Pacific cod that were harvested in a directed Pacific cod fishery in the Gulf of Alaska on a processor in Alaska State Waters under the inshore component at a location other than the one at which this species was first processed in any year;

Process pollock that were harvested in the GOA or BSAI under the *inshore component* and *offshore component* definitions during the same fishing;

Fish in the Donut Hole while on board a vessel for which a permit has been issued during any fishing year for which the permit has been issued.

Have on board at any particular time 20 or more crabs of any species which have a width of more than 1.5 inches (38 millimeters) at the widest dimension, caught with trawl gear when directed fishing for pollock with nonpelagic trawl gear is prohibited under §675.21(c) or §675.24(c)(2)

With respect to halibut caught with hook-line-line gear deployed from a vessel fishing for groundfish;

(1) Fail to release the halibut outboard a vessel's rail;

(2) Release the halibut by any other than;

(i) Cutting the gangion;

(ii) Positioning the gaff on the hook twisting the hook from the halibut;

(iii) 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;

(3) Puncture the halibut with a gaff or other device; or

(4) Allow the halibut to contact the vessel, if such contact causes, or is capable of causing, the halibut to be stripped from the hook.

Engage in directed fishing for sablefish with hook-and-line gear from a vessel that was used to deploy hook-and-line gear within 72 hours prior to the opening of the sablefish hook-and-line fishery.

ENFORCEMENT - §620.8

These 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. (Note: observers are not listed here!)

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 boarding and inspection of the vessel, its gear, equipment, fishing records, and catch.

NOTICES OF CLOSURE

Notice 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 total allowable catch limit.

Notice of closures and inseason adjustment will, it addition to being published in the Federal Register, normally be released to the public news media, and posted on the NMFS computer bulletin board @ (907) 586-7259.

PROHIBITED SPECIES - §672.20 and §675.20

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 varieties)
-Steelhead trout
-Pacific halibut
-Pacific herring
-Tanner crab (all varieties)
-King crab (all varieties)
-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.

Each vessel must sort its catch as soon as possible after retrieval of the catch and, after allowing sampling by an observer (if any), shall return any catch of prohibited species or part thereof to the sea immediately with a minimum of injury regardless of its condition. It shall be presumed that any prohibited species found on board a vessel subject to these regulations was caught and violation of these regulations.

SUMMARY OF THE ROE STRIPPING REGULATION - §672.20 and §675.20

Sometime in early1994 the regulations concerning roe stripping will be changed

- Pollock roe retained onboard a vessel at any time during a fishing trip must not exceed 10 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. No person may include pollock or pollock products from previous fishing trips that is retained onboard a vessel in determining 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. The following product-recovery rates will be used to calculate the round-weight equivalents of the primary pollock products:

pollock surimi - 15 percent;
pollock fillets - 18 percent;
pollock minced product - 17 percent;
pollock meal - 17 percent; and
pollock headed and gutted - 50 percent.

3. Recovery rates for products not listed above must equal or exceed the product-recovery rate established for pollock surimi.

4. 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, or until the vessel leaves the subarea where the fishing activity commenced, whichever comes first.

5. 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 0.10. 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 0.10 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.

OBSERVERS - §672.27 and §675.27

All fishing vessels subject to these regulations and all shoreside processing facilities that receive groundfish from vessels subject to this regulations, must comply with terms contained in the Observer Plan that has been prepared by the Secretary in consultation with the Council for purposes of providing data useful in management of the groundfish fishery, unless specifically exempt from such compliance by the observer plan.

1. VESSEL REQUIREMENTS

All vessels of 125 feet length overall (LOA) or longer will be required to carry an observer at all times when participating in the groundfish fishery. Vessels from 60 to 124 feet LOA will be required to carry certified observers during 30 percent of their fishing days during fishing trips in each calendar quarter of the year in which they fish more than 10 days. Vessels under 60 feet LOA must carry an observer if required by the Regional Director.

(Sometime in 1994 pot vessel coverage requirements will change; all pot vessels over 60 feet will be required to carry an observer 30 percent of their fishing days. All longline vessels fishing in the Eastern GOA will also be required to carry an observer during 30 percent of their fishing days and/or at least one trip during each fishery. Vessels between 60 and 124 feet will be required to carry observers during 30% of the days during fishing trips in each calendar quarter in which they fish more than 3 days and carry that observer at least one fishing trip for each target fishery in which it participate.)

2. MOTHERSHIP PROCESSOR VESSELS

A mothership processor vessel (a floater by the Observer Programs definition) of any length that processes 1,000 mt or more, calculated in round weight equivalents, of groundfish during a calendar month is required to have a NMFS certified observer on board the vessel each day it receives or processes groundfish during that month. A mothership processor vessel of any length that processes 500 to 1,000 mt, calculated in round weight equivalents, of groundfish during a calendar month is required to have a NMFS certified observer on board the vessel at least 30 percent of the days it receives or processes groundfish during that month.

3. SHORESIDE PLANT REQUIREMENTS

Shoreside processing facilities that processes 1,000 mt or more, calculated in round weight equivalents, of groundfish during a calendar month are required to have an 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, calculated in round weight equivalents, of groundfish during a calendar month are 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.

4. VESSEL FISHING TRIPS

For purposes of observer coverage, a fishing trip is defined to start an the day when fishing gear is first deployed and end on the day the vessel offloads ground fish, the vessel returns to an Alaskan port, or leaves the U.S. EEZ (3-200 miles) and adjacent state waters of the State of Alaska (0 - 3 miles).

(In early 1994 the basis for required observer coverage will change from fishing trip days to days when fish are retained.)

SEASONS - §672.23 and §675.23

1. Fishing for groundfish in the regulatory areas and districts of the Gulf of Alaska, Bering Sea, and Aleutian Islands is authorized from 00:01 a.m. Alaska local time, January 1, through 12:00 midnight Alaska local time, December 31, subject to other provisions of this part, except as provided in paragraphs (b) and (c) 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 12:00 noon Alaska local time.

3. Directed fishing for sablefish with hook-and-line gear in the regulatory areas and districts of the Gulf of Alaska is authorized from May 15 through December 31, subject to the other provisions of this part.

4. Directed fishing for yellowfin sole, "other flatfish," arrowtooth flounder, turbot is authorized from May 1 through December 31 in the BSAI.

5. Fishing for groundfish with trawl gear in the BSAI is prohibited from January 1 to January 20.

6. Directed fishing for rockfish with trawl gear is authorized the first day of the third quarterly period of the fishing year through December 31.

GEAR LIMITATIONS - §672.24 and §675.24

(a) Marking of Gear.

(1) All longline marker buoys carried aboard or used by any vessel regulated under this part shall be marked with at least one of the following:

(i) The vessel's name; and

(ii) The vessel's Federal permit number; or

(iii) The vessel's registration number.

(2) Markings shall be in characters at least four inches in height and one-half inches in width in a contrasting color visible above the water line and shall be maintained in good condition.

(b) Gear restrictions.

(1) 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 #30.

(2) 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.

GEAR AND AREA RESTRICTIONS FOR THE GULF OF ALASKA - §672.24

(d) Trawls other than pelagic trawls

(1) No person may trawl in waters of the EEZ within the following areas in the vicinity of Kodiak Island (see figure below) from a vessel having any trawl other than a pelagic trawl either attached or on board:

(i and ii) Alitak Flats, Towers, Marmot Flats Areas: for general location see the map below, but for the exact coordinates please see the Code of Federal Regulations.

(2) From February 15 to June 15, no person may trawl in any of the following areas in the vicinity of Kodiak Island (see figure below, from a vessel having any trawl other than a pelagic trawl either attached or on board:

(i and ii) Chirikof Island and Barnabas Areas: for general location see the map below, but for the exact coordinates please see the Code of Federal Regulations.

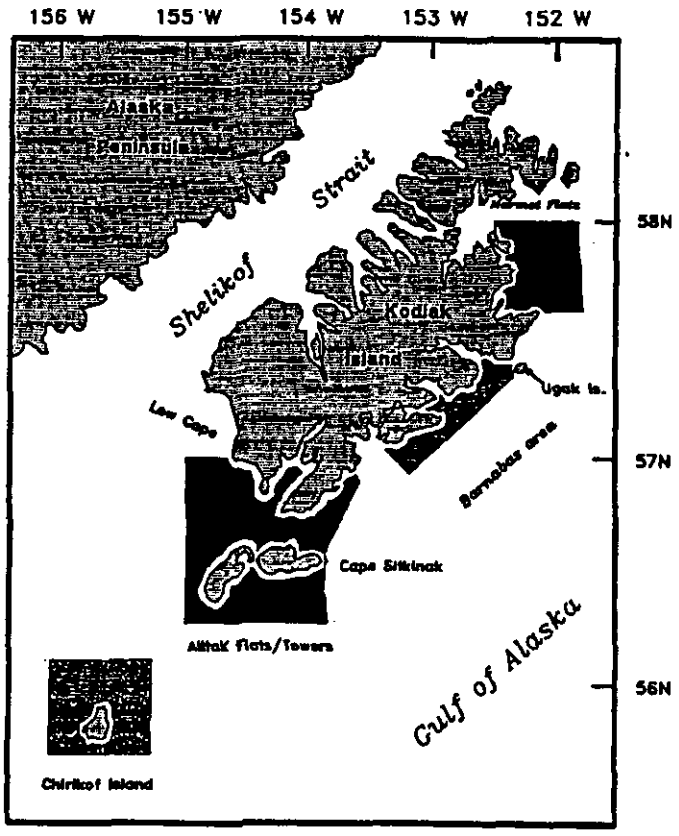


Figure 4 View of restricted areas in the vicinity of Kodiak Island.

(3) Each person using a trawl to fish in any area limited to pelagic trawling under of this section must maintain in working order on that trawl a properly functioning, recording net-sonde device, and must retain all net-sonde recordings aboard the fishing vessel during the fishing year.

(4) No person using a trawl to fish 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 10 percent of the period of any tow, as indicated by the net-sonde device.

GEAR AND AREA RESTRICTIONS FOR BERING SEA AND ALEUTIAN ISLANDS - §675.22

(a) No fishing with trawl gear is allowed at any time in statistical area 512 except as described in the following paragraph.

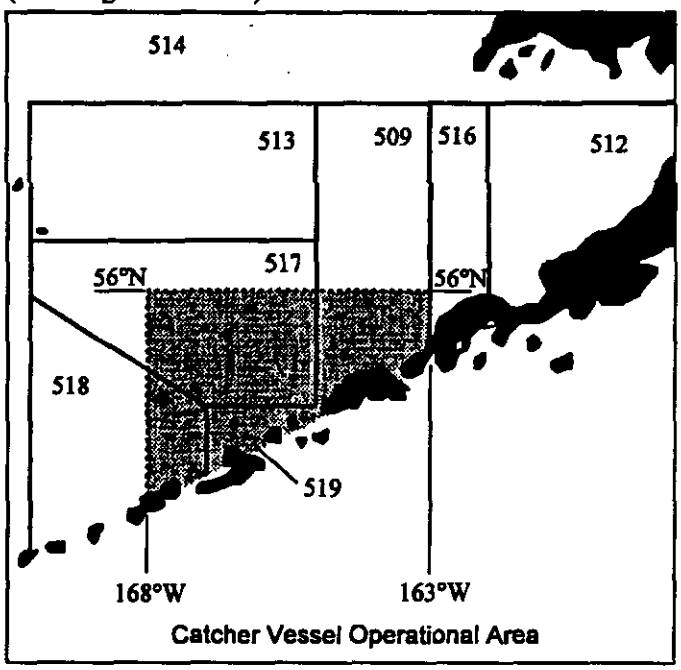
(b) No fishing with trawl gear is allowed at any time in that part of statistical area 516 during the period March 15 through June 15 except as described in the following section.

(c) Fishing for Pacific cod with trawl gear may be allowed in that portion of statistical 512 area 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 scientific data collection and monitoring program, established by the Regional Director.

(d) During the period March 15 through June 15, fishing for Pacific cod with trawl gear may be allowed in that portion of statistical 516 area 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.

(e) From April 1 through September 30 of any fishing vessels are prohibited in that part of the Bering Sea subarea between 3 and 12 miles seaward of the baseline used to measure the territorial sea around islands named Round Island and the Twins as shown on National Oceanic Survey Chart 16315, and around Cape Pierce (58°33'N. latitude,161°43' W. longitude).

(f) Catcher vessel operational area. The offshore component of the ground fish fishery may not conduct directed fishing for pollock at any time in the Bering Sea subarea south of 56°00' N. and between 163°00' and 168°00' W. longitude. (See diagram below.)



PROGRAM TO REDUCE PROHIBITED SPECIES BYCATCH RATES - §672.26 and §675.26

(a) General information.

(1) A vessel's bycatch rate, as calculated at the end of a fishing month as described in this section, while participating in the fisheries identified in section (b), shall not exceed bycatch rate standards referenced in this section.

(2) Definitions for purposes of this section.

(i) Observed or observed data refers to data collected by observers who are certified under the NMFS Observer Program.

(ii) Bycatch rate:

(A) The ratio of the total round weight of halibut, in kilograms, to the total round weight, in metric tons, of groundfish for which a TAC has been specified under §672.20 or §675.20.

(B) The ratio of the number of red king crab to the total round weight, in metric tons, of groundfish for which a TAC has been specified under §672.20 or §675.20.

(iii) Fishing month refers to a time period calculated on the basis of weekly reporting periods 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 and 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 will be announced in the Federal Register.

(b) Fisheries A vessel will be subject to this section if the groundfish catch of the vessel is observed on board the vessel, or on board a mothership processor that receives unsorted codends from the vessel. During any weekly reporting period, a vessel's observed catch composition of groundfish species or species groups will determine the fishery to which the vessel is assigned. Fisheries for the Bering Sea and Aleutian Islands include the midwater pollock fishery, bottom pollock fishery, yellowfin sole fishery, and Other trawl fisheries. Fisheries for the Gulf of Alaska include midwater pollock fishery and Other trawl fisheries.

(c) Bycatch rate standards

(1) Establishment of bycatch rate standards.

(i) 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 in above paragraph of this section 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.

(ii) Bycatch rate standards for a fishery and adjustments to such standards will be based on the following information and considerations:

(A) The average observed bycatch rates for that fishery for the previous year;

(B) Immediately preceding season's average observed bycatch rates for that fishery;

(C) The bycatch allowances and associated fishery closures specified under §672.20;

(D) Anticipated groundfish harvests for that fishery;

(E) Anticipated seasonal distribution of fishing effort for groundfish; and

(F) Other information and criteria deemed relevant by the Regional Director.

(2) Procedure.

(i) 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.

(d) Vessel bycatch rates.

(1) Observed data. For purposes of this section, observed data collected for each haul sampled during a day will include the date, position (Federal reporting area) where trawl gear for the haul was retrieved, total round weight of groundfish, in metric tons, in the portion of the haul sampled by groundfish species or species group for which a TAC has been specified under §672.20 or §675.20 of this part, and total round weight of halibut, in kilograms, in the portion of the haul sampled.

(2) Observer sampling Procedures.

(i) NMFS will randomly predetermine the hauls to be sampled by an observer during the time the observer is on a vessel.

(ii) An observer will: (A) take samples at random from throughout the haul, and (B) take samples prior to sorting of the haul by the crew for processing or discarding of the catch.

(iii) An observer will sample a minimum of 100 kilograms of fish from each haul sampled.

(iv) while an observer is at sea, the observer will report to NMFS, on at least a weekly basis, the data for sampled hauls.

(v) Upon request, the observer will allow the vessel operator to see all observed data that the observer submits to NMFS.

(3) Determination of individual vessel bycatch rates.

(i) Calculation of monthly bycatch rates.

(A) Assignment of vessels to fisheries.

(1) Catcher/processor vessels will be assigned to fisheries at the end of each weekly reporting period based on the round weight equivalent of the retained groundfish catch composition reported on a vessel's weekly production report that is submitted to the Regional Director.

(2) Catcher vessels that deliver to mothership processors in Federal waters during a weekly period will be assigned to fisheries based on the round weight equivalent of retained groundfish catch composition reported on weekly report submitted to the Regional Director for that week by the mothership.

(3) Catcher vessels delivering to shoreside processors or to mothership processors in Alaska State waters during a weekly period will be assigned to fisheries based on the round weight equivalent of the groundfish retained by the processor and reported on an ADF&G fish ticket.

(B) 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 while an observer was on board (as recorded in the vessel's daily logbook), the Regional Director will calculate

the vessel's bycatch rate based on observed data for each fishery as described in the previous paragraphs of 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.

(C) The halibut bycatch rate of a vessel for a fishery described above 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 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.

(ii) 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.

SUMMARY OF REGULATIONS ON MARINE MAMMALS

REGULATIONS CONCERNING TAKING OF MARINE MAMMALS
(Excerpts taken from 50 CFR 216 and 229)

Definitions. (§216.3)

Marine mammals means those species of the following orders, (A) which are morphologically adapted to the marine environment: Cetacea (whales and porpoises), Pinnipedia, (seals, sealion, and walrus) and (B) whether alive or dead, and any parts thereof, including but not limited to, any raw dressed or dyed fur or skin.

Take means to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill, any marine mammal, including, 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, or the doing of other negligent or intentional acts which result in the disturbing or molesting of a marine mammal.

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 a marine mammal in water under the jurisdiction of United States.

Prohibited uses, possession, transportation, and sales. (§216.3)

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.

(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 Stellar sealion, any Alaskan sea otter, any cetacean, any depleted species (including the Priblof Island population of North Pacific 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.

(THIS SYSTEM OF DEALING WITH MARINE MAMMALS AND FISHERMEN WILL EXPIRE IN MARCH 1994)

Requirements for Category I and II Fisheries (§229.6)

(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.

(3) A Certificate holder or a crew member may intentionally take marine mammals to protect catch, gear, or person during the course of commercial fishing operations by a means and in a manner not expected to cause death or injury to a marine mammal.

(4) If the infliction of damage to catch, gear, or person is substantial and immediate and only after all noninjurious means authorized by the above paragraph of this section have been taken; a Certificate holder or crew member may intentionally injure or kill a marine mammal to protect catch, gear, or person, except that it is prohibited for a Certificate holder or crew member to intentionally lethally take any Stellar sea lion, any Alaskan sea otter, any cetacean, any depleted species (including the Pribilof Island population of north Pacific fur seal), or any endangered or threatened marine mammal.

(5) No fishing gear, in whole or in part, may be willfully discarded.

Requirements for Category III fisheries. (§229.7)

(1) Vessel owners and crew members of such vessels may incidentally take marine mammals with the following restrictions:

(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 Assistant Administrator of NMFS, or by a scientific research permit that is in possession of the operator.

(3) Vessel owners and crew members may intentionally take marine mammals to protect catch, gear, or person during the course of commercial fishing operations by a means and in a manner not expected to cause death or injury to a marine mammal.

(4) If the infliction of damage to catch, gear, or person is substantial and immediate and only after all noninjurious means authorized by the above paragraph of this section have been taken; a vessel owner or crew member may intentionally injure or kill a marine mammal to protect catch, gear, or person, except that it is prohibited for a vessel owner or crew member to intentionally lethally take any Stellar sea lion, any Alaskan sea otter, any cetacean, any depleted species (including the Pribilof Island population of north Pacific fur seal), or any endangered or threatened marine mammal.

(5) No fishing gear, in whole or in part, may be willfully discarded.

TAKING OF MARINE MAMMALS INCIDENTAL TO COMMERCIAL FISHING OPERATIONS INTERIM EXEMPTION FOR COMMERCIAL FISHERIES

(THIS SYSTEM OF DEALING WITH MARINE MAMMALS AND FISHERMEN WILL EXPIRE IN MARCH 1994)

[Under the Marine Mammal Protection Act (MMPA), the term "take" means to hunt, capture, kill or harass; or to attempt these actions.]

Before the 1988 amendments, the MMPA prohibited the take of marine mammals incidental to commercial fishing operations unless authorized by a general permit or a small take exemption. In order to issue a general permit, NOAA Fisheries was required to determine that the population stock from which a marine mammal was to be taken was within its optimum sustainable population (OSP) and that the marine mammal stock would not be disadvantaged by the incidental take. If these determinations could not be made, a permit could not be issued for that particular marine mammal stock. Early in 1988 it became apparent that the necessary determinations to renew certain general permits could not be made and many fishermen would be forced to forgo fishing altogether or risk substantial penalties for violating the MMPA. To address this problem, Congress amended the MMPA based on a proposal developed by representatives of the fishing industry and the conservation community.

Section 114, added by Pub. L. 100-711 on Nov. 23, 1988, replaces most earlier provisions of the MMPA for granting incidental take authorizations to commercial fishermen with an interim exemption system valid until October 1, 1993. Section 114 gives most commercial fishermen a 5-year exemption from the incidental taking provisions of the MMPA, provided that certain conditions are met. The primary objective of this interim system is to provide a means to obtain reliable information about interactions between commercial fishing activities and marine mammals while allowing commercial fishing operations to continue despite NOAA Fisheries current inability to make OSP findings. The information collected in conjunction with the exemption system and information on the sizes and trends of marine mammal populations will be used to develop a long-term program to govern the taking of marine mammals associated with commercial fisheries.

The 1988 amendments require the Secretary of Commerce to publish a list of fisheries, along with the marine mammals and number of vessels or persons involved in each fishery, in three categories as follows:

[I] A frequent incidental taking of marine mammals;

[II] An occasional incidental taking of marine mammals; or

[III] A remote likelihood, or no known incidental taking of marine mammals.

NOAA Fisheries issued a notice or final List of Fisheries on April 20, 1989. The List of Fisheries, categorized according to frequency on incidental take of marine mammals, will be reviewed at least annually and may be amended, after notice in the Federal Register and opportunity for public comment.

<u>Category I fisheries in the Pacific Ocean include:</u>

Trawl fisheries in the Bering Sea and Gulf of Alaska which have taken Northern fur seal, Stellar sea lions, various other seals, Dall's and harbor porpoise, minke whales and others.
Gillnet fisheries (drift and set) for salmon in Prince William Sound which have taken Stellar sea lion, harbor seal and sea otter;
Gillnet fisheries (drift and set) for salmon in Washington and Oregon in several bays, estuaries, and rivers which have taken Stellar sea lions, California sea lion, harbor seals, harbor porpoise and grey whales;
Gillnet fisheries (drift and set) for shark and swordfish off WA, OR, and CA which have taken Calif. sea lion, harbor seals, harbor porpoise and common dolphin;

Category II fisheries include:

Longline fisheries for sablefish;
Gillnet fisheries for salmon in Bristol Bay, Kodiak, Cook Inlet, Puget Sound, and Klamath River;
Troll fisheries for salmon;
Net pen aquaculture.

Category III fisheries include:

Longline fisheries for halibut and other groundfish;
Trawl fisheries in Alaska for herring and shrimp and trawl fisheries off WA, OR, and CA for groundfish.
Other gillnet fishery areas for salmon and other species;
Non-salmon troll fisheries;
Most purse seine fisheries;

The 1988 amendments require that, beginning July 21, 1989, vessel owners must register to obtain an Exemption Certificate and decal for each vessel that will be engaged in a Category I or II fishery. The decal and, after 1989, a current annual sticker must be attached to the vessel's port side, on the cabin, and must be free of obstruction and in good condition. Certificates and decals are not transferable.

If requested by NMFS, a Certificate holder engaged in a Category I fishery must take on board a natural resources observer to accompany the vessel on any or all fishing trips in a fishing season. After being notified, a Certificate holder must provide information on scheduled or anticipated fishing trips to facilitate observer placement.

REGULATIONS CONCERNING STELLAR SEA LIONS
(excerpts from §672.24 and §675.24)

New regulations now apply to all human activities, including commercial fishing, near Stellar (northern) sea lions at-sea and near some of the islands where they breed.

1 *Shooting at or near any Stellar 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 Stellar sealion rookery sites (locations where pups are born) west of 150° W longitude. Trawling cannot be conducted within 10 nautical miles of Stellar 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 strait, narrows, or passageway, 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 Stellar 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 Stellar 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, which are in the primary range of the species.

These closures are intended to further reduce any effects that groundfish trawling may have on the Stellar sea lions, particularly to their foraging success. The 10 nautical mile closure is base on the average distance travelled by foraging female Stellar 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°12.5W		16520	whole island
Bogoslof I.	53°56.0N 168°02.0W		16500	whole island
Yunaska I.	52°41.0N 170°34.5W	52°42.0N 170°38.5W	16500	NE end
Seguam I.	52°21.5N 172°33.5W	52°21.5N 172°35.0W	16480	N coast, Saddleridge Pt.
Agligadak I.	52°06.3N 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°36.0N 176°55.5W	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°23.5N 179°26.0E	51°22.0N 179°23.0E	16440	East Cape
Amchitka I.	51°32.5N 178°50.0E		16440	Column Rocks
Ayugadak Pt.	51°45.5N 178°24.5E		16440	SE coast of Rat I.
Kiska I.	51°54.5N 177°14.5E	51°52.5N 177°13.0E	16440	Cape St. Stephen
Kiska I.	51°58.0N 177°21.0E	51°56.5N 177°19.5E	16440	W central, Lief Cove

ISLAND NAME	FROM	TO	NOAA CHART	NOTES
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°46.5N 155°39.5W	55°46.5N 155°43.0W	16013	S quadrant
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°17.5N 165°34.0W	54°18.0N 165°31.0W	16520	Billings Heads 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 Island	57°11.0N 169°56.0W		16380	
Buldir Island	52°20.5N 175°57.0E	52°23.5N 175°51.0E	16420	
Agattu Island	52°24.0N 173.21.5E		16420	
Agattu Island	52°23.5N 173°43.5E	52°22.0N 173°41.0E	16420	
Attu Island	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

Marine debris, especially plastic marine debris, has become a worldwide hazard to many forms of marine life and to people who play or work on beaches and oceans. Because of this hazard, new international and U.S. laws have been enacted that restrict garbage dumping at sea. The international law, commonly called MARPOL Annex V or MARPOL V, and the U.S. Marine Plastic Pollution Research and Control Act of 1987 are changing the way in which ships, terminals, and ports deal with ship generated garbage.

1. Vessel operator obligations:

a) 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 the territorial sea (the territorial sea generally ends 3 nautical miles from the shore), as outline 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.

b) 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 3 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.

2. 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 10 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

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.

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.

3. Enforcement: The U.S. Coast Guard is responsible for enforcement of Annex V. A person found to have violated these regulations may be liable for a civil penalty not to exceed $25,000 for each violation. In addition, criminal penalties not to exceed $50,000 and/or imprisonment up to 5 years may be imposed. The Coast Guard may deny vessels entry to marinas and terminals not in compliance.

4. 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). Observation of boats and vessels in violation of Annex V may be reported to the same offices.

Commanding Officer
U.S. Coast Guard
Marine Safety Office
Federal Building & U.S. Courthouse
222 W 7th MC #17
Anchorage, AK 99513
(907) 271-5137

Commanding Officer
U.S. Coast Guard
Marine Safety Office
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

CONTACT POINTS

NMFS Regional Director
P.O. Box 21668
Federal Building, Room 450
Juneau, Alaska 99802
(907) 586-7221

NMFS Fisheries Management Division
P.O. Box 21668
Federal Building, Room 450
Juneau, Alaska 99802
(907) 586-7228
FAX: (907) 586-7131
TELEX: 62296000 (repLy NMFS AKR JNU)

NMFS Office of Enforcement

Juneau
P.O. Box 21668
Federal Building, Room 413
Juneau, Alaska 99802
(907) 586-7225

Kodiak
Gibson Cove
Kodiak, Alaska 99615
(907) 486-3298

Sitka
P.O. Box 2340
Post Office Building
Sitka, Alaska 99835
(907) 747-6940

Anchorage
Fed. Bldg. & U.S. Court House
222 West 7th Avenue
Anchorage, Alaska 99513
(907) 271-5006

North Pacific Fishery Management Council, Anchorage (907) 271-2809

NMFS Bulletin Board (907) 586-7259

Bulletin Board assistance (907) 586-7229

OBSERVATIONS OF MARINE DEBRIS

The problem of marine debris, and its environmental impacts, has been avidly studied since the 1970's. Two ways of assessing the amount of marine debris are beach surveys and open-water surveys. Beach surveys are the most cost effective, but recently there have been numerous attempts to estimate the amount of debris in open water. As fisheries observers you are in a unique position to collect valuable information concerning types and distribution of debris at sea.

Though there are several acts (Environmental Protection Act, Clean Water Act) regulating the discharge of wastes by vessels and plants, observers are only asked to monitor vessel compliance to MARPOL regulations. Your ship will have a placard warning the crew of the MARPOL disposal restrictions. Your table of information is in the preceding regulations section. Please familiarize yourself with what is legal and illegal to discharge at sea.

If you observe illegal discharge of debris by your vessel, you are to record the incident(s) in two places. First, record all of the specifics in your logbook. Consult the section titled "Steps To Take If You Suspect A Violation" for the essential information necessary in your logging of the illegal disposal. You may be asked to fill out an affidavit regarding the incident upon your return to Seattle. In addition to logging the incident for NMFS enforcement purposes, we also ask that you record the event on an "Observations Of Marine Debris" form (instructions follow) for use by the researchers in the Marine Entanglement and Research Program (MERPS) who are studying the point sources of marine pollution and creating re-educational information programs to battle the dumping of refuse at sea.

Instructions for Observations Of Marine Debris Form:

1. Record the cruise number, vessel code and year in columns 1-11.

2. In column 12 record sighting code number 3 for debris illegally discarded.

3. Enter the month and day, with leading zeros, in columns 13-16.

4. Skip all of the columns 17 through 34.

5. Go to columns 35-43 and record the latitude and longitude (as accurate as is possible) of the vessel during the dumping incident.

6. Record the debris code (next page) for the type of garbage dumped in columns 44-46 and then the size code in column 47 (see top of form for size codes).

7. Record the number of items for each debris and size code in column 48-49 (more than one line of entry per incident is okay) and in the last column (50) put a "D" for disposal code.

855 Trawl net/fragments
856 Gill net/fragments
857 Longline gear
858 Crab/fish pots
859 Bait boxes (styrofoam)
860 Strapping bands (plastic)
861 Monofilament line
862 Rope
863 Hardhats
864 Boots
865 Raingear, gloves, wristers
866 Plastic buckets and crates
867 Plastic bags
868 Styrofoam cups and containers
869 Plastic jugs/bottles
870 Plastic sheeting
871 Paper/cardboard (including cardboard bait boxes)
872 Rags
873 Food
874 Metal (including aluminum pop cans and strapping bands)
875 Crockery
876 Large machinery (washing machines, fridges, etc.)
877 Rubber (tires, conveyor belts, etc.)
878 Glass
879 Lumber
880 Plastic floats
881 Styrofoam blocks
882 Styrofoam "peanuts"
883 Misc. bagged garbage
884 Misc. (list in the margin of the form)

OBSERVATIONS OF MARINE DEBRIS

For recording both the disposal and the catch and disposal of marine debris.

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11
		93

Sighting code
1 = Debris found in sampled portion of haul
2 = Debris found in portion of haul not sampled
3 = Lost or discarded debris

Size code
A = ≤ 1 quart
B = 1 qt - 5 gallons
C = 5 - 15 gallons
D = 15 - 30 gallons
E = > 30 gallons
F = codend
G = unknown

Disposal code
B = Burned
S = Stored
D = Discarded
L = Lost
U = Unknown
O = Other
N = Not applicable

Sight Code	Date		Sea State	Haul	Sample Size (mt)	Start Position			End Position			Debris Code	Size Code	Number	Disposal Code
	Mo	Day				(N) latitude	E/W	(1) longitude	(N) latitude	E/W	(1) longitude				
12	13-14	15-16	17	18-20	21 - 25	26 - 29	30	31 - 34	35 - 38	39	40 - 43	44 - 46	47	48 - 49	50
3	01	26			.				5421	W	6631	883	D	3	D
3	01	30			.				5435	W	6640	876	E	1	D
3	01	30			.				5437	W	6642	858	B	6	D
			ILLEGAL DISPOSAL OF DEBRIS EXAMPLE ↓												
					.										
					.										
			CATCH AND DISPOSAL OF MARINE DEBRIS EXAMPLE →												
1	01	24	3	50	16.23	5423	W	6641	5426	W	6640	883	D	1	S
1	01	24	2	51	21.00	5426	W	6615	5427	W	6615	864	B	1	D
1	01	25	4	54	.53	5502	W	6641	5504	W	6642	855	B	2	S
					.										
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Marine Debris Special Project Instructions

All observers on vessels are assigned to document illegal debris disposal according to MARPOL as described above. There are two additional aspects of the marine debris study that observers may be assigned as a special project: recording what debris is hauled up and what is done with it and, to record observer sighting effort for floating debris when the vessel is in transit. These latter two projects only need to be completed if you are assigned them as a special project. However, if you want to and you have the opportunity, the collection of these data will always be welcomed and useful.

Catch and disposal of marine debris: Currently all debris found in a species composition sample is grouped and recorded as Miscellaneous (code 900). If you are assigned to this project you should continue to record this information as before on Form 3US. However, you should also **record catch of debris on the "Observation of Marine Debris" form shown above.** Additional guidelines for this use of the form are below.

Most debris will be hauled up as individual pieces (a can, a boot, or a crab pot). These should be recorded as they came up, that is individually. Occasionally a bag of garbage may be caught in the gear -- you are not expected to sort that bag, simply record it as miscellaneous bagged garbage (code 883).

1. In column 12 the code entry for catch and disposal will be either:
   1 - The retrieved debris was part of your sample (Form 3US)
   2 - The retrieved debris was outside your sample
   (These codes are repeated on the form heading)

2. Column 17, Sea State - refer to the Beaufort Scale on a following page.

3. Sample Size (in mt) - This could be a species composition sample, the weight of a haul if you know, for instance, that there was only one crab pot in the catch, or columns 21 - 25 may be left blank.

4. The "Nets on and off bottom" positions correspond to the described entries for the vessel's NMFS log.

5. In column 50, refer to the disposal codes listed on the top of the form. However, the retrieval of debris should be recorded even if you are not sure how it was handled.

Open water sightings of marine debris: The final area of concern is the density of floating marine debris. Effort and sighting records will provide information on the distribution and amounts of floating debris in the open ocean. **Sighting surveys are to be conducted whenever the vessel is in transit for extended periods and your other, higher priority duties are taken care of.** Sightings can be done either during fishing or non-fishing periods.

Suitable sighting conditions are characterized by sea states with minimal chop, and visibility at least one kilometer ahead. This includes Beaufort codes 0-4 (see following page) with

unrestricted visibility or visibility conditions between levels 1 and 4 (see below). You should limit concentrated sighting effort to one hour intervals to avoid fatigue. Observations should be made from the flying bridge or other elevated positions.

Instructions for Marine Debris Sighting Survey Form:

1. Use leading zeros where appropriate in month, day and sighting time.

2. Record your sighting effort! If no debris is sighted, complete columns 12 - 44.

3. Each item sighted should be recorded on a separate line of the survey form. Identify as closely as you can every item of debris that you see. What it is made out of is especially important. If you can't tell, don't guess. For each object sighted, record the code for the type of debris in columns 62-64. These codes are listed on a previous page of this section.

4. Record all debris objects regardless of their distance from the ship. Record your estimated distance (in meters) from the vessel to the object sighted in columns 65 - 68.

Surface Visibility Codes

Code		
1	Excellent -	A high overcast solid enough to prevent sun glare. Visibility >5 km.
2	Very Good -	Slight uneven lighting. Visibility >5 km.
3	Good -	Some sun glare or dark shadows in part of the survey track. Visibility $\leq$ 5 km.
4	Fair -	Sun glare or dark shadows in 50% or less of the survey track. Visibility $\leq$ 1 km.
5	Poor -	Sun glare may occur in over 50% of the survey track. Visibility $\leq$ 500 m.
6	Unacceptable -	Sun glare may or may not be present. Visibility $\leq$ 300 m.

Beaufort Wind Force Scale[1]

Beaufort Scale	Wind Description	Wind Speed (Knots)	Sea Conditions	Wave Ht. (in ft.)
0	Calm	0 - 1	Sea smooth and mirror-like	-
1	Light air	1 - 3	Scale-like ripples without foam crests.	1/4
2	Light breeze	4 - 6	Small, short wavelets; crests have a glassy appearance and do not break.	1/2
3	Gentle breeze	7 - 10	Large wavelets; some crests begin to break; foam of glassy appearance. Occasional white foam crests.	2
4	Moderate breeze	11 - 16	Small waves, becoming longer; fairly frequent white foam crests.	4
5	Fresh breeze	17 - 21	Moderate waves, taking a more pronounced long form; many white foam crests; there may be some spray.	6
6	Strong breeze	22 - 27	Large waves begin to form; white foam crests are more extensive everywhere; there may be some spray.	10
7	Near gale	28 - 33	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind; spindrift (wind-blown sea spray) begins.	14
8	Gale	34 - 40	Moderately high waves of greater length; edges of crests break into spindrift; foam is blown in well marked streaks along the direction of the wind.	18
9	Strong gale	41 - 47	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble, and roll over; spray may reduce visibility.	23

[1] Piloting, Seamanship and Small Boat Handling by Chapman. Copyright 1977, The Hearst Corporation, New York, N.Y.

MARINE DEBRIS SIGHTING SURVEY

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11
		93

Date		Sea State	Vis	Start Position			End Position			Start Time	End Time	Speed (knots)	Sighting Position			Sight Time	Object	Est Dis (m)
Mo	Day			(N) lat	E/W	(1) lon	(N) lat	E/W	(1) lon				(N) lat	E/W	(1) lon			
12 - 15		16 - 17	18	19-22	23	24-27	28-31	32	33-36	37-40	41-44	45-47	48-51	52	53-56	57-61	62-64	65-68
01	22	3	2	5728	W	6430	5859	W	6432	1345	1450	3.8	5729	W	6431	1405	870	10
01	28	3	3	5814	W	6124	5830	W	6127	1430	1545	3.5	5821	W	6124	1505	880	4
												.						
			SIGHTING EFFORT EXAMPLES:									DEBRIS SIGHTED →						
												.						
									DEBRIS	NOT	SIGHTED →							
												.						
01	23	2	2	5720	W	6425	5730	W	6425	1015	1115	.						
01	24	2	2	5732	W	6502	5730	W	6505	1530	1550	.						
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1994 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[2], 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

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[2]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.

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.

WHAT THE OBSERVER NEEDS TO DO ABOUT IT: 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. It is very important that we receive catch messages from you weekly so that NMFS in Seattle can calculate the VIP rates for the vessel.

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 section 6 page 3 in this manual.)

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.

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.

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.

CHECKLIST OF OBSERVER SAFETY CONCERNS

1. **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.

2. **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?

3. **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?

4. **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?

5. **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?

6. **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)?

7. **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?

8. **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.

9. **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?

10. 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

11. Did the skipper ensure that you were given a safety orientation explaining the following energency 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

12. 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.

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Summary of Safety Regulations for Commercial Fishing Vessels

Prepared on November 3, 1993
Observer Program Staff

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.

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Subpart A-General Provisions

§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 messroom, 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 weathertight sideshell extends.

Weathertight 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 throwable 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 liferaft 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 indiduals aboard the vessel. An individual certified in in both first aid and CPR will satisfy both of these requirements.

Number of individuals onboard the vessel	Numbers of individuals that must 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 lifejackets 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 weathertight 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 lifejackets 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) 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 crewmember put on a lifejacket or immersion suit, attach a safety line to a crewmember, and have crewmember 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 lifejackets, 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 LOGBOOK ENTRIES

Your observer logbook is a formatted document that is required of all observers. As with your data forms, this documentation is the property of the NMFS and anything which you record can 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:

Map of areas fished	Communications record
Diagrams (deck, bins, sampling area)	Seabird record
Observer estimates / Calculations	Daily notes
Trawl observer's sampling record	Answers to report questions

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 real actions and/or conversations factually and impartially. Do record anything which affects you personally or in your work.

Appropriate entries for daily notes include: Problems that occured 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. 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. Your logbook entries may be viewed by vessel personnel with your permission. However, take special care to safeguard it against loss and tampering.

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. Documentation is not really the third step. 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 your vessel or at your 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 throw plastic bags overboard, but other suspected violations may not be so obvious. Before you advise vessel or plant personnel about suspected violations make sure you have all your facts in order. 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 may also be able to confer with Observer Program staff or NMFS Enforcement personnel as to whether 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. 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 shoula 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

2. 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.

MID-CRUISE DEBRIEFINGS

All observers are **required** to have a mid-cruise debriefing during each deployment. This applies to both prior and new observers. 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 after the second or third delivery.

If the office is closed while you are in port then you should call and leave a message. Observers at remote locations or on vessels which do not come into Dutch or Kodiak are expected to phone, radio or fax the office for their mid-cruise check. Detailed answers to the first four written final report questions and any questions you may have should be faxed to the office in lieu of your visit.

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 also help in finding math and paperwork errors, saving the observer time in making corrections during debriefing. During a mid-cruise 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.

VESSEL ITINERARY SHEET

As part of your final report, an itinerary sheet is filled out once for each vessel that you sampled aboard. Do this before your debriefing interview. (An example form follows.) It is used to track coverage days, and is compared to vessel logs. The final version will be in ink. Every day aboard the vessel must be accounted for on this form. Remember that coverage days begin when gear is <u>set</u>, and end upon return to port or a processor. Be careful of gear set before midnight, in which case coverage begins the day before your first haul on the 1US or 2US. Be sure that your sampling days do not exceed the coverage days. On catcher boats, start a new line every time there is a break in (a day without) coverage.

VESSEL ITINERARY SHEET **CRUISE #**_____ **VESSEL CODE**_____

OBSERVER_____ CONTRACTOR_____

VESSEL NAME_____

VESSEL/GEAR TYPE_____

Please have this form filled out before debriefing. Account for every day aboard this vessel. Coverage days begin when gear is set; and ends the day the vessel returns to an Alaskan port, leaves the U.S. EEZ off Alaska, or when the vessel offloads groundfish (if on a catcher boat). Make a new entry for each trip made by the vessel. On catcher boats, start a new line every time there is a break in (a day without) coverage. Be sure that your sampling days do not exceed your coverage days.

BOARDED VESSEL_____ DATE SAMPLING BEGAN_____

DEPARTED VESSEL_____ DATE SAMPLING ENDED_____

TOTAL NUMBER OF DAYS SAMPLED____ TOTAL NUMBER OF COVERAGE DAYS _____

TARGET SPECIES_____

GIVE DAYS NOT SAMPLED AND WHY_____

_____

_____

Date observer on board	Date fishing began	Initial sample date	Last sample date	No. of days sampled	Arrival date into port	No. of coverage days

revised 12/14/93

DOMESTIC OBSERVER VESSEL REPORT

[Version 12/93]

This is a list of the questions. **Do not** fill in the answers below the questions - use the **answer sheets**. One set of answer sheets follows these questions. If you observed aboard more than one vessel, you could make additional copies of the answer sheets before using them or you can pick up extra copies at our offices. Before starting, make sure the version date (above) for the questions matches that of the answer sheets.

CRUISE # _____ OBSERVER NAME _____

VCODE _____ VESSEL NAME _____

CAPTAIN _____ *(Remember, do not fill this information in here, use your answer sheet!)* _____

FISHING MASTER/DECK BOSS _____

FACTORY MANAGER _____

#DAYS FISHED _____ #TOWS/SETS MADE _____ #TOWS/SETS SAMPLED _____

VESSEL LENGTH (FT) _____

I. GENERAL VESSEL INFORMATION

For each of the following questions, circle the letters of **all** answers that apply. Multiple answers are allowed.

1. What was the total ship's complement?
   a. 5 or less
   b. 6-10
   c. 11-15
   d. 16-20
   e. 21-30
   f. >30

2. How many people at a time were assigned to your room with you?
   a. none
   b. 1-2
   c. 3-4
   d. 5-6
   e. 7 or more

3. What was the approximate average haul/set weight (MT)?
   a. <5
   b. 5-20
   c. 21-50
   d. 51-100
   e. >100

4. In which area(s) did this vessel fish?
   a. Bering Sea/Aleutian Islands
   b. Gulf of Alaska
   c. Washington/Oregon/California coast
   d. "Donut Hole" - outside U.S. EEZ in Bering Sea
   e. any other area inside U.S. EEZ not listed
   f. any area outside U.S. EEZ other than the "Donut Hole"

5. Which gear type(s) was (were) used?
   a. bottom trawl (non-pelagic trawl)
   b. pelagic trawl
   c. hook-and-line (longline) with j-hooks
   d. hook-and-line with circle hooks
   e. pot
   f. pair trawl
   g. jig
   h. other _____

6. Longline vessel observers only: Were "soft" hooks used? (These are hooks designed to unbend under heavy strain. An example is the Mustad E-Z Baiter circle hook, model 39981 D.)
   a. yes
   b. no
   c. don't know

7. All observers: How were the fish caught by this vessel processed? Circle all that apply.

   a. fish partially processed delivered to shorebased plant
   b. fish partially processed delivered to floating processor
   c. catch partially or completely sorted delivered to shorebased plant
   d. catch partially or completely sorted delivered to floating processor
   e. unsorted catch delivered to shorebased plant
   f. unsorted catch delivered to floating processor
   g. some or all of catch sold as bait
   h. codend delivered to mothership
   i. catch processed on board
   j. vessel is a mothership
   k. catch partially or completely sorted, then delivered to tender
   l. unsorted catch delivered to tender

Use the following key to answer questions 8 - 15:

a. pollock
b. Pacific cod
c. sablefish
d. Atka mackerel
e. hake
f. rock sole
g. Greenland turbot
h. yellowfin sole
i. other flatfish
j. rockfish (any Sebastes or Sebastolobus)
k. other
l. no species

8. **Catcher boat observers only:** Which species were target species?
a. b. c. d. e. f. g. h. i. j. k.

"Other" species code(s) _____

Catcher/processor observers only: circle the letter(s) of the fish species utilized for each processing method. If a particular product wasn't made, circle "l" to indicate "no species" were made into that product. If many species were used in fish meal production, use general codes for unidentified fish or invertebrates.

9.	frozen whole	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
10.	headed	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
11.	head and gut	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
12.	fillet	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
13.	surimi	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
14.	roe	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.
15.	fish meal	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k. l.

If you circle "k." (other) on the answer sheet, below it list the species code(s).

II. CATCH ESTIMATES

1. How was observer estimate of total catch obtained? Circle all that apply.
a. codend measurement
b. bin volume measurement
c. extrapolation of sample data to total hooks or pots
d. verified delivery weights added to at-sea discard weight
e. very few or none obtained

2. Which of the following were used for official total catch? Circle all that apply.
   a. captain's estimate/hail weight
   b. production data (retained wt) added to discard weight
   c. proportion from delivery weight using skipper's estimates
   d. proportion from delivery weight using (my) observer's estimates
   e. adjustment factor from sampled hauls/sets applied to retained weight for unsampled hauls/sets
   f. longline/pot sample data applied to total hooks/pots in unsampled sets
   g. observer estimate

3. How was retained catch obtained? Circle all that apply.
   a. application of observer PRR's to production data
   b. application of vessel PRR's to production data
   c. application of NMFS published PRR's to production data
   d. proportioned weights from delivery information
   e. skipper tally of target species
   f. observer sampling data applied to official total catch
   g. longline/pot sample data applied to total # hooks/pots
   h. actual counts and/or weights from whole haul/set sample

III. PROHIBITED SPECIES AND SPECIES COMPOSITION SAMPLING

Use the following key to answer questions 1 - 4:
   a. whole haul sampling
   b. partial whole haul sampling
   c. basket sampling
   d. longline/pot sample

What was the **predominant** sampling method you used for each prohibited species group?

1.	salmon	a.	b.	c.	d.
2.	halibut	a.	b.	c.	d.
3.	king crab	a.	b.	c.	d.
4.	tanner crab	a.	b.	c.	d.

5. Where did you sample for prohibited species?
   a. on weather deck
   b. in ship's factory
   c. at plant/floating processor delivered to

6. Where did you obtain prohibited species viability estimates? Circle all that apply.
   a. on weather deck
   b. in ship's factory
   c. at plant/floating processor delivered to
   d. none obtained

7. What sampling method or methods did you use for species composition sampling?
   a. whole haul sampling
   b. partial whole haul sampling
   c. basket (weighed) sampling
   d. longline/pot sample

8. Where did you sample for species composition?
   a. on weather deck
   b. in the ship's factory
   c. at the plant/processor delivered to
   d. tally on deck, weigh & measure in factory

9. What was your special project?
   a. target otoliths
   b. other otoliths
   c. stomach collection
   d. crab measurement and viability
   e. product recovery rates
   f. density
   g. maturity study
   h. marine debris
   i. fish collection
   j. other; describe_____
   k. none

IV. SAFETY

Questions 1 - 10: Did any vessel personnel show you or were you able to determine the location of the following safety equipment?

		Yes	No
1.	General alarm:	a.	b.
2.	406 EPIRB:	a.	b.
3.	Survival suits for all aboard:	a.	b.
4.	Life preservers for all aboard:	a.	b.
5.	Life rafts for all aboard:	a.	b.
6.	Fire extinguishers:	a.	b.
7.	First aid equipment:	a.	b.
8.	Life rings/buoys:	a.	b.
9.	Flares; smoke or dye markers:	a.	b.
10.	Radio:	a.	b.

11. Were you shown what to do on this vessel in case of an emergency?
   a. yes
   b. no

12. If yes, who showed you?
    a. captain
    b. mate
    c. crewmember
    d. NMFS personnel
    e. contractor
    f. other_____

13. Were safety drills held while you were on board?
    a. yes b. no

14. If safety drills were held, which of the following emergency situations were addressed?
    a. man overboard
    b. fire
    c. collision or grounding
    d. vessel flooding
    e. loss of power
    f. abandon ship

15. Were alcohol and/or drugs used by vessel personnel to a degree that you felt your safety was compromised?
    a. yes b. no

16. Was there a designated person on board who would provide medical services as needed? If "yes" who was it?
    a. yes _____ b. no

17. Did you incur an injury while working on this vessel that required, or will require, a doctor's attention or medevac?
    a. yes b. no

18. Did you have any illness or injury which prevented you from doing your job?
    a. yes b. no

19. Did any other safety problems or accidents occur during your deployment? Circle all that apply.
    a. no problems or accidents
    b. man (woman) overboard
    c. fire
    d. collision
    e. grounding
    f. vessel flooding
    g. loss of electrical power
    h. loss of engine power
    i. gas leaks (e.g. freon, ammonia, fuel)
    j. parting cables

V. VESSEL LOGBOOK

For the following questions circle the appropriate answer or answers. Some responses will require a written explanation in your logbook. If you have already dealt with NMFS Enforcement regarding any of these questions, note that in lieu of a detailed response.

All written answers must be in your logbook, not on this form.

1. Did the vessel maintain the Daily Cumulative Logbook or Daily Fishing Logbook in an accurate and timely manner?
   a. yes
   b. no
   c. don't know, didn't inspect

2. How did this vessel obtain their estimates of prohibited species discards? Circle all that apply.
   a. skipper/vessel personnel visual estimate
   b. skipper/vessel personnel actual counts/weights
   c. observer data
   d. none obtained

3. Were you asked to maintain any part of the vessel's logbook?
   a. yes
   b. no

4. Did you maintain any part of the vessel's logbook?
   a. yes
   b. no

5. Did you notice discrepancies between the vessel's logbook and your own observations?
   a. yes
   b. no

6. If you noticed any discrepancies, did you speak to the skipper about them?
   a. yes
   b. no

7. Were you ever denied access to the vessel logbook?
   a. yes
   b. no

Please document in your logbook difficulties with the vessel logbook, including discrepancies noticed and reasons for them.

VI. PROHIBITED SPECIES HANDLING

1. Were you able to observe the normal handling of prohibited species when you weren't sampling?
   a. yes
   b. no

2. If you answered yes, how were prohibited species handled relative to when you were sampling?
   a. same (viability not changed)
   b. better (viability improved)
   c. worse (viability adversely affected)

3. How were prohibited species discarded?
   a. discarded at roller (hook-and-line vessel)
   b. discarded from trawl/fishing deck
   c. discarded whole from factory or sorting area
   d. discarded cut up from factory or sorting area
   e. discarded at plant/processing vessel delivered to

4. If this vessel delivered its catch to a plant or floating processor, how were prohibited species sorted?
   a. all prohibited species sorted at sea
   b. partial sorting of prohibited species with some delivered
   c. no sorting prior to delivery

5. If this vessel delivered its catch, how did the processing plant or vessel dispose of prohibited species which were part of the delivery?
   a. returned to catcher vessel
   b. discarded into water by processor (plant or floater)
   c. disposition unknown
   d. all prohibited species sorted out before delivery

Trawler observers only, questions 6 - 12:

6. Were the holding bins flooded with enough water to enhance viability of prohibited species?
   a. yes
   b. no
   c. don't know

7. How long, on average, did it take to sort the catch and discard all prohibited species, if the catch was sorted on board?
   a. less than 30 minutes
   b. 30 minutes to two hours
   c. more than two hours

Use this key for questions 8 - 11:

a. never presorted
b. presorted only when observer present
c. presorted only when observer not sampling
d. only prominent or large individuals presorted
e. majority of prohibited species presorted
f. presorting never observed

Were prohibited species presorted on deck, as the net was being dumped, before you could collect your sample? Circle all letters that apply.

8.	king crab	a.	b.	c.	d.	e.	f.
9.	tanner crab	a.	b.	c.	d.	e.	f.
10.	halibut	a.	b.	c.	d.	e.	f.
11.	salmon	a.	b.	c.	d.	e.	f.

12. Did you observe halibut being handled with pews/gaffs?
    a. yes
    b. no

Hook-and-line vessel observers only, questions 13 - 14:

13. To remove halibut from the line, did the vessel utilize careful release methods as specified by regulation?
    a. yes, always or almost always
    b. most of the time
    c. sometimes
    d. no, almost never

14. Which one of the three careful release methods (if any) was used most often?
    a. hook straightening
    b. unhooking with a twisting motion
    c. cutting the gangion

All observers, questions 15 - 16:

15. Did you observe large halibut being hoisted by a line tied around the caudal peduncle?
    a. yes
    b. no

16. Did you observe any retention or consumption of prohibited species caught by this vessel?
    a. yes
    b. no

17. Did you discuss retention or consumption of prohibited species with the skipper?
    a. yes b. no

Describe any additional information on prohibited species handling in your logbook.

VII. MISCELLANEOUS

1. How were your weekly catch messages transmitted?
    a. FAX from ship
    b. telex from ship
    c. COMSAT/CC mail
    d. radio to Kodiak Observer office
    e. radiotelephone (ship to shore)
    f. FAX from port
    g. telephone from port
    h. other_____

2. If you did not transmit your catch messages yourself, was there any difficulty in having them transmitted in a timely manner?
    a. yes
    b. no

Please document catch message transmission difficulties in your logbook.

3. Did you ever weigh sample units of product?
    a. yes
    b. no
    c. not applicable

4. If you used the ship's scales for your own weights, or for unit weights, did you check the calibration?
    a. yes
    b. no

Describe in your logbook any unit weight and/or scale comparisons.

5. Were you ever offered any monetary or other type of inducement to alter your data or routine?
    a. yes
    b. no

6. If yes, was it from vessel, plant or fishing company personnel or your contractor?
    a. vessel/plant/company personnel
    b. contractor

Please document the details in your logbook.

7. If you were subject to any impediments during your deployment, please circle the letter(s) of the type(s) of impediment(s).

a. verbal harassment
b. physical harassment
c. sexual harassment
d. interference with sampling
e. denial of access to equipment, personnel, vessel areas
f. intimidation, threats, coercion
g. biasing of samples
h. refusal of reasonable assistance
i. refusal to notify observer of haulback
j. destruction/theft of property
k. no impediments encountered

7a. Did you discuss problems encountered with the skipper?
a. yes
b. no

Please document details of any impediments in your logbook.

8. Did you observe any of the following violations?
a. dumping netting or other plastics at sea
b. discharge of oil into the water
c. intentional taking of marine mammals
d. intentional killing of seabirds
e. none of the above observed

9. Did you discuss any observed fisheries violations with the skipper?
a. yes
b. no

Please document in your logbook details of any observed violations and any actions you took.

Please write your answers to the following questions in your logbook.

1. Explain your choice for official total catch. If PRR's were used, explain how and why you chose them. If your observer estimate was used, how did you obtain an estimate for unsampled hauls or sets? Explain any formulas used.

2. Describe in detail how the observer estimate was made. What formulas were used? What densities were used? If no observer estimate was obtained, explain.

3. Describe in detail how retained weight was obtained. How was discard of the target species determined? If PRR's were used, explain your choice(s).

4. Why did you choose your particular sampling method(s)? Describe your sampling area and methods used to obtain data, including length frequencies. Describe any difficulties you had in trying to sample. How were discards treated? If you had a special project, explain how you completed it.

5. Summarize any safety concerns you had regarding this vessel. Be sure to include details from the safety questions (section IV). Describe any injuries you or other crew members incurred, including fatalities. If you were unable to work due to illness or injury, please describe the circumstances.

6. Describe anything unusual regarding the catches.

7. If this vessel fished in the Donut Hole or in any other areas outside the U.S. 200 mile limit, describe the amount of fishing activity, products, incidental catches of salmon, herring or marine mammals, etc.

8. Describe the accommodations on this vessel for the next observer; toilet and bathing facilities, quarters. Did you share quarters with a person of the opposite sex, and where did you do your paperwork?

9. Summarize information from the daily notes which would be of use to future observers.

DOMESTIC OBSERVER VESSEL REPORT ANSWER FORM Version 12/93

CRUISE# _____ OBSERVER NAME _____

VCODE _____ VESSEL NAME _____

CAPTAIN _____

FISHING MASTER/DECK BOSS _____

FACTORY MANAGER_____

#DAYS FISHED _____ #TOWS/SETS MADE _____ #TOWS/SETS SAMPLED _____

VESSEL LENGTH (FT)_____

I. GENERAL VESSEL INFORMATION

1. A. B. C. D. E. F.
2. A. B. C. D. E.
3. A. B. C. D. E.
4. A. B. C. D. E. F.
5. A. B. C. D. E. F. G. H._____

6. A. B. C.

7. A. B. C. D. E. F. G. H. I. J. K. L.

8. A. B. C. D. E. F. G. H. I. J. K.
"other" species code(s)_____

9. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

10. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

11. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

12. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

13. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

14. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

15. A. B. C. D. E. F. G. H. I. J. K. L.
"other" species code(s)_____

II. CATCH ESTIMATES

1. A. B. C. D. E.
2. A. B. C. D. E. F. G.
3. A. B. C. D. E. F. G. H.

III. PROHIBITED SPECIES AND SPECIES COMPOSITION SAMPLING

1. A. B. C. D.
2. A. B. C. D.
3. A. B. C. D.
4. A. B. C. D.

5. A. B. C.
6. A. B. C. D.
7. A. B. C. D.
8. A. B. C. D.

9. A. B. C. D. E. F. G. H. I. J. K.
"other" - describe_____

IV. SAFETY

1. A. B.
2. A. B.
3. A. B.
4. A. B.
5. A. B.
6. A. B.
7. A. B.
8. A. B.
9. A. B.
10. A. B.

11. A. B.
12. A. B. C. D. E. F._____

13. A. B.
14. A. B. C. D. E. F.

15. A. B.
16. A. _____ B.

17. A. B.
18. A. B.
19. A. B. C. D. E. F. G. H. I. J.

V. VESSEL LOGBOOK

1. A. B. C.
2. A. B. C. D.

3. A. B.
4. A. B.
5. A. B.
6. A. B.
7. A. B.

VI. PROHIBITED SPECIES HANDLING

1. A. B.
2. A. B. C.
3. A. B. C. D. E.

4. A. B. C.
5. A. B. C. D.

6. A. B. C.
7. A. B. C.

8. A. B. C. D. E. F.
9. A. B. C. D. E. F.
10. A. B. C. D. E. F.
11. A. B. C. D. E. F.

12. A. B.

13. A. B. C. D.
14. A. B. C.

15. A. B.
16. A. B.
17. A. B.

VII. MISCELLANEOUS

1. A. B. C. D. E. F. G. H._____
2. A. B.

3. A. B. C.
4. A. B.

5. A. B.
6. A. B.

7. A. B. C. D. E. F. G. H. I. J. K.
7a. A. B.
8. A. B. C. D. E.
9. A. B.

Bottom Trawl Net Dimensions And Characteristics

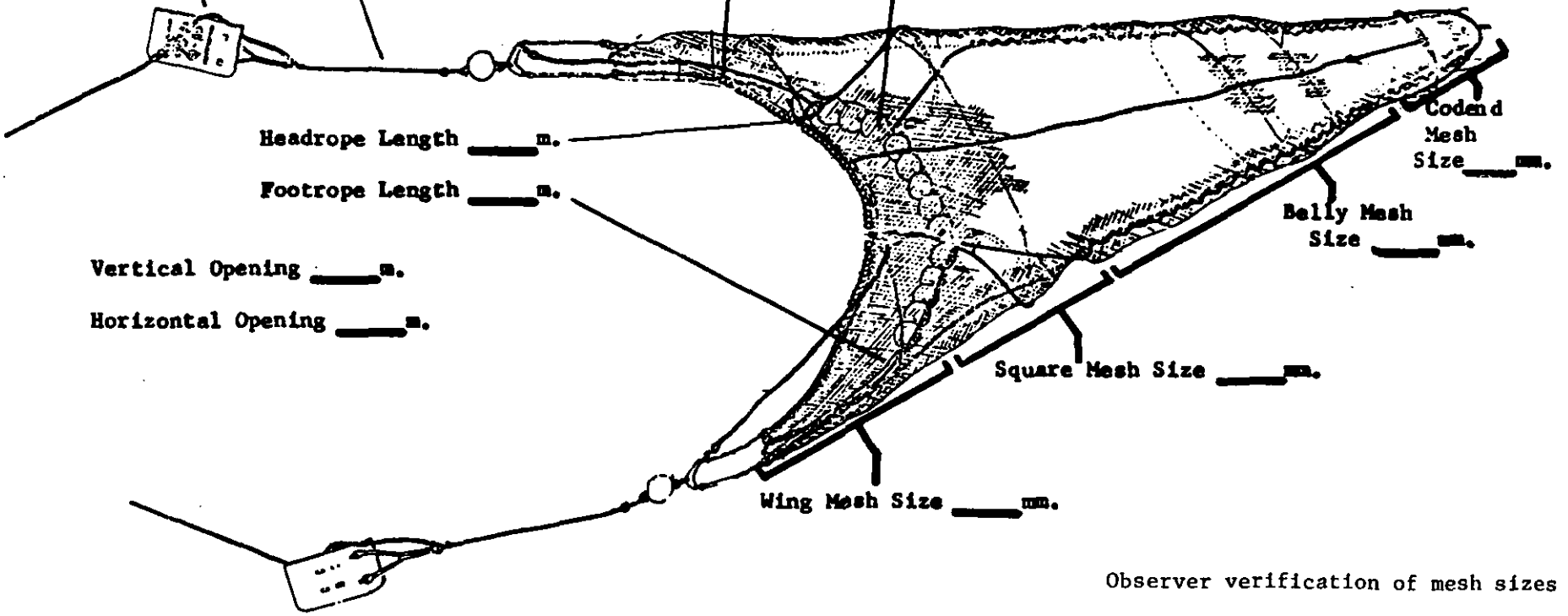
Vessel Type _____ Observation Period _____

Trawl Doors: Shape ____
Material _____
Dimensions ____m. x ____m.
Weight ____ kg

Dandyline Length ____ m.

Floats: Number ____
Size ____cm.
Material _____
Shape _____

Bobbins: Number ____
Size ____cm.
Material _____
Shape _____



Observer verification of mesh sizes

Yes_____ No_____

Fish Finder
Name _____
Model Number _____
Frequency _____kc.
Paper Type (wet or dry)
Speed of Advance _____

Net Recorder
Name _____
Model Number _____
Frequency _____kc.

PELAGIC TRAWL NET DIMENSIONS AND CHARACTERISTICS

Vessel Type _____

Observation Period _____

Wing section was composed of: (circle one)

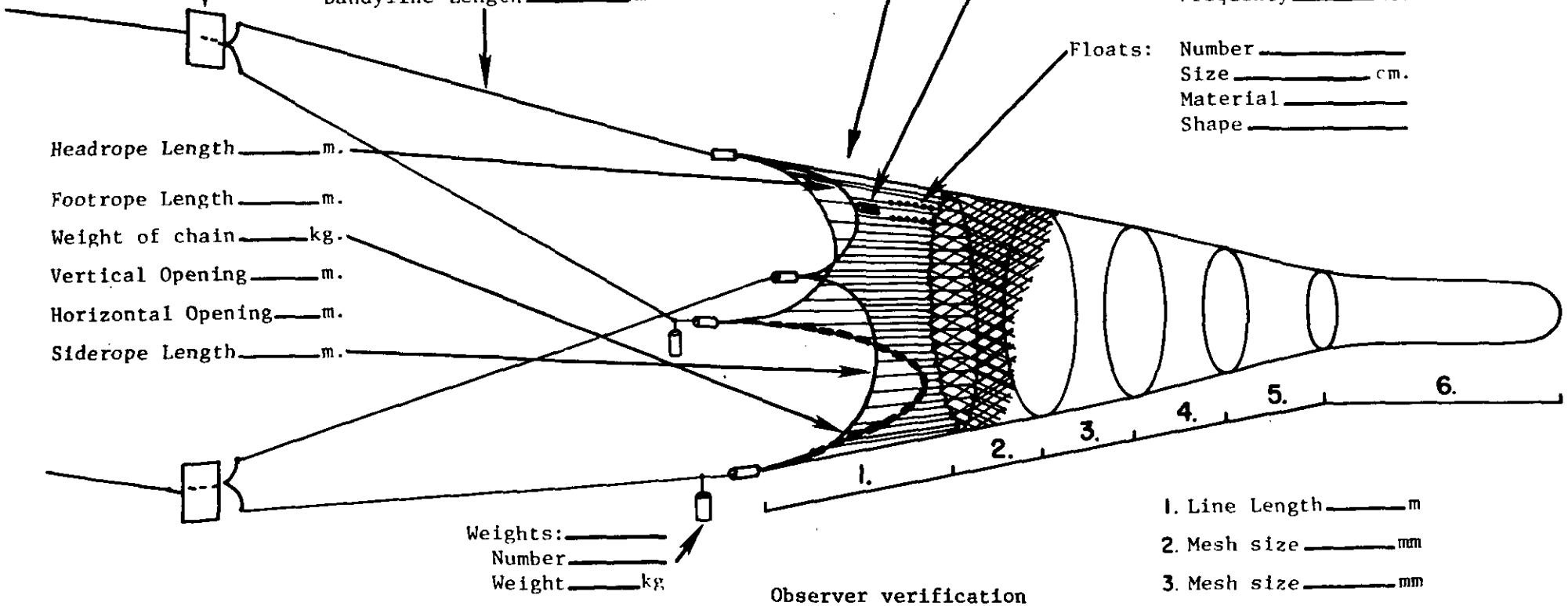
Rope lines (as illustrated)
Large mesh

Trawl Doors: Shape _____
Material _____
Dimensions ____m. x ____m.
Weight _____kg.

Dandyline Length _____m

Net Recorder: Name _____
Model Number _____
Frequency _____kc.

Floats: Number _____
Size _____cm.
Material _____
Shape _____



Headrope Length _____m.

Footrope Length _____m.

Weight of chain _____kg.

Vertical Opening _____m.

Horizontal Opening _____m.

Siderope Length _____m.

Weights: _____
Number _____
Weight _____kg

Fish Finder
Name _____
Model No. _____
Frequency _____kc.
Paper type: wet or dry
Speed of Paper Advance _____

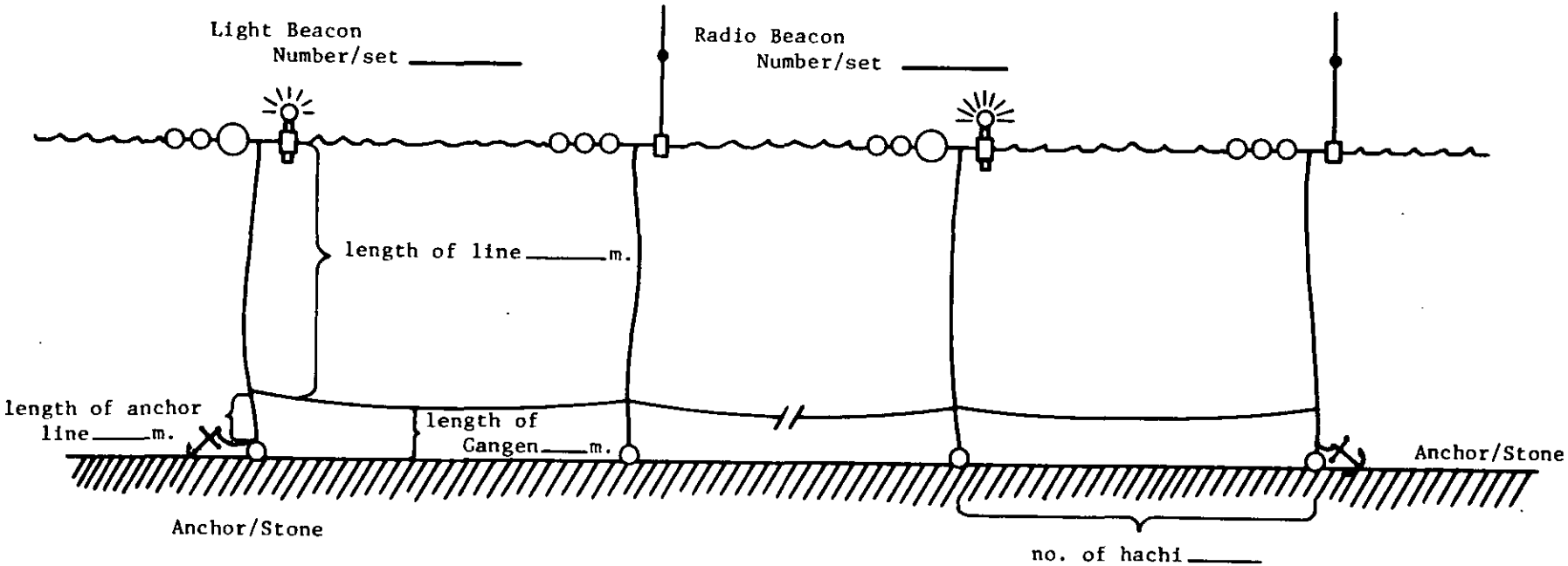
Observer verification of mesh sizes:

Yes _____ Date _____
No _____

1. Line Length _____m
2. Mesh size _____mm
3. Mesh size _____mm
4. Mesh size _____mm
5. Mesh size _____mm
6. Codend mesh size _____mm

Net Length _____m.

LONGLINE DIMENSIONS



Hachi Length _____

Average set Length _____ km.

Breaking strength of gangen _____

Average number hachi/set _____

Average number hooks/hachi _____

Hook size _____

HOW TO PREPARE FOR DEBRIEFING

Debriefing is a process, not a single event. It is as important to your job as the work you do at sea. It is the process during which your work is converted to data which is usable by the computer. It begins with an interview with a debriefer, which can last anywhere from 1 to 4 hours. During your interview, the debriefer will glance through your forms for obvious errors. If any are detected they must be fixed before you turn in your data. Once you have turned in your data it will be checked on a first come, first served, basis. The debriefers then look at each entry, each number, on each form. The forms will be sent to keypunchers whose job it is to enter numbers. Their job is NOT interpreting data. Because the data will be used in a computer the forms have a specific format and must be filled in correctly. If you try to be creative with your forms the computer will not be able to read the data properly and you may render your hard work worthless.

After a debriefer has pre-keypunch checked your data it will be returned to you along with a list of needed corrections. When you have made the corrections, resubmit your data and it will be double checked. The catch messages will be separated from the other forms and sent to the data entry people who will keypunch the entire set and run them through a computer program for comparison against the data you originally sent. If there are many changes or errors indicated, you have to return to debriefing to make corrections. If the debriefer is satisfied with your corrections and you have checked in your gear, you have finished your job.

Why does debriefing take so long? Several factors contribute to the length of the debriefing process. These include, but are not limited to:

1. Observer preparedness
2. Number of vessels/plants sampled
3. Length of deployment
4. Number of other observers in debriefing
5. Amount of corrections to be made
6. How diligently and systematically you go through your data and make the corrections

In general the less experienced an observer, the more corrections are needed, especially over a long deployment. No promises will be made as to the length of your debriefing period. Be prepared to stay as long as it takes to get your data as close to perfect as possible.

PREPARATION

The most common complaints debriefers hear are, "No one told me I had to do this", and, "I thought I'd be done in five days". This information has been prepared to assist you before you get bogged down in 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 of your problems will be solved. The most important thing for you to do is maintain a tolerant attitude for all this that seems to you so "nitt-picky" but is essential for good data going into the NMFS data base.

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. Do not assume that just because you did well in class that you remember everything that was taught. Consult your manual and be sure that you are right.

2. Filling out your logbook while at sea is not an option, it is a requirement. After working aboard several boats or for a long period of time, your notes will be essential to answer the questions that will arise in asking you about your work. In it you must keep daily notes, a sampling record, calculations, diagrams, etc. You should get a head start on your written report answers in the back. When you first get on your ship look over the list of questions that you will need to answer for the reports. This way the questions will be fresh in your mind when you are doing the things that you will be describing later in your reports.

3. 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. Then, you will need these forms and reports completed when you come in for debriefing:

For trawlers:
Form 2US, 3US, 7US, and 10US, catch message forms A and B.
Other forms you may have include:
Any special project forms, 8 (PRR), 9US, and 11US.

For longliners and pot vessels:
Form 1US, 3US, 7US, and 10US, catch message forms A and B.
Other forms you may have include:
Any special project forms, 8 (PRR), 9US, and 11US.

For plant samplers:
Form A, 7US, and 9US.
Other forms you may have include:
8 (PRR), 9US, or other plant observer special project forms.

<u>All observers need to have:</u>

Logbook: Inside the front cover (in ink) you need to put your name, your ship's and/or plant names (for all the ships and/or plants that you worked on), cruise number and vessel or plant code for each ship or plant, the dates you were aboard each ship or sampling at each plant, and your contractor's name. Do not write on the outside of the logbook. Complete the map of areas fished, gear diagrams, factory/deck diagrams, and sampling area diagrams .

Reports, which need to include:
Answers to the multiple choice and written Report Questions. Written answers

must be made legibly, in ink, in the logbook. Proper English grammar must be used, with complete sentences, and no undefined abbreviations or misspellings. All questions must be answered completely and in detail.

Catch message information including:
All Catch Message Forms A and B

Species Identification forms
And, if applicable:
Salmon scale samples
Otolith collections
Specimen collection forms
Tagged fish forms

With the exception of the final draft of your reports, all of these forms can be filled out while you are at sea. 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.

Data Preparation
(or how to make debriefing go faster and easier)

Going through your data is one of the most time consuming and tedious tasks that you will need to do but 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.

Check everything over carefully. 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 the end. Some corrections have a ripple effect from form to form. One thing that often helps is to check your forms over 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. Doing this helps you see things in a different pattern and will help you see what you skipped over previously.

Be actively concentrating when you check over your data. If you get into a somewhat hypnotic state, which is very easy to do, you will miss mistakes. Take short, frequent breaks and do something else to relieve the boredom. Get familiar with the manual list of the most common mistakes. If you watch for these errors it will save you a lot of trouble. Be sure to consult your manual to find the answers to your questions. The debriefers are also available to answer questions.

Remember that if you were on more than one ship and/or plant that the data from each will need to be kept separate. Do not mix the data together; number the pages in sequence for each vessel/plant--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. Cruise numbers should be adjusted to the right and have no leading zeros.

Leading zeros should be present only for dates, times, and haul weights of zero weight (recorded as 0.00 on 2US) and prohibited species weights when that group was not found in the sample (record number as 0 and weight as 0.0 on 3US). 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 arrows should be present and have the same number at the top and the bottom of the arrow.

Be sure that your handwriting is clear and readable. The data is punched by people who do not have any idea how the data is used and what should be on each form. They will, and often do, punch whatever they think they see.

One thing that will speed your trip through debriefing is for you to make notes on your forms. 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. The one thing to remember is to not put notes in data areas where they will get punched. These notes will enable the person checking your data, and people dealing with your data after you are gone, to read your note and understand what your data means 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 that you could not obtain, and other items.

Form 1US & 2US:

The haul and set forms are often the ones with the most problems. Look them over carefully. Question anything that seems incorrect with the ships officers while at sea. 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 you must list the dates and arrival time into port. Record the plant name and delivery completion time even if, due to a quick turn around, a vessel is able to fish, deliver and get back to fishing within one or two days and no coverage days are lost. 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 all non-fishing days.
No missing data in a line, except possibly speed or observer total catch.
No decimals except those printed on the page.
Depths must be rounded to whole numbers.
Positions for all hauls or non-fishing days.
No impossibly large changes in positions within small amounts of travel time.
No recorded minutes larger than 59.
No overlapping nets down and nets retrieved times.
Fishing durations greater than 100 hours must be recorded in the keypunch columns as 99 hours and 59 minutes with a note recording the real duration in the margin.
Retrieval times of 0000 are attributed to the next day.
Retained weights and official total catches recorded for every haul. Retained weight cannot be greater than official total catch.
An F or M for every depth recorded.
ADF&G areas for all hauls and any noon positions not in port.
Column 79-82 "Catcher boat's ADF&G boat #" and "catcher boat name" at the top is only to be filled in if your vessel was a mothership.

Form A Plant Sampling Summary:

Make sure that you have all mandatory information on the form. Check for durations, number of tows, all weights, positions or areas. Be sure to list the ADF&G boat numbers for your catcher boats. The main product should be listed on the front, other products on the back. 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 "Sorted Y/N" applies only to the sorting at sea of the targeted species, not to the discarding of unwanted or prohibited species. If there is sorting of the target species at sea, there should be an entry under "weight of sample species discarded at sea". The weight of the sample species delivered should be the weight of the delivered catch, not whatever arises on the fish ticket.

Form 3US:

Be sure that there are:
Species names which match your species codes. Codes are not the catch message species report group codes.
No duplicate species codes unless used in designating female and male prohibited species.
Sex designations for all of the prohibited species, and for no other species.
Entries for each of the prohibited species groups, Tanner crab, king crab, Pacific halibut, and salmon, for every sample whether they were seen or not.
Weights for every number of fish and a number of fish 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.
A "1" in the number column for miscellaneous items, species code 900, no matter what the weight.
Sample types in descending order of size listed for every species.

At least one decimal place behind a distinct decimal point for every weight.
Haul weights in kg, sample and species weights in kg.
Necessary calculations and sub-sample data recorded at the top of the page.
Keypunch check sums at the column tops.
Viability data for halibut when seen, never salmon, crab viability only when assigned. No zeros in viabilities or viability totals.

Form 7US:

On this form there must be:

Matching species codes to species names.
Species name, species code and haul number for every line of data.
No species with a greater total number listed than is on the 3US form in whole haul sampled data.
No decimal places in lengths.
Keypunch checks summing each number on the line.
Lengths recorded in ascending order. No lengths with a frequency of zero.
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".
Dates matching haul retrieval dates for all vessel observer data. Dates match delivery dates for all plant observer data.

Form 9US: Check for,

Specimen type, sampling system entries in the heading line.
Only one area per page.
No comments or numbers in "total no. of specimens" or "catalogue date" or "remarks" section. These are for otolith or scale readers only.
Weights and lengths that make sense in relation to each other.
All specimens have a haul number, a specimen number, a sex, a length, and a weight.
Each species must be grouped separately with separate page sequences (1 through whatever, for each species). No pages with one species on the front and another on the page back.
No duplicate specimen numbers for the same species.
Lengths must also be recorded on the 7US.

Form 10US:

Form 10US is mandatory for all cruises except plants. Be sure to have one filled out for each vessel before you hand in your data. Be sure that the dates match up to the hauls on your 1US or 2US and that the data you have entered is correct. If a marine mammal was caught, lethally removed or deterred, be sure to write a species description that is complete and can be used to identify the animal. You need to add as much information as you can gather. Form 10US should only be used for marine mammals that are harassed or caught in the fishing operation. All sightings of marine mammals should be on Form 11US, not on the 10US.

Form 11US:

Again make sure that you have filled in all of the pertinent information. On this form type, note that:

Boxes without shading must be filled in. Usually missed are the estimated numbers and the tens of meters boxes.

Time system on form should be ALT.

Write very detailed descriptions of the characteristics you used to identify the animal on every page of 11US. These pages may be separated so one good description is not sufficient. Descriptions of behavior, color patterns, size and age, and drawings (however rough) are all essential to verify your mammal identifications.

Catch Message Forms A and B:

Almost everyone forgets to go back and recheck their catch messages, and they are consistently one of the main areas of problems for people in debriefing. Read the instructions carefully and follow them. Check for these potential errors:

Page numbers per transmission and total pages are correct. Pages are numbered by how many pages are sent per transmission. Total pages in the upper right corner are consecutive numbers of all the pages of CMA and CMB **together** for that vessel (not separated by region, processor delivered to, or form type).

All columns of entry are "zero filled". Do not use continuation arrows to zero fill a column - enter a zero in each box.

Week ending dates are always Saturday dates.

You have re-read the definition of "coverage days" while at sea, and if you observed aboard a catcher boat, you have checked your coverage days entries with a NMFS staff member.

CMA Form Check:

Species are grouped correctly, correct groups for the region are used.

Species weights are transcribed correctly from the 3US and correctly summed for groups with more than one species in them.

Prohibited species groups are listed on Form CMA ONLY if they appeared in the species composition sample.

Coverage days are whole numbers only and not separated by region or processor delivered to. Arrival into port is one whole day of coverage even if arrival time was early in the day. Coverage days might be greater than 7 if the vessel is a shoreside delivery ship. Midnight to midnight twenty four hour periods sitting in port or tied to a processor are not coverage days.

Percentage retained is entered for every species group found, for each haul.

The sum of the species group weights exactly matches the sample weight.

Multiple pages of a report week for the same region fished and processor delivered to have the same heading for species groups and group codes.

CMB Form Check:

ALL prohibited species groups must have entries of sample weight and then data or zeros on each line of the CMB form. Zeros are listed under the number and/or

weight columns if fish or crabs are not seen.
Sample weights are listed for each separate group.
Species groups weights should not have more than two places behind the decimal.
Sample weight in kg. for each prohib. group should be to three decimal places.
"MM CODE" cannot be left blank if the vessel is a trawler or mothership and the haul was monitored for marine mammals (as indicated on the 2US). This column must have "NU" entered in it if none were found. Longliners or pot vessels do not fill out this section.

Write in the page number totals per form type in the upper right corner. Put all changes and corrections to the CMA and CMB forms in RED with an asterisk or circled in red.

Cross Checking:

A very important part of doing your data is cross checking one form to other forms that have the same data. Often we find problems with hauls listed on different days on some forms than they are on the haul forms. The haul date must match up to the day when a haul was begun to be retrieved, a set retreival was completed, or a delivery was completed, not necessarily on the day when you did the work.

If you have salmon you will need to match the weight data on the 9US to the weights on the 3US. There should be no salmon taken from outside your sample. The lengths on your form 9US should match lengths on your form 7US for the same species in the same haul. You might have more salmon or otolith species on your form 7US, but all of the lengths on form 9US should be present on the 7US.

If you took otoliths be sure that the haul numbers for the otolith collection correspond to the hauls from which you took lengths 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. Do not mix species or areas on a page.

Reports:

Reports are a synopsis of your activities at sea. Your written answers must be complete with good detail and be easy to follow. Remember that one of the main reasons for the reports is for first time observers, or observers who have never been on your boat, to read. Your reports should contain enough detail such that any person, even somebody who has never seen a fishing ship in action, can follow what you are saying and understand how you did your work on your ship or in your plant.

The multiple choice and written questions that you should answer are in the preceding manual section: Domestic Observer Reports. If one of the written questions does not apply to your situation, state that in a complete sentence. Written report answers need to be made in ink. Pencil is not acceptable as it tends to disappear over time.

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 your debriefing interview can be scheduled. DO NOT schedule debriefing before these are completed; it will NOT save time. On the contrary, it sometimes means a longer debriefing period. Upon arriving in the city in which you will debrief (Seattle, Kodiak, or Dutch Harbor), the following items must be taken care of:

1. Sign up in the debriefing office for a gear check-in appointment. Your gear must be cleaned (for a white glove test) and all gear which is still usable must be repaired and oiled if necessary **before** the check-in appointment time. If you have any questions about what is still usable ask a gear person (your debriefer can put you in touch with them).

2. If you have had an injury at sea, inform your contractor and a debriefer who will direct you to fill out an Injury Report. Even if you think that the injury is fairly minor this is something that you must do in order that we have a record verifying that your injury occurred while you were on the job. Without this record your contractor will not pay the doctor and you will end up paying for the bills out of your own pocket.

3. Any catch messages not sent should be submitted as soon as possible. Turn them in at NMFS in Seattle.

4. Fill out a cover slip for salmon scale samples. You will need one slip for each species. Up to 6 of each of the non-Chinook samples (zone A) and 3-4 of the Chinook samples need to be mounted in re-sealable plastic bags with the scale envelope attached to the outside of each bag. Scales must be separated, not clumped in the plastic, for identification. In Seattle you can ask your debriefer for the instructions and mounting materials.

5. Make sure otoliths or other special projects are in order. Otolith vials need to have enough solution in them to cover the otoliths. Vials need to be grouped in groups of ten vials (1-10, 11-20, etc.) and the end of the box marked properly. Instructions can be obtained from the debriefing staff.

6. Complete all tagged fish and specimen collection forms.

IF YOU HAVE QUESTIONS REGARDING ANYTHING, ASK A DEBRIEFER!

Gear Check-In

In Seattle, the gear check-in procedure occurs two or three times each week. Check the sign up in the debriefing office to find a day that will work for you. You should arrive at least three hours before, or the day before, the check-in time to begin cleaning your gear. Wear work clothes. Gear check-in can be an all day process.

It is expected that all gear be clean and laid out on the black counter in the Wet Lab

(Rm. 1067) for inspection at the scheduled time. Failure to meet this expectation will result in delay of your gear check-in to the next scheduled time. Even if the gear was cleaned in the field, it will still need to be re-cleaned before check-in. Gear becomes dirty from airplane rides, storage on vessels, and in other ways.

Because of the large amount of equipment stored in the gear room, it doesn't take many fish scales etc. to make the gear room and surrounding areas very smelly. One of the most difficult items to clean are the baskets. These will be scrutinized very closely and therefore will require a good deal of scrubbing. Corners and crevices should be given special attention. Rain gear will go to the laundry after it has been checked so it will only require minor cleaning. Be sure to read the instruction posters on the wall in the Wet Lab for other specifics about cleaning gear. Improperly cleaned gear will result in frustration and additional cleaning so it is best to do a thorough job the first time.

Once checked, all observers who checked in gear that day are responsible for cleaning the Wet Lab thoroughly including all counters, cabinet doors and the floor. This will also include cleaning the metal scrub table and includes drying it with a squeegee. Any questions that may come up about this procedure can be asked of the Gear Manager.

The Interview

During your interview the debriefer will ask questions about everything you did during your deployment. The most important aspects of the interview are honesty and a willingness to discuss problems and difficulties. We want your data to be perfect, but if you withhold information that is not possible. We also 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 don't feel that you were able to sample adequately don't cover up the fact; tell us so that we can help the next observer.

Affidavits

Observers who witness fisheries violations will be instructed during debriefing in how to write affidavits. These are formal legal statements, so if you encounter violations they must be well documented in your logbook and supported by your data. If you are required to write an affidavit remember to write it in formal language and add precise details. The most typical error in writing affidavits is not adding the necessary details that are required. You may or may not be contacted at a later date regarding your affidavits.

Final Note: Remember that the amount of time spent in debriefing depends largely on you. If you don't take the time to check your data carefully it will cost you more time later in the process than you saved initially. If you take the time before turning in your data to make sure it is neat, complete and correct, you will save everyone time later on. The people who are done the quickest and with the least pain are the ones who go through their data carefully and methodically the first time so that they have fewer errors to correct later. The debriefers have a given set of criteria that they try to meet with each set of data, and your debriefing will not be finished until your data meets those criteria. Debriefing involves a lot of work, but it is necessary in order that your hard work at sea is translated into useful 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 the Observer Plan. 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 actual Observer Plan or have any questions about the procedure, please contact Bob Maier, (206)526-6695

§6.0 This section --

(a) Prescribes policies and procedures governing the suspension and decertification of observers by NMFS for the causes given in §6.6-2 and §6.7-2; and
(b) sets forth the consequences of suspension and decertification.

§6.1 Applicability.

This section sets forth the procedures for suspension and decertification of observers under this Observer Plan.

§6.2 Policy.

(a) NMFS shall certify responsible and qualified observers only. Suspension and decertification are discretionary actions that, taken in accordance with this Observer Plan, are appropriate means to effectuate this policy.
(b) 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 shall impose suspension or decertification in the public interest and only for the causes and in accordance with the procedures set forth in this Observer Plan.

§6.3 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 this Observer Plan, means action taken by a decertifying official under §6.7 to revoke indefinitely certification of an observer under the Observer Plan; an observer whose certification is so revoked is "decertified."

"Decertifying official" means a designee authorized by the NMFS Alaska Regional Director to impose decertification.

"Indictment" means indictment for a criminal offense. An information or other filing by competent authority charging a criminal offense shall 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 NMFS Alaska Regional Director to conduct investigations under this section.

"Observer" (or "certified observer"), as used in this Observer Plan, means any individual that (1) is awarded NMFS certification to serve as an observer under this Observer Plan; and (2) is employed by a certified observer contractor for the purpose of providing observer services to vessels and shorebased processing plants under this Observer Plan.

"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 NMFS Alaska Regional Director to impose suspension.

"Suspension," as used in this Observer Plan, means action taken by a suspending official under §6.6 to suspend certification of an observer temporarily until a final decision is made with respect to decertification.

§6.4 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.

§6.5 Effect and timing of suspension or decertification.

(a) Observers decertified or suspended are not qualified to provide services prescribed by this Observer Plan to vessels and shorebased processing plants.

(b) Suspension and decertification actions may be combined and imposed simultaneously.

§6.6 Suspension.

§6.6-1 General.

(a) The suspending official may, in the public interest, suspend an observer for any of the causes in §6.6-2, using the procedures in §6.6-3.

(b) Suspension is a serious action to be imposed on the basis of adequate evidence, pending the completion of investigation or legal proceedings, when it has been determined 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.

§6.6-2 Causes for suspension.

(a) The suspending official may suspend an observer upon a determination, based upon adequate evidence, that the observer committed any acts or omissions constituting a cause for decertification under §6.7-2.

(b) Indictment for any of the causes for decertification in §6.7-2(a)(1) or §6.7-2(b)(1) constitutes adequate evidence for suspension.

§6.6-3 Procedures.

(a) The suspending official shall review all available evidence and shall 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 an observer is suspended, they shall 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 §6.6-2. Such acts or omissions shall 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 §6.6-2 for imposing suspension;
(4) Of the effect of the suspension;
(5) That, within 30 days after receipt of the notice, the observer or observer contractor 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; and
(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) In actions not based on an indictment, if it is found that the observer or observer contractor's 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) Shall afford the observer or observer contractor 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; and

(2) May, in his or her sole discretion, afford the observer or observer contractor an opportunity to appear in person, present witnesses, and confront any person NMFS presents. The suspending official shall make an audio tape of the proceedings and make a copy available at cost to the observer or observer contractor upon request, unless the observer and NMFS, by mutual agreement, waive the requirement for an audio tape.

(d) Suspending official's decision.

(1) In actions (i) based on an indictment, (ii) in which the observer or observer contractor's submission does not raise a genuine dispute over material facts, or (iii) in which additional proceedings to determine disputed material facts have been denied on the basis of NOAA General Counsel advice, the suspending official's decision shall be based on all the information in the administrative record, including any submission made by the observer or observer contractor.
(2)(i) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact shall be prepared. The suspending official shall base the decision on the facts as found, together with any information and argument submitted by the observer or observer contractor and any other information in the administrative record. (ii) 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. (iii) The suspending official's decision shall be made after the conclusion of the proceedings with respect to disputed facts.
(3) Prompt written notice of the suspending official's decision to affirm, modify or terminate the notice of suspension issued under §6.6-3(b) shall be served on the observer and any affiliates involved, personally or by certified mail, return receipt requested, at the last known residence.

§6.6-4 Period of suspension.

(a) Suspension shall be for a temporary period pending the completion of investigation and any ensuing legal proceedings or decertification proceedings, including any administrative review under §6.8, unless sooner terminated by the suspending official or as provided in this subsection. If suspension is in effect, the decertifying official will expedite any related decertification proceedings.

(b) If legal proceedings or decertification proceedings are not initiated within 12 months after the date of the suspension notice, the suspension shall be terminated.

§6.7 Decertification.

§6.7-1 General.

(a) The decertifying official may, in the public interest, decertify an observer for any of the causes in §6.7-2, using the procedures in §6.7-3. The existence of a cause for decertification, however, 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.

§6.7-2 Causes for decertification.

(a) Observers.

(1) The decertifying official may decertify an observer for a conviction of or civil judgment for -- (i) Commission of fraud or a criminal offense in connection with obtaining or attempting to obtain certification, or in performing the duties of a certified observer as prescribed under this Observer Plan; (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 business integrity or business honesty that seriously and directly affects the present fitness of a certified observer.

(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 a certified observer as prescribed under this Observer Plan; (ii) Failed to abide by the standards of conduct for a certified observer as prescribed under this Observer Plan; or (iii) A conflict of interest with respect to the fishery, shorebased processing plant, or vessel being observed as defined under this Observer Plan.

§6.7-3 Procedures.

(a) Investigation and referral. NMFS personnel shall promptly report to the NMFS investigator matters appropriate for further investigation. The NMFS investigator shall investigate matters so referred and submit the investigative material to the decertifying official or, if appropriate, to the suspending official.

(b) The decertifying official shall review all available evidence and shall 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 proposal to decertify. If the decertifying official determines to proceed with decertification, he shall 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 §6.7-2 for proposing decertification;

(4) That, within 30 days after receipt of the notice, the observer or observer contractor 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 the agency's procedures governing decertification decisionmaking;

(6) Of the effect of the issuance of the notice of proposed decertification; and

(7) Of the potential effect of an actual decertification.

(d) In actions not based upon a conviction or civil judgment, if it is found that the observer's or observer contractor's submission raises a genuine dispute over facts material to the proposed decertification, the decertifying official --

(1) Shall afford the observer or observer contractor 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; and
(2) May, in his or her sole discretion, afford the observer or observer contractor an opportunity to appear in person, present witnesses, and confront any person NMFS presents. The decertifying official shall make an audio tape of the proceedings and make a copy available at cost to the observer or observer contractor 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 shall make a decision on the basis of all the information in the administrative record, including any submission made by the observer or observer contractor. The decision shall be made after receipt of any timely information and argument submitted by the observer or observer contractor.
(2)(i) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact shall be prepared. The decertifying official shall base the decision on the facts as found, together with any information and argument submitted by the observer or observer contractor and any other information in the administrative record. (ii) 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. (iii) The decertifying official's decision shall be made after the conclusion of the proceedings with respect to disputed facts.
(3) In any action in which the proposed decertification is not based upon a conviction or civil judgment, the cause for decertification must 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 shall be given prompt notice personally or by certified mail, return receipt requested, at the last known residence -- (i) Referring to the notice of proposed decertification; (ii) Specifying the reasons for decertification; and (iii) Advising 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 shall promptly notify the observer, by certified mail, return receipt requested, at the last known residence.

§6.7-4 Period of decertification.

(a) Decertification shall 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.

§6.8 Administrative review of suspension or decertification

(a) Any observer may petition for review of a decertification decision issued under §6.6-3(d)(1) or a suspension decision issued under §6.7-3(b) within 30 days after the date the decision was served. The petition shall 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.

(b) Administrative review is discretionary. Petitions for discretionary review may be filed only upon one or more of the following grounds:

(1) A finding of material fact is clearly erroneous based upon the administrative record;
(2) A substantial and important question of policy or discretion is involved; or
(3) A prejudicial error has occurred.

(c) If the appeals officer declines review based on the written petition, the observer shall be immediately advised of the decision to decline review personally or by certified mail, return receipt requested, at the last known residence or place of business.

(d) If the appeals officer grants review based on the written petition, he or she may request further written explanation from the observer, the observer contractor, 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 shall base the decision on the administrative records compiled under §6.6 or under §6.7, as appropriate. The appeals officer will serve the decision on the observer involved, personally or by certified mail, return receipt requested, at the last known residence.

(e) 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.

APPENDIX

THE 43 MOST COMMON MISTAKES ON DATA FORMS

Form 1US, or 2US:

1. Latitude, longitude, or on/off bottom time recorded with greater than 60 minutes.
2. Using 2400 for time instead of 0000.
3. A haul retrieved at 0000 attributed to the previous day.
4. Not putting the noon position under "Trawl Position" on non-fishing days at sea.
5. Overlapping haul times; overlapping on and off bottom times of one haul or between hauls.
6. Recording catch weight to more or less than two decimal places.
7. Positions that are too far from the previous position to be plausible during the time recorded--the ship could not travel that fast.
8. Leaving haul number blank on non-fishing days is incorrect; enter a zero.
9. Missing ADF&G area codes on non-fishing days at sea with noon positions.
10. Continuation arrows should not extend through lines with notes only.
11. No location listed at all -- you should 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.
12. Fishing depth and/or bottom depth listed without the accompanying F/M identifier.
13. Fishing depths deeper than bottom depths.

Form 3US:

14. Numbers and/or weights don't add up correctly, do check your math!
15. Species code listed without data accompanying it.
16. Species code doesn't match written name.
17. Species code 900 with a quantity greater than 1.
18. A species listed under more than one sample type.
19. Decimal point not included in every weight figure.
20. A weight listed without a number.
21. Not having each of the four prohibited groups represented for each sampled haul/set.
22. Recording weights to > two decimal places--the computer won't accept them.
23. Viability entries not summed on the 999 line.
24. Haul number doesn't match the date (as listed on Haul Form).
25. Whole-haul sample weight doesn't match or round to 2US figure for OTC.
26. Not skipping a line between sample types.
27. Recording a fish species that is out of it's normal range or normal depth. (Bring back a specimen for verification if this is the case.)

Form 7US:

28. Data by haul not entered in haul number order.
29. Summations incorrect! (Recheck and double-check your math!)
30. Reversing the size group and the frequency.
31. Haul numbers and dates don't match the haul form.
32. Putting estimated lengths on Form 7.
33. Lengths off by 10 cm. (Write in the 10's values on the plastic strip!)
34. Crab measurements not to nearest 5 mm, size group entries do not end with digit 3 or 8.

Form 9US:

35. Not writing weights out to two decimal places. Do include trailing zeros!
36. Not grouping sexes together.
37. Numbering pages by area instead of by species.
38. Not separating the otolith collections taken on different boats. (See "General Instructions for Data Forms" section in your manual.)
39. Duplicate otolith or scale number within one species collection.
40. An otolith or scale number is skipped without any note as to why.

Form 10US:

41. Not filling them out.
42. Not filling them out for each haul or set monitored (as well as for each occurrance of catch or deterrence).

For All Forms:

43. Haul and/or set numbers not matching dates.

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
100 m = 1 kilometer (km) = .6214 s. mile

1 liter = 1.0567 U.S. quarts

$F^\circ = (1.8 \times C^\circ) + 32$ $C^\circ = 5/9(F^\circ - 32)$

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

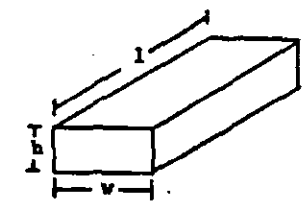
CONVERTING POUNDS TO METRIC TONS

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

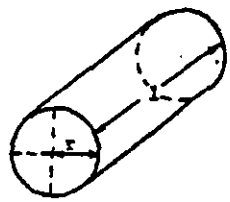
VOLUME AND PRODUCT FORMULAS

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 = $2\pi r$ (π = 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 = $1/3\pi r^2 h$

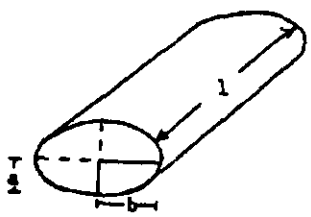


Rectangular solid
Volume = height x width x length
V = hwl

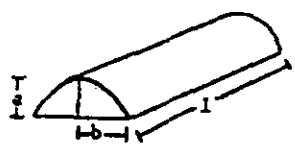


Cylinder
Volume = π x radius^2 x length
V = $\pi r^2 l$

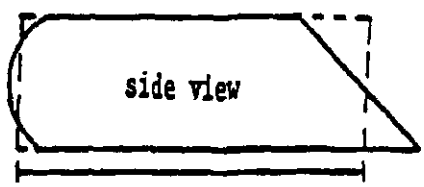
(π=3.1416)

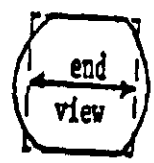


Ellipsoidal solid
Volume = π x short radius x long radius x length
V = πabl



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.)

HALIBUT LENGTH TO WEIGHT TABLE

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
10	.007	55	1.821	100	12.635
11	.010	56	1.930	101	13.049
12	.013	57	2.045	102	13.472
13	.017	58	2.163	103	13.905
14	.022	59	2.286	104	14.347
15	.027	60	2.414	105	14.799
16	.033	61	2.547	106	15.260
17	.040	62	2.685	107	15.731
18	.049	63	2.828	108	16.213
19	.058	64	2.976	109	16.705
20	.069	65	3.129	110	17.206
21	.080	66	3.288	111	17.718
22	.094	67	3.452	112	18.240
23	.108	68	3.621	113	18.773
24	.124	69	3.801	114	19.317
25	.141	70	3.978	115	19.871
26	.161	71	4.165	116	20.437
27	.182	72	4.358	117	21.013
28	.205	73	4.558	118	21.600
29	.229	74	4.763	119	22.200
30	.255	75	4.975	120	22.810
31	.284	76	5.193	121	23.431
32	.315	77	5.417	122	24.065
33	.348	78	5.649	123	24.710
34	.383	79	5.887	124	25.366
35	.421	80	6.132	125	26.035
36	.461	81	6.384	126	26.716
37	.504	82	6.642	127	27.409
38	.550	83	6.909	128	28.115
39	.598	84	7.182	129	28.832
40	.649	85	7.463	130	29.563
41	.715	86	7.751	131	30.306
42	.760	87	8.046	132	31.062
43	.820	88	8.350	133	31.831
44	.884	89	8.661	134	32.613
45	.950	90	8.981	135	33.408
46	1.021	91	9.307	136	34.216
47	1.095	92	9.644	137	35.038
48	1.172	93	9.987	138	35.874
49	1.253	94	10.340	139	36.723
50	1.337	95	10.700	140	37.586
51	1.426	96	11.070	141	38.463
52	1.519	97	11.447	142	39.354
53	1.615	98	11.834	143	40.259
54	1.716	99	12.230	144	41.178
				145	42.111

HALIBUT LENGTH TO WEIGHT TABLE

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
146	43.060	188	97.388	230	187.745
147	44.023	189	99.109	231	190.402
148	45.000	190	101.095	232	193.085
149	45.993	191	102.829	233	195.795
150	47.001	192	104.576	234	198.531
151	48.024	193	106.359	235	201.293
152	49.062	194	108.155	236	204.081
153	50.115	195	109.972	237	206.897
154	51.184	196	111.810	238	209.739
155	52.269	197	113.668	239	212.607
156	53.370	198	116.003	240	215.503
157	54.486	199	117.450	241	218.426
158	55.618	200	119.373	242	221.376
159	56.767	201	121.318	243	224.354
160	57.932	202	123.284	244	227.359
161	59.113	203	125.273	245	230.392
162	60.311	204	127.283	246	233.452
163	61.526	205	129.316	247	236.541
164	62.757	206	131.371	248	239.658
165	64.005	207	133.448	249	242.803
166	65.271	208	135.548	250	245.977
167	66.553	209	137.671		
168	67.830	210	139.817		
169	69.170	211	141.985		
170	70.505	212	144.177		
171	71.858	213	146.392		
172	73.229	214	148.631		
173	74.617	215	150.893		
174	76.024	216	153.179		
175	77.448	217	155.489		
176	78.891	218	157.822		
177	80.353	219	160.180		
178	81.833	220	162.562		
179	83.332	221	164.968		
180	84.850	222	167.399		
181	86.387	223	169.854		
182	87.943	224	172.334		
183	89.518	225	174.840		
184	91.113	226	177.370		
185	92.727	227	179.925		
186	94.360	228	182.506		
187	96.014	229	185.112		

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.

OBTAINING INFORMATION ON PRODUCT RECOVERY RATES

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 ($\sim$ 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).

							OBSERVER DATA						VESSEL DATA
SPECIES NAME	SPECIES CODE			DESCRIPTION OF PRODUCT	PRODUCT CODE		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

LIST OF ALASKA PRODUCT TYPES

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	-	-	-
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	.22	.13	.14	.22	.17	-	-	-
270S	.98	.80	.70	.65	.56	.50	-	-	-	.04	-	.15	-	-	-	.35	.30	.30	.22	.13	.19	.22	.17	-	-	-
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	-	-	-
870	.98	.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.17	-	.85	-
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
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 = at-sea processing, 270S = shoreside processing
510	all	Smelt
511	all	Eulachon
516	all	Capelin
689	all	Sharks
700	all	Skates
710	all	Sablefish
870	all	Octopus
875	all	Squid

Species Prohibited in Groundfish Fisheries

000	all	Salmon, unspecified	920	all	Crab, unspecified king
001	all	Crab, unspecified	921	all	Crab, red king
200	all	Pacific halibut	922	all	Crab, blue king
235	all	Pacific herring	923	all	Crab, golden/brown king
410	all	Salmon, chinook	930	all	Crab, unspecified tanner
420	all	Salmon, sockeye	931	all	Crab, bairdi tanner
430	all	Salmon, coho	932	all	Crab, opilio
440	all	Salmon, pink			
450	all	Salmon, chum			
540	all	Trout, steelhead			

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, RTC, 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 will 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: Complete the forms as usual. 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.

Good luck in all this, and if you have any questions or problems, let us know.

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 into the snout of fingerling salmon. These wire-tagged salmon are marked by clipping their adipose fins. If you find a salmon missing an adipose fin, check to see whether it is missing any other fins, collect a scale sample, record the usual data, and in addition, weigh the gonads. Remove the snout by cutting well behind the eye, salt the snout, attach the completed data tag to the snout, and seal it in one of the provided plastic bags. After a few days, drain off any accumulated liquid and re-salt the snout. Repeat the draining and re-salting as needed. Please do not dehydrate snouts by drying ythem in air. This makes it nearly impossible to dissect out the wire tag. The 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): _____

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:

Affix the tag or vial here (with tape):

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. The ovaries may have a partial fold through each of their two lobes, giving a false four-lobed appearance. If the fish is immature it may be very difficult to determine how many lobes are present. If this is the case you must 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.

LENGTH MEASUREMENTS FOR VARIOUS SPECIES

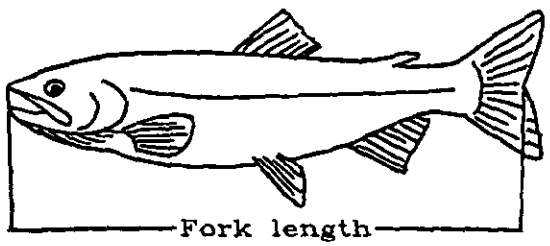
Observers given the special project of measuring king and tanner crab will be provided with dividers to use in conjunction with a measurement scale on a plastic form. Spread the dividers across the width of Tanner crab carapaces at their widest points, excluding spines. Without moving the arms of the 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.)

Fork Length Measurement Used For:

Roundfish
Rockfish
Salmon

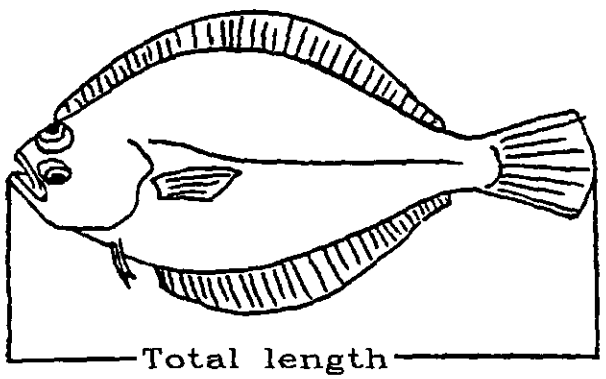
Measured from the tip of snout to the center of the fork in tail.



Fork Length Used For:

Flatfish

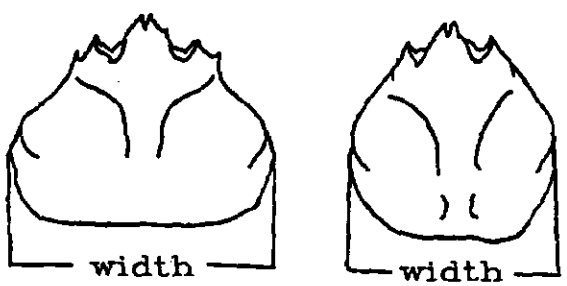
Measured from the tip of the snout to the middle of the tail.



Carapace Width Used For:

Tanner (Snow) Crab

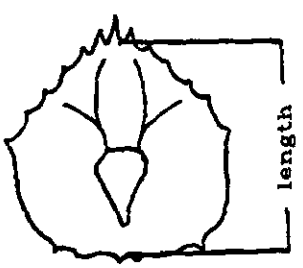
Measured from the widest points, excluding spines, to the nearest 5 mm.



Carapace Length Used For:

King Crab

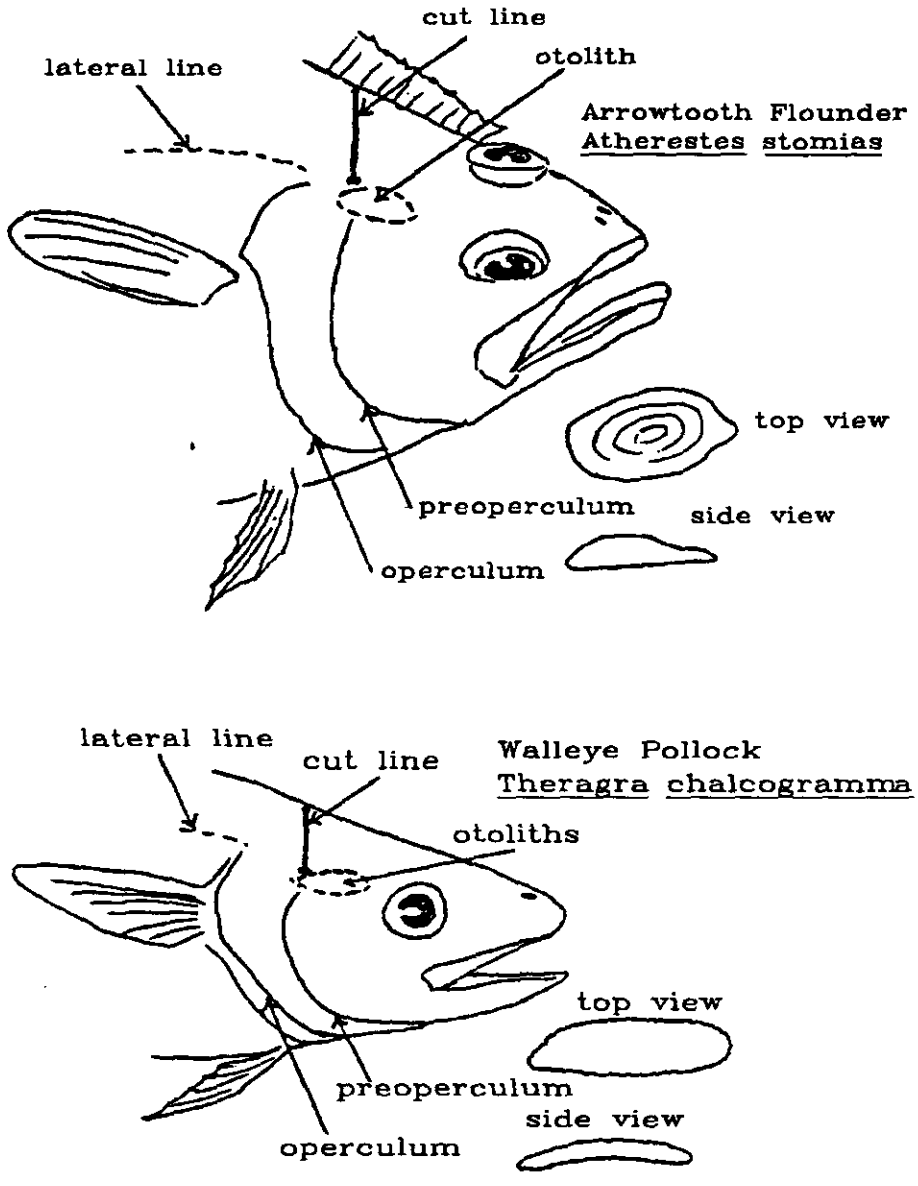
Measured from right eye socket to the middle of the posterior margin of the carapace.



OTOLITH AND SCALE COLLECTION FOR SELECT SPECIES

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	Otolith	Plastic vial	50% ethyl alcohol 50% water
Salmon	Scale	Paper envelope	Dry
Rockfish	Otolith	Plastic vial	50% ethyl alcohol 50% water

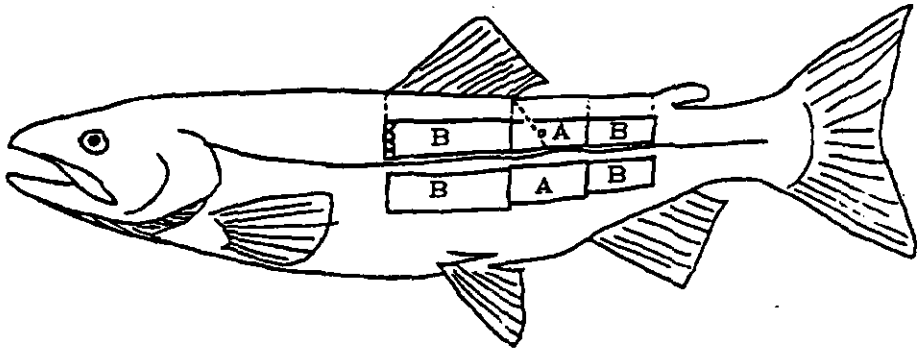
Note: **Ethyl alcohol** is the same compound as ethanol but **not the same as denatured or rubbing alcohol.** Do not use storage media not issued to you by an NMFS program office.



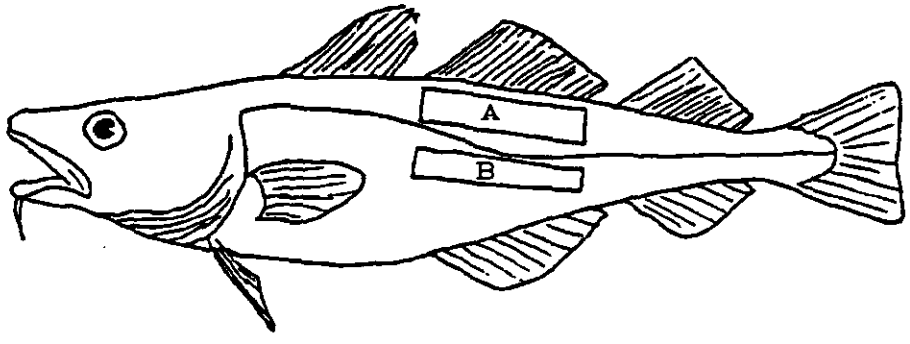
Approximate location of the otoliths (sagittal) and the cut for the removal of otoliths from flatfish and roundfish.

SCALE SAMPLING ZONES FOR SALMON AND COD

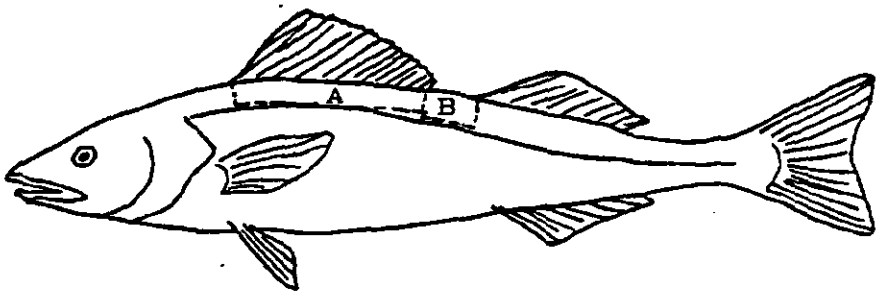
(Do not take lateral line scales)



SALMON - Follow the diagonal scale row from the posterior insertion of the dorsal fin to the lateral line of either side. Two scale rows up from the lateral line (on the diagonal) are the preferred scales



PACIFIC COD - Scrape along either side of the back directly below the second dorsal fin.



SABLEFISH (BLACK COD) - <u>If assigned to collect scales</u>, scrape the scales from the dorsal surface directly below the first dorsal fin.

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

If you are going to return to Seattle with the fish:

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 it is just a few fish, and they are wrapped very well, they will stay frozen within your survival suit folds.

C) If you arrive in Seattle on a weekend, 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 preferred)

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

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)

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

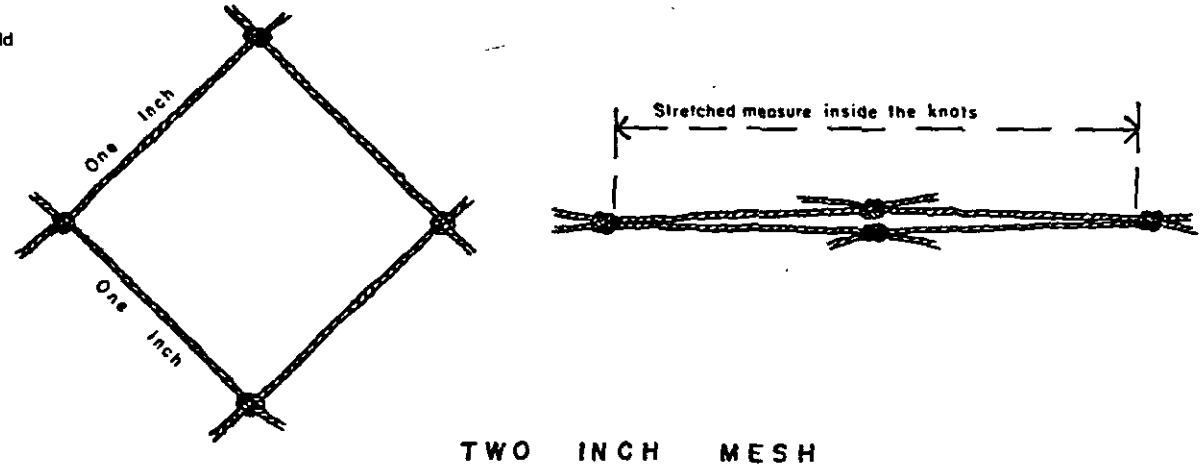
OCT - 1 1992
Date

HOW TO MEASURE MESH SIZE

The mesh size measurement requested on the gear diagram is the stretched measure, that is, the distance between two diagonal knots when the mesh is tightly stretched (see second diagram below). In order to obtain this measurement, the net must be empty and the mesh pulled tightly enough so that two opposite knots of the mesh square meet and all four knots are in the same plane; measure the distance inside the two most distant knots in the mesh square.

An easier way of obtaining the same measurement (the net does not have to be empty) is to measure the distance between two adjacent knots in a mesh square (the side of a square) and multiply by two. Check several meshes in each part of the net.

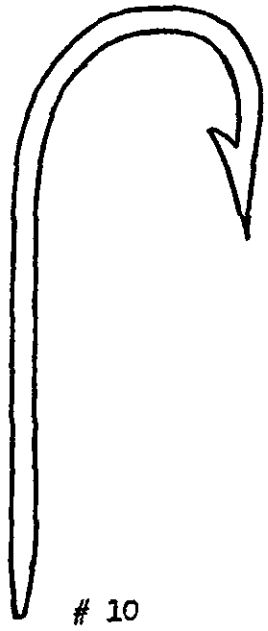
W. L. Scofield



TWO INCH MESH

A two-inch mesh, open (left) and stretched. This points up variables inherent in web measure and consequent difficulties. Common yardstick is "stretch measure."

HOOK SIZE CHART FOR LONGLINERS



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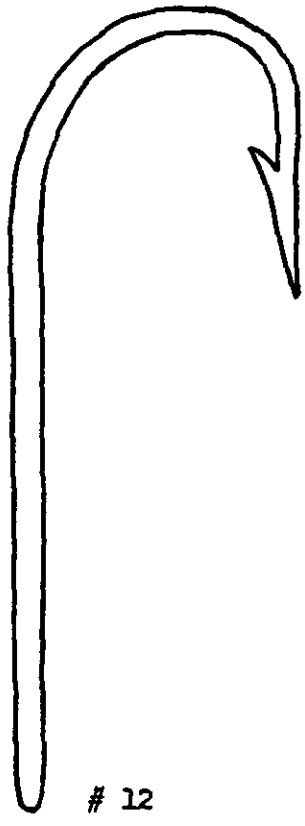

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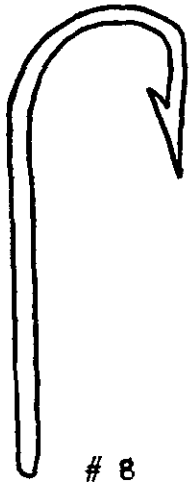

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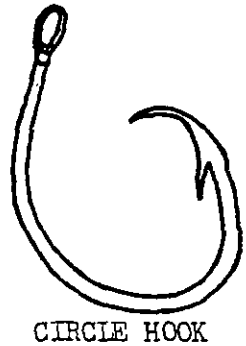

CIRCLE HOOK

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 "Advise" 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 <u>warning signs</u> 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) 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.

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

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

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

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").

Radio Telephone Procedure - Continued

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: After September 1, 1993, 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.

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[1] 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	Blood in the:		
___ Shallow		___ Eyes	___ Ears	___ Vomit
___ Pulsating		___ Nose	___ Mouth	___ Urine
___ Steady				

(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
B-P Cuff Only

Distal Pulse Present Y/N ___

Capillary Refill Quality ___ Good ___ Poor
___ Fair ___ Unavailable

(23) LUNGS & RESPIRATIONS

Lung sounds are:

___ Clear
___ Congested
___ Raspy

___ Equal
___ Unequal

Respirations are:

___ XX per minute
___ Deep
___ Shallow
___ Weak

___ Short
___ Irregular
___ Strained

(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

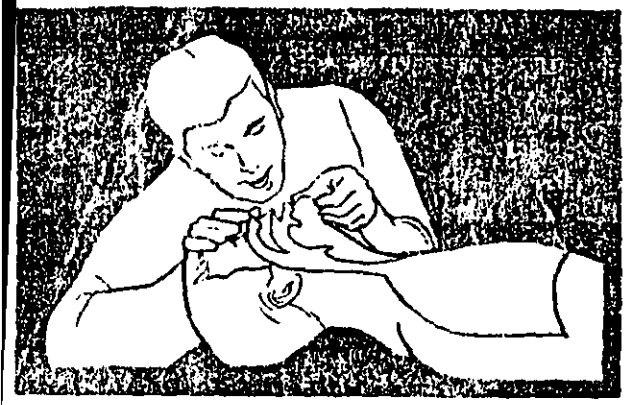
FLOW CHART FLOW CHART FLOW CHART

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



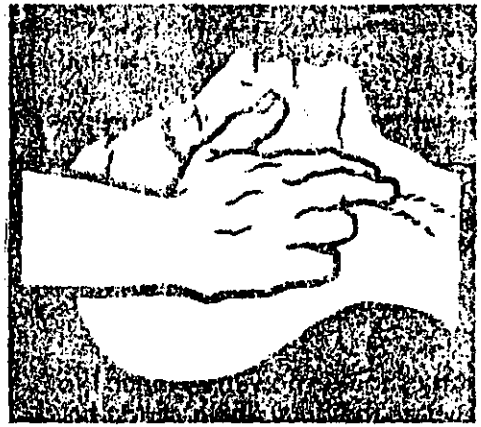
If no response:

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.

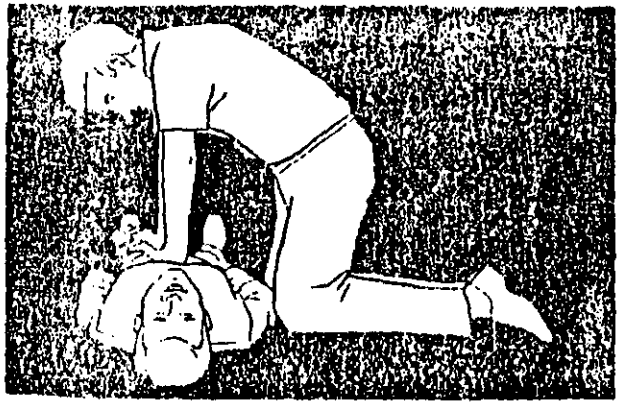
Breathing

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)

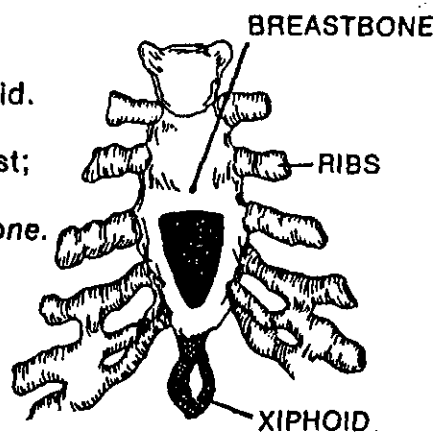


Circulation



If no pulse:

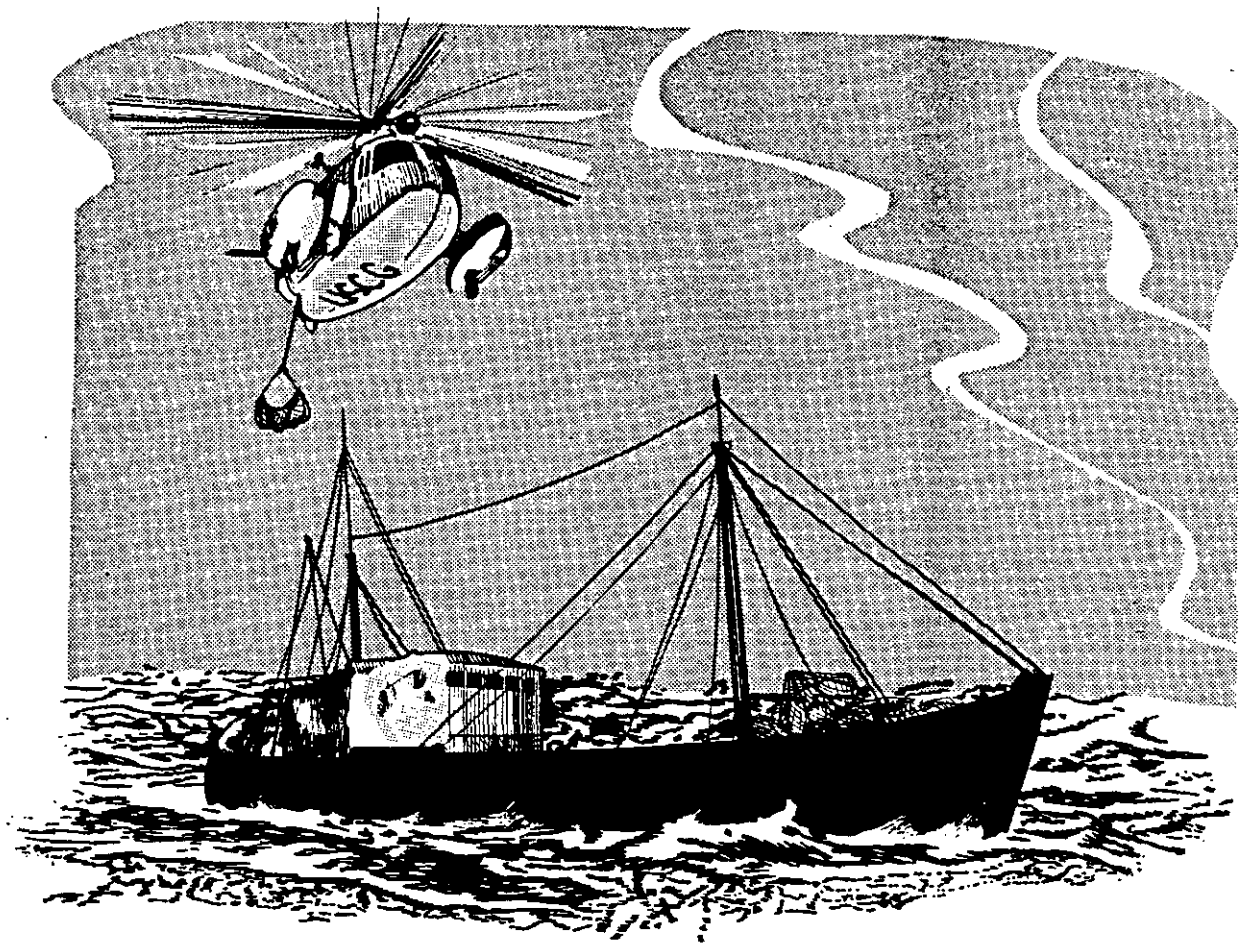
REMOVE obstructive clothing from chest.
FEEL for lower end of breastbone with 2 or 3 fingers on xiphoid.
PLACE heel of one hand just above fingers so that you are on lower one-half of breastbone, **PLACE** other hand on top of first; **KEEP** arms straight.
Small child — use heel of one hand at midpoint 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.

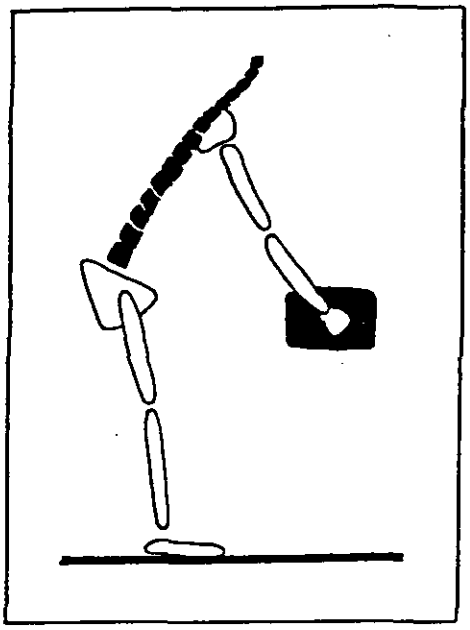
▲ DO NOT secure hoist cable to vessel or attempt to move stretcher without first unhooking cable.

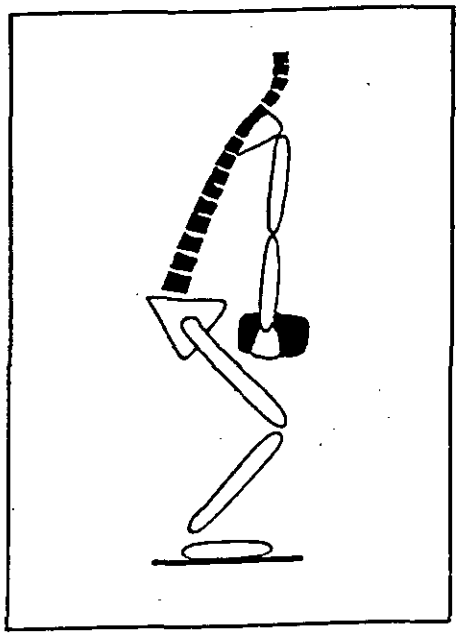
▲ With patient strapped in signal pilot to lower hoist. Steady stretcher.

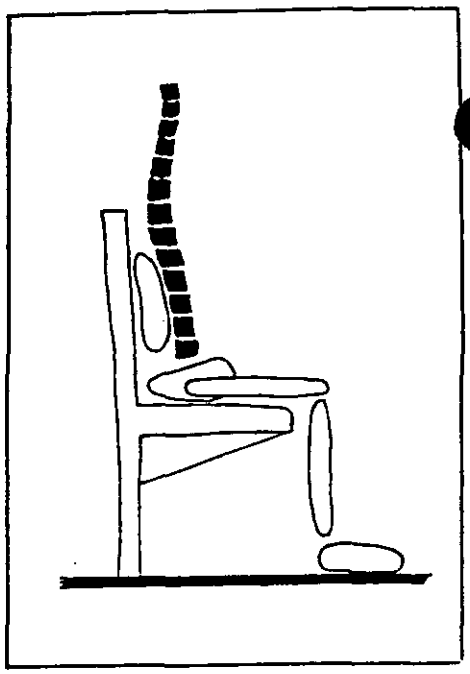
▲ Use trail line to steady stretcher. Make sure line is clear of rigging and crew.

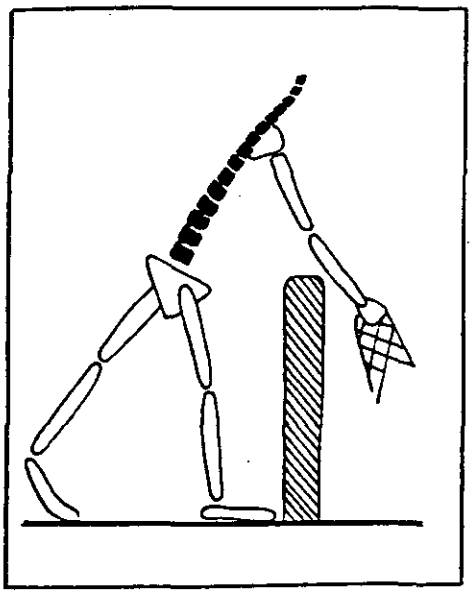
U.S. Department of Commerce, National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Fisheries Extention Service, Northeast Region,
Gloucester, Massachusetts

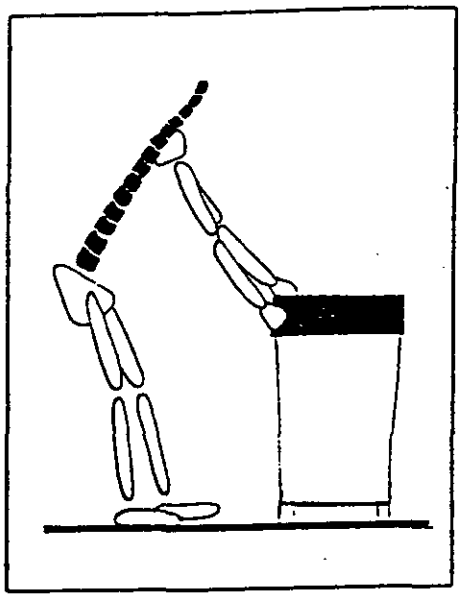
PREVENTING BACK INJURIES

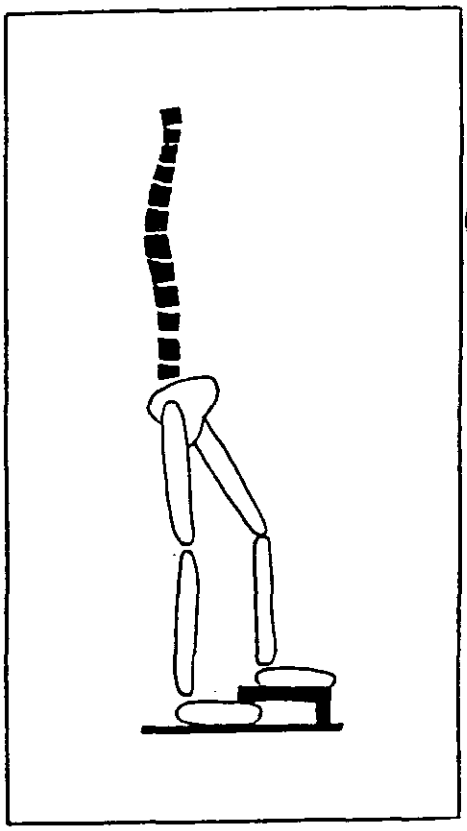












1. The stress on the back is increased when the work is too far away from the body.

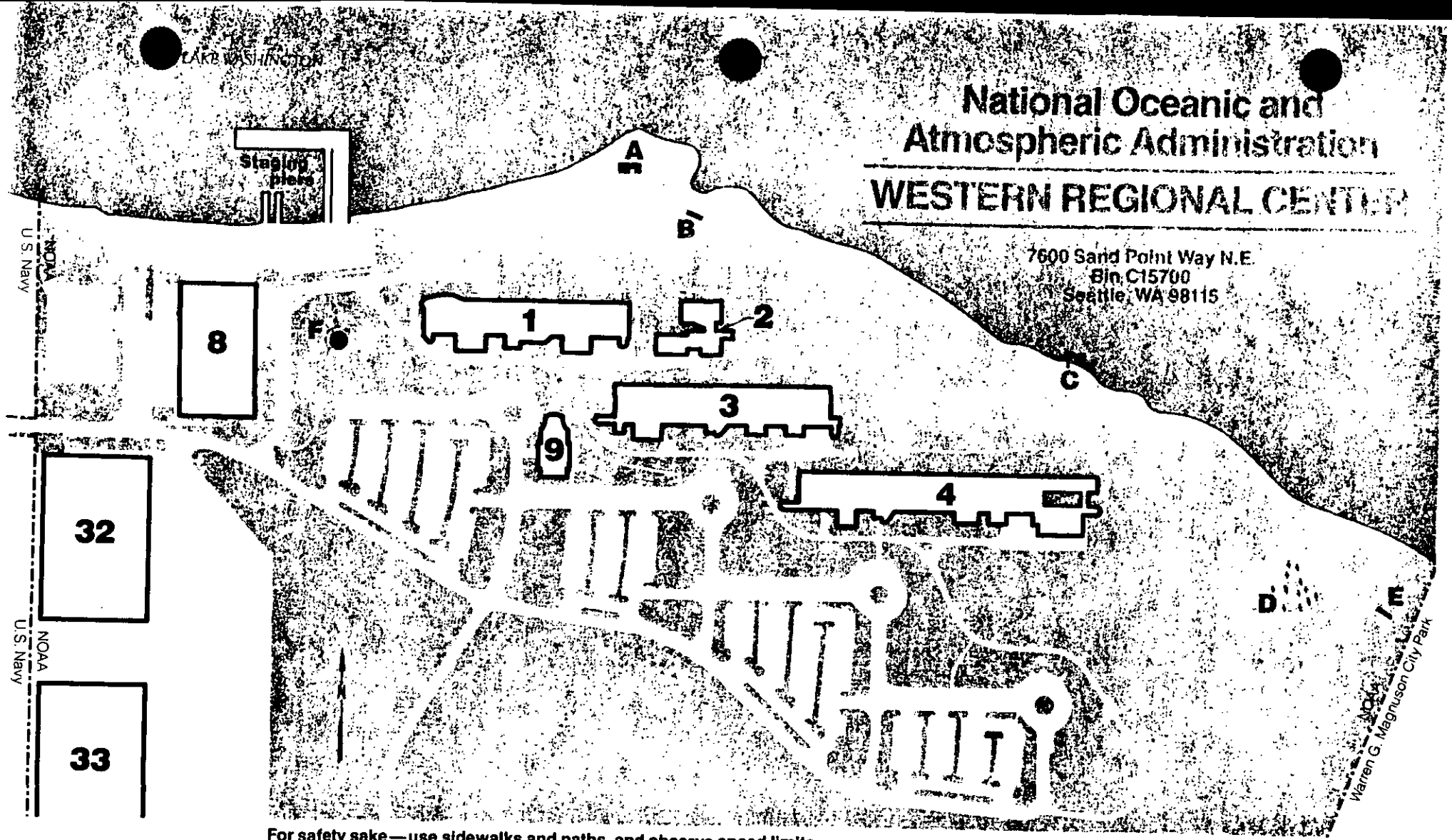
2. Taking the time to get a load directly in front of and close to you will reduce the chance of hurting your back. Always bend your knees and lift with a straight back.

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.



National Oceanic and Atmospheric Administration

WESTERN REGIONAL CENTER

7600 Sand Point Way N.E.
Bin C15700
Seattle, WA 98115

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.

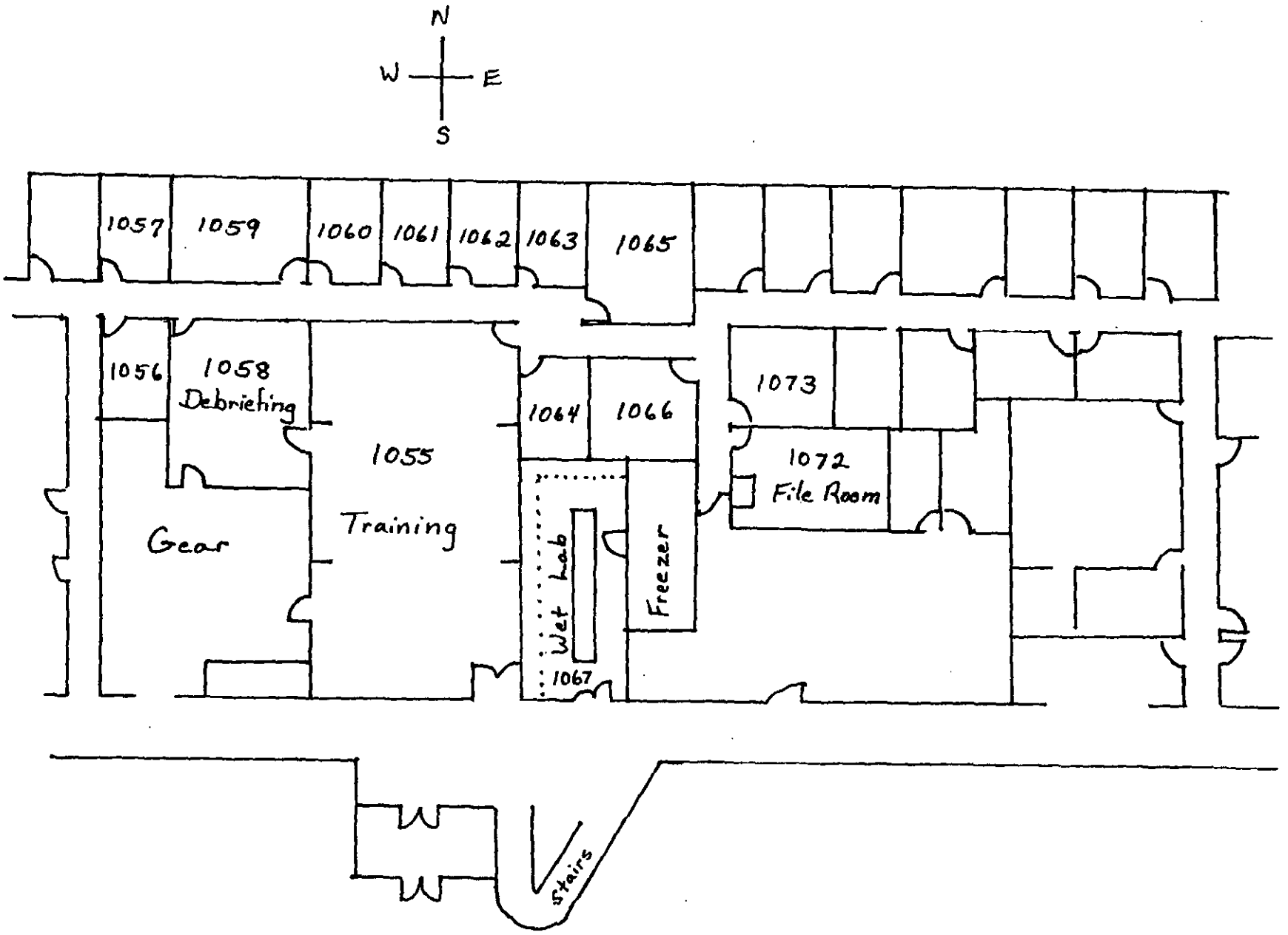
Building 4
Northwest & Alaska Fisheries Center, NMFS

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

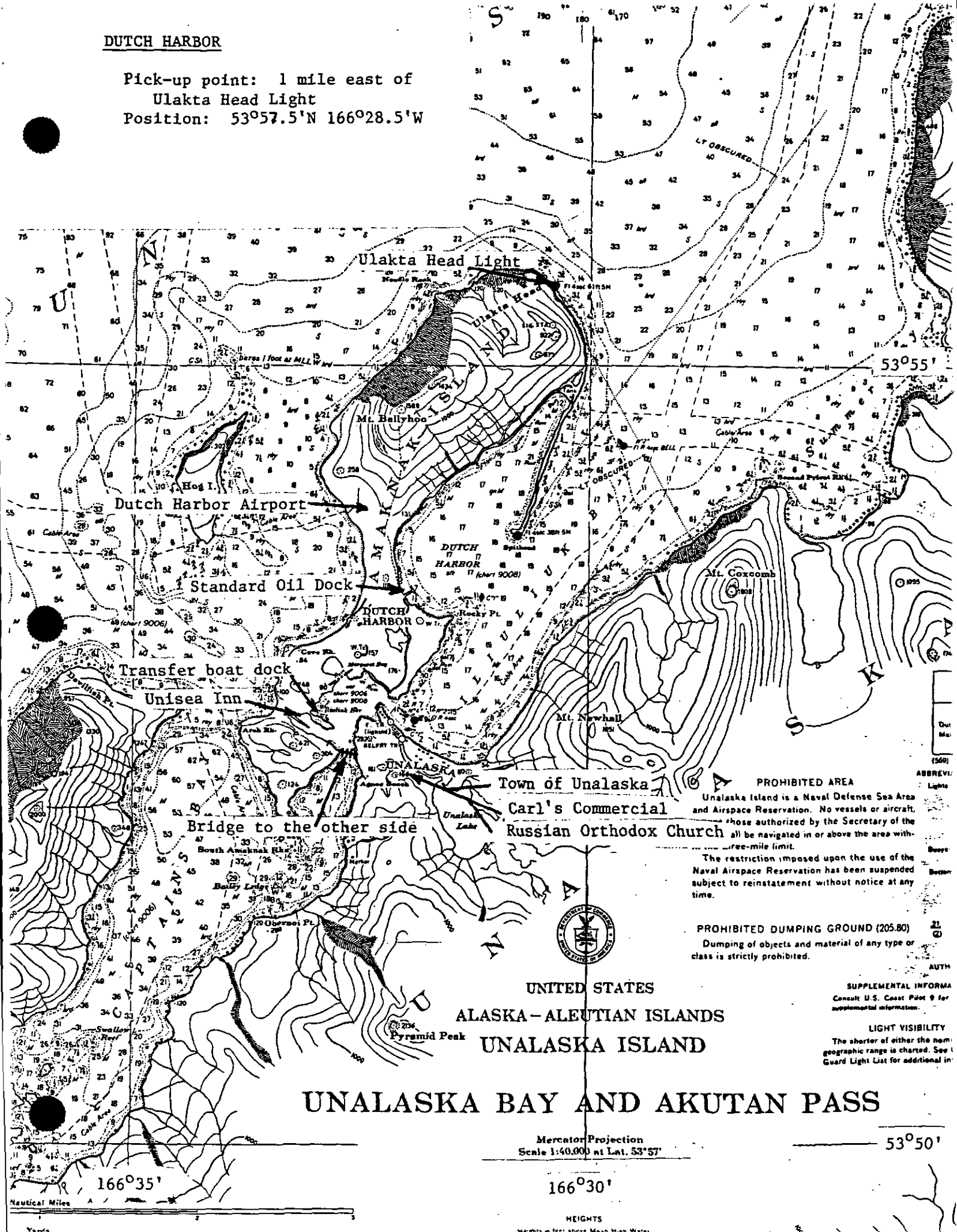
U.S. GOVERNMENT PRINTING OFFICE: 1984 - 795-964



Observer Program Facilities, Building 4 ground floor

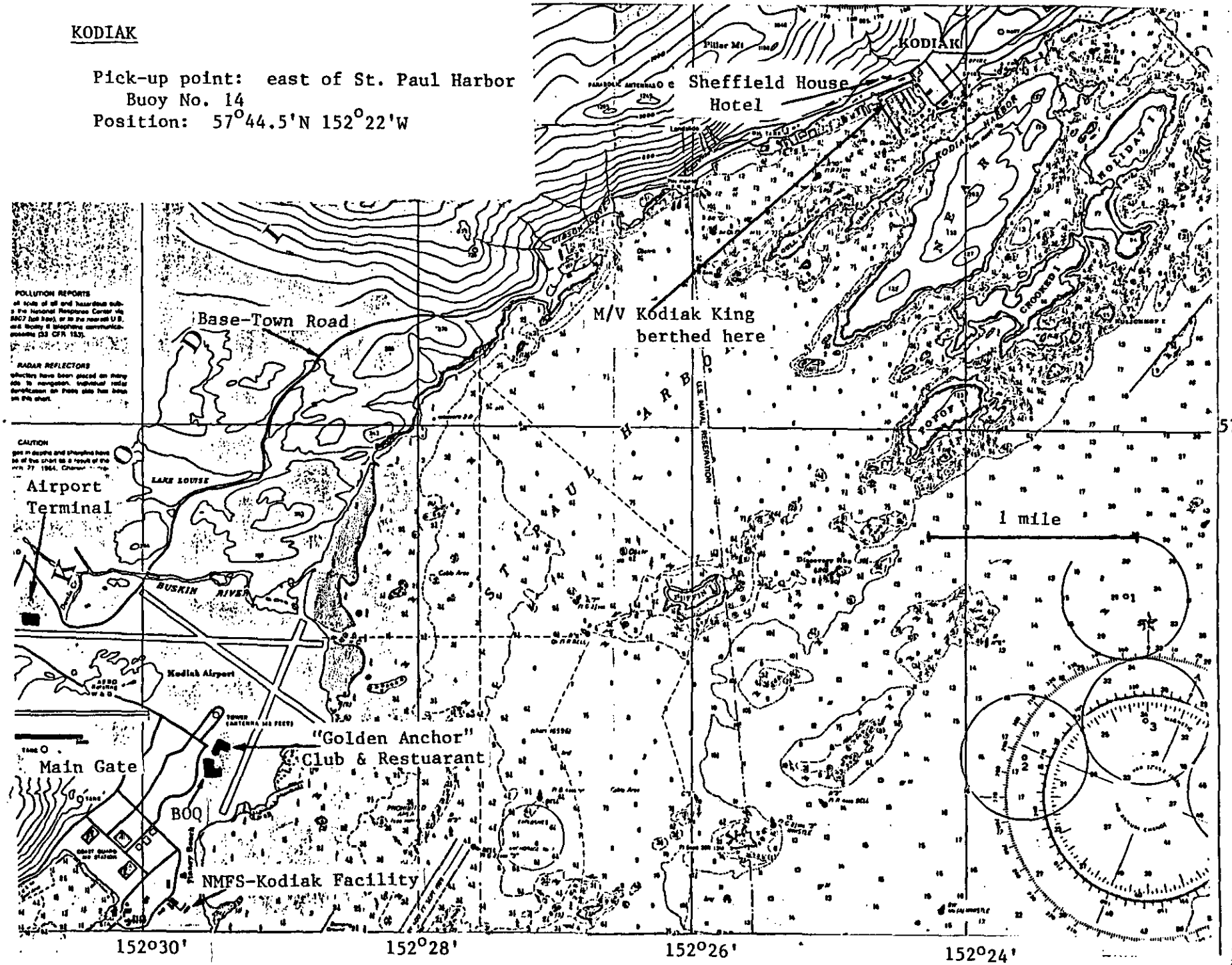
DUTCH HARBOR

Pick-up point: 1 mile east of
Ulakta Head Light
Position: 53°57.5'N 166°28.5'W



KODIAK

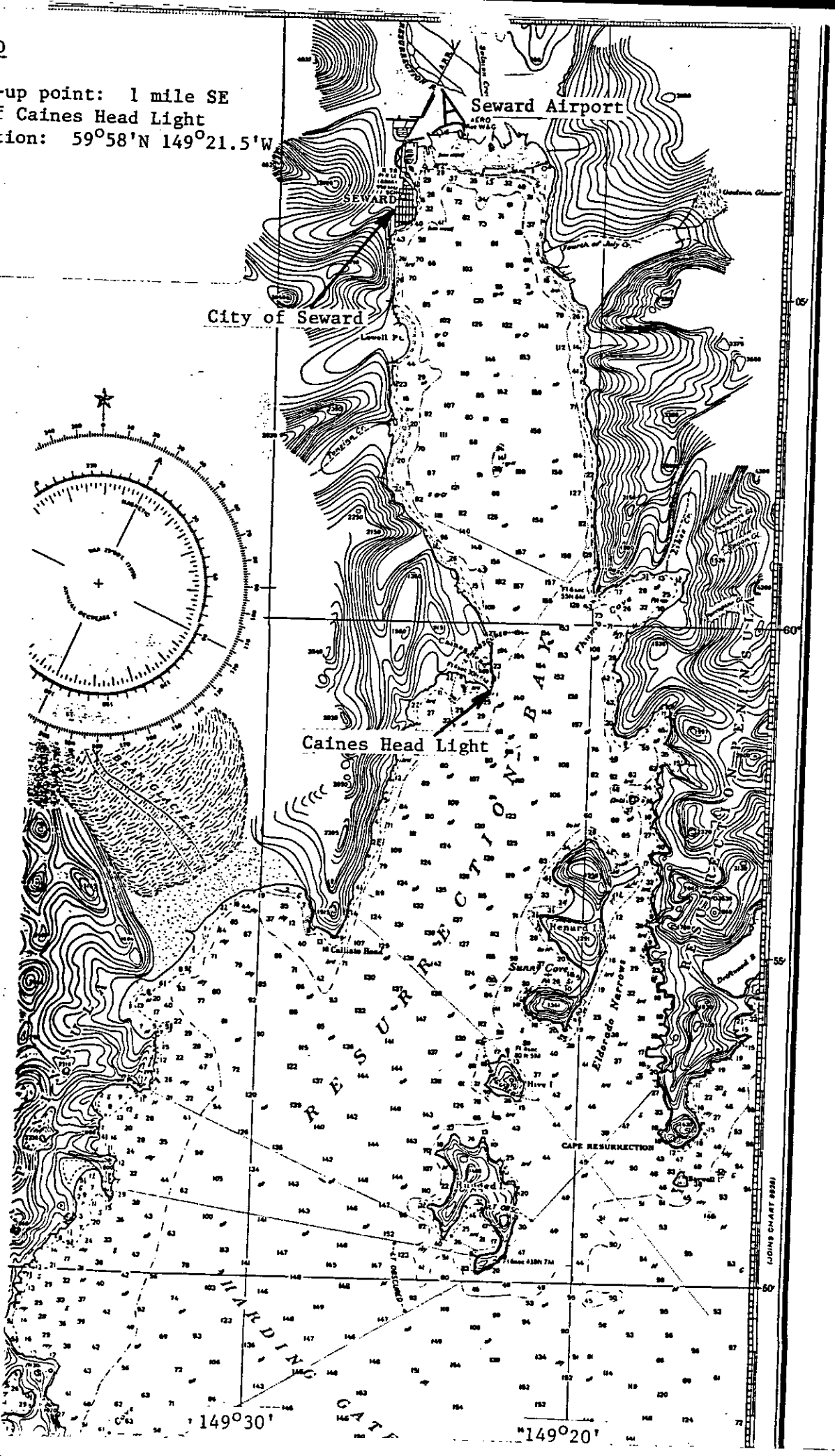
Pick-up point: east of St. Paul Harbor
Buoy No. 14
Position: 57°44.5'N 152°22'W



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 besed 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.

Athwartships - 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, refridgerated 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, chokestrap - 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.

DAP - Domestic Annual Processed catch by U.S. fishing vessels delivering to U.S. processors and by U.S. catcher/processors.

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, shich is that 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 fromt 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 conenected 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 athwartship 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 toothlike 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, equalling 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

Pond - see "bin", the Koreans use this term for a fish bin.

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 - Refridgerated 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.

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.

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 easilly washed out from these than from shirt sleeves. Most fishermen cut off workshirt 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 - PORT SAMPLE SUMMARY FORM

Port Sampler No.	3	4	5	Processing Plant Code	6	7	8	9	Year	13	14

Page ____ of ____

Shoreside Sampled	Observer Onboard	Delivery No.	Delivery Date				Gear Type	NMFS Area Code	ADF&G Stat. Area	No. of Tows	Ave. Dur. (mins)	Total Wt. Delivered	LB / MT	Sample Sp. Code	Sorted Y/N	Wt. of Sample sp. Discarded at sea	Wt. of Sample sp. Delivered	LB / MT	Main Product	Abbreviation of Delivering Vessel
			Month		Day															
		10 - 12	15	16	17	18	19 - 20	21 - 23	24 - 29	30 31	32 - 35	36 - 42	43 44	45 - 47	48	49 - 55	56 - 62	63 64	65 - 66	67 - 81

PLANT COVERAGE SHEET

End of Contract Summary:

Observer Name_____ Contractor_____

Cruise #_____

Proc. Plant Codes	1st Day Coverage	Last Day Coverage	Total Coverage Days at Plant

WEEKLY PLANT REPORT

Each week, please record a new line of entry for each plant you worked at that week. Record the plant name and location, whether it is a 100% or 30% plant (if known) and the week ending date. Then, list the dates of coverage within that week, and from this the total number of days of coverage for that week for each plant. For plants, a coverage day is defined as any day on which a plant receives or processes groundfish and the observer is present. For each day you provide coverage some work should be performed; i.e. collecting Form A information, helping a vessel observer, doing length measurements, age structure collection, or density sampling.

Plant Name & Location	100% or 30% Plant	Week End Date	List Each Date of Coverage for the Week	Total Days of Cov-erage in Week

Observer Name_____

WEEKLY PLANT REPORT

Plant Name & Location	100% or 30% Plant	Week End Date	List Each Date of Coverage for the Week	Total Days of Coverage in Week

Revised: GAC 12/93

Cruise number					Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11

Observer Name _____

Vessel Name _____

Page _____ of _____ for transmission

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Page _____ of _____ for vessel

1. Leading zeros in columns 12, 14, and 33 to 36 only.
2. Skip a line after each day.
3. On days with no sets retrieved, enter date, noon position in columns 24 to 32 and set number = 0
4. Two digits are required in columns 63+64, 68+69, and 73+74.
5. For depth in column 41 use: M = meters and F = fathoms

Sets sampled	Date		Set #	Gear type	Gear performance	Processing mode	Location code	End position of set			Soak time hrs|min	Avg. bottom depth	M or F	# of skates in set or total # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Retained Catch: round weight in metric tons	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	ADF&G statistical area
	MO.	DAY						Latitude (N)	E or W	Longitude (100)											
	12|13	14|15	16 - 18	19-20	21	22	23	24 - 27	28	29 - 32	33 - 36	37 - 40	41	42 - 44	45 - 48	49 - 52	56 - 60	61|62|63|64	65|66|67|68|69	70|71|72|73|74	75 - 80
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REVISED 11/91

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

Observer name ____________________

Vessel name ____________________

Page ________ of ________ for transmission

Page ______ of ______ for vessel

1. Leading zeros in columns 12, 14, 34-41 ONLY.
2. Skip a line after each day.
3. On days with no hauls, enter date, noon position in columns 25-33 and a haul # = 0. Note reason in columns 34-72.
4. Trailing zeros are required in columns 56-72 .
5. For depths in columns 50 and 55: use M = meters and F = fathoms

Cruise number					Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11

List of catcher boats for mothership

Full name of catcher boat	ADF&G #

Monitored for MM (Y/N ?)	Hauls sampled	Date					Gear type	Gear performance	Processing mode	Location code	Haul or Delivery position			Fishing times in ALT		Fishing duration (minutes)	Average fishing depth	M or F	Average bottom depth	M or F	Avg. speed (knots)	Retained catch: round weight in metric tons	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	ADF&G statistical area	Catcher boat's ADF&G #
		Month		Day		Haul #					Latitude (N)	E or W	Longitude (100)	Nets on bottom	Nets off bottom											
		12	13	14	15	16 - 18	21	22	23	24	25 - 28	29	30 - 33	34 - 37	38 - 41	42 - 45	46 - 49	50	51 - 54	55	56 - 57	58 - 62	63 - 67	68 - 72	73 - 78	79 - 84
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created 11/93

FORM 3US–SPECIES COMPOSITION

Page ______ of ______

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

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

Other calc.; comments: ______________________________

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

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

Check Type:	W	P	B
Halibut	☐	☐	☐
Salmon	☐	☐	☐
King crab	☐	☐	☐
Tanner crab	☐	☐	☐

							Viability		
	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)	Number excellent	Number poor	Number dead
Species name	19	20 21 22	23	24 25 26 27 28 29	30–40	41–51	52 53 54	55 56 57	58 59 60
(Keypunch check)	☒	9 9 9	☒			Haul wt:			

FORM 3US–SPECIES COMPOSITION

Page ____ of ____

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

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

Other calc.; comments: ____

____

____

Cruise no.					Vessel code				Year		Mo.		Day		Haul no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

ST = Sampling Type:
B= basket
W = whole haul

Check Type:	W	P	B
Halibut	☐	☐	☐
Salmon	☐	☐	☐
King crab	☐	☐	☐
Tanner crab	☐	☐	☐

															Viability								
	Sex	Species code			ST	Number						Weight (in kg. w/ decimal pt.)	Sample weight (in kg. w/ decimal pt.)		Number excellent			Number poor			Number dead		
Species name	19	20	21	22	23	24	25	26	27	28	29	30–40	41–51		52	53	54	55	56	57	58	59	60
(Keypunch check)	X	9	9	9	X								Haul wt:										

FORM 3US - SPECIES COMPOSITION FOR LONGLINE or POT VESSELS

Page______ of ______

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

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

Other calc.; comments:____

Cruise no.					Vessel code				Year		Mo.		Day		Set no.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

ST = Sampling type
L = Longline
T = Trap/pot
V = Viability only

Check those seen:
Halibut ☐
Salmon ☐
King crab ☐
Tanner crab ☐

														Viability								
	Sex	Species code			ST	Number						Weight (in kg. w/ decimal pt.)	No. of hooks or pots sampled	Number excellent			Number poor			Number dead		
Species name	19	20	21	22	23	24	25	26	27	28	29	30–40	41–51	52	53	54	55	56	57	58	59	60
(Keypunch check)	■	9	9	9	■								Set wt:									

FORM 3US - SPECIES COMPOSITION FOR LONGLINE or POT VESSELS

Page______ of ______

Leading zeros in columns 12 and 14 only. Skip line between sample sizes when space permits.

Worksheet

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

Other calc.; comments: ____

Cruise no.	Vessel code	Year	Mo.	Day	Set no.
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15	16 17 18

ST = Sampling type
L = Longline
T = Trap/pot
V = Viability only

Check those seen:
Halibut ☐
Salmon ☐
King crab ☐
Tanner crab ☐

Species name	Sex	Species code	ST	Number	Weight (in kg. w/ decimal pt.)	No. of hooks or pots sampled	Viability Number excellent	Viability Number poor	Viability Number dead
	19	20 21 22	23	24 25 26 27 28 29	30–40	41–51	52 53 54	55 56 57	58 59 60
(Keypunch check)	■	9 9 9	■			Set wt:			

Cruise no.	Vessel code	Date		
		Year	Mo.	Day
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15

FORM 7US—LENGTH FREQUENCY OF MEASURED SPECIES

(Includes halibut, salmon, and crab measurements)

1. Leading zeros in columns 12 and 14 only — as needed.
2. For longliners — enter set no. in column 19.
3. Start a new row each time when entering data from a different sex, species, or haul.
4. Skip lines between species when space permits.
5. Start each day's measurements on a new side.

Page ______ of ______

M = male
F = female
U = unknown sex
size groups: Fish by 1 cm.
Crabs by 5 mm
(1–5 = 3; 6–0 = 8)

Species name	Species code	Set/haul no.	Sex	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size group	Freq.	Size group	Freq.
	16–18	19 20 21	22	23–27	30–32	33–35	36–38	39–41	42–44	45–47	48–50	51–53	54–56	57–59	60–62	63–65	66–68	69–71

FORM 7US–LENGTH FREQUENCY OF MEASURED SPECIES
(Includes halibut, salmon, and crab measurements)

Page ____ of ____

Cruise no.	Vessel code	Date		
		Year	Mo.	Day
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15

1. Leading zeros in columns 12 and 14 only – as needed.
2. For longliners – enter set no. in column 19.
3. Start a new row each time when entering data from a different sex, species, or haul.
4. Skip lines between species when space permits.
5. Start each day's measurements on a new side.

M = male
F = female
U = unknown sex
size groups: Fish by 1 cm.
Crabs by 5 mm
(1–5 = 3; 6–0 = 8)

Species name	Species code	Set/haul no.	Sex	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size group	Freq.	Size group	Freq.
	16–18	19 20 21	22	23–27	30–32	33–35	36–38	39–41	42–44	45–47	48–50	51–53	54–56	57–59	60–62	63–65	66–68	69–71

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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37											.													

Fishery #		Cruise #					Vessel code				Year	
1	2	3	4	5	6	7	8	9	10	11	12	13

Form 10AUS - Marine Mammal Incidental Catch Data

Page _____ of _____

Date - month & day	Haul, delivery, or set number	Marine mammal species (if none observed - *write none*)	Marine Mammal species code	% monitored (longline only)	Number of marine mammals								Did you observe MM (Y/N)?	Random MM hauls (Y/N)?	Confirmed by MM staff (y/n)
					Deterred	Released or escaped alive (not injured)	Released or escaped alive (injured)	Freshly dead (entangled or entrapped)	Unknown condition	Previously dead	Lethal removal (not entangled or entrapped)	Lethal removal (entangled or entrapped)			
14 | 15 16 | 17	18 | 19 | 20		21 | 22	23	24 | 25	26 | 27	28 | 29	30 | 31	32 | 33	34 | 35	36 | 37	38 | 39	40	41	42

created on 4/92

Form 10BUS - Specimen data and remarks on marine mammal subject to deterrence or taken in catch

Fishery #		Cruise #				Vessel code					Year	
1	2	3	4	5	6	7	8	9	10	11	12	13

Describe features used in identification; circumstances and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date - month & day	Haul, delivery, or set number	Marine mammal species code	Hauls sampled for fish (Y/N)?	Did you observe MM (Y/N)?	Sex (M, F, or U)?	Lengths		Tooth taken (Y/N)?	Photo taken (Y/N)?	Haul position		
						Curvilinear length in centimeters	Standard length in centimeters			Latitude	E or W	Longitude
14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37	38	39 | 40 | 41 | 42 | 43

Remarks : (see manual for list of required information)

14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37	38	39 | 40 | 41 | 42 | 43

Remarks : (see manual for list of required information)

14 | 15 | 16 | 17	18 | 19 | 20	21 | 22	23	24	25	26 | 27 | 28	29 | 30 | 31	32	33	34 | 35 | 36 | 37	38	39 | 40 | 41 | 42 | 43

Remarks : (see manual for list of required information)

Form 11US - Marine Mammal Sighting Form

DO NOT FILL IN SHADED ▨ BOXES

Record ID [ ][ ][ ][ ][ ][ ] (1 2 3 4 5 6)

1. Observer Name _____

Vessel Name _____

2. Date (Yr./Mo./Day) and time (ALT) of Sigthing — year [ ][ ] (7 8) / month [ ][ ] (9 10) / day [ ][ ] (11 12) — time in ALT [ ][ ][ ][ ] (13 14 15 16)

3. Latitude (degrees/minutes/10ths) - NorS — degrees [ ][ ] (18 19) / min [ ][ ] (20 21) / 10ths [ ] (22) — [N] (23)

4. Longitude (degrees/minutes/10ths) - EorW — degrees [ ][ ][ ] (24 25 26) / min [ ][ ] (27 28) / 10ths [ ] (29) — E/W [ ] (30)

5. Species _____ (Common Name) _____ (Scientific Name) — [ ][ ] (33 34) Tentative [ ] (35)

6. Number Sighted _____ + or - _____ C.I. [ ] (36) [ ][ ][ ][ ] (37 38 39 40)

7. Initial Sight Cue _____ [ ][ ] (45 46)

8. Angle From Bow [ ][ ][ ] (47 48 49) 9. Intial Sighting Distance _____ [ ][ ][ ] (50 51 52) 10's of meters

10. Visibility_____ 11. Beaufort Scale _____ 12. Visibility Code [ ] (53)

13. Weather and Wind Speed _____ 14. Surface Water Temp. (°C) [ ] (54) [ ][ ] (55 56)

15. Platform Code [1][9][9][4] 16. Time Zone [ ] (61) [ ][ ] (62 63)

How did you identifiy animal(s)? simply sketch and describe animal; associated organisms; any behavior (include closest approach); comments.

Cruise Number and Vessel Code

[ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] (65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80)

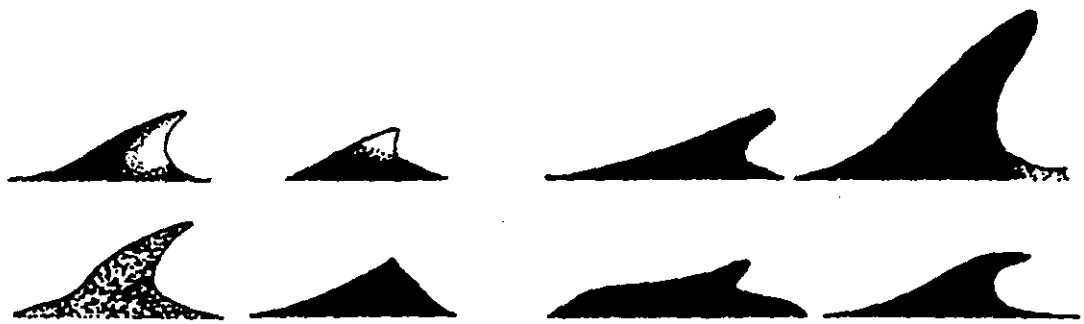
To aid in your identification of whales and porpoises, circle the characteristics corresponding to the features you observered

Body length (estimation):	<10 feet	10-25 feet	50-80 feet
Dorsal fin?	Yes	No	

Shape of dorsal fin:

Porpoises/dolphins 1 2 feet

Whales 0 5 feet



Prominent blow?	Yes	No	
Number of blows before a long dive:	1-3	4-7	8-15
Length of dive:	<2 min.	5-7 min.	10-20 min.

Shape of blow;

Showed flukes upon dive	Yes	NO	
Other behavior characteristics:	No specific behavior		Bow ride
	Following vessel		Slow rolling
	Breaching		Porpoising
	Stern riding		Other _____

Distinctive markings(scarring, white patches,etc.):

(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 _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for FAX communication

RKNG - Red King Crab
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HERR - Herring
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Juneau, AK

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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

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 adjacent 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 adjacent 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

CMA - SPECIES COMPOSITION

Observer Name _____ Page _____ of _____ for transmission Weekly Message or Resubmission of Message Page _____ of _____ for vessel

Vessel Name _____ Fax /Telex #_____ ORC _____

Week Ending Date _____ Observer coverage Days_____ Date message was submitted _____

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: _____

Office Use Only Cruise # Permit # Proc. Code

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	KG in SAMPLE
	% of group retained																
	% of group retained																
	% of group retained																
	% of group retained																
	% of group retained																
	% of group retained																
	% of group retained																
	% of group																

CMB - PROHIBITED SPECIES Page _____ of _____ for transmission Weekly Message or Resubmission of Message Page _____ of _____ for vessel

Observer Name _____

Vessel Name _____

Week Ending date _____

Office Use Only Cruise # Permit # Proc. Code

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB		OTHER KING CRAB		SAMPLE WEIGHT IN MT	HERRING WEIGHT KG	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				NUMBER	WEIGHT KG	NUMBER	WEIGHT KG		NUMBER	WEIGHT KG		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG	code	#

revised 11/8

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

BSAI or GOA	Weekending Date	Total Number of Halibut	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead

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

BSA or GOA	Weekending Date	Total Number of Halibut	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead

OBSERVATIONS OF MARINE DEBRIS

For recording both the disposal and the catch and disposal of marine debris.

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Sighting code
- 1 = Debris found in sampled portion of haul
- 2 = Debris found in portion of haul not sampled
- 3 = Lost or discarded debris

Size code
- A = ≤ 1 quart
- B = 1 qt - 5 gallons
- C = 5 - 15 gallons
- D = 15 - 30 gallons
- E = > 30 gallons
- F = codend
- G = unknown

Disposal code
- B = Burned
- S = Stored
- D = Discarded
- L = Lost
- U = Unknown
- O = Other
- N = Not applicable

Sight Code	Date		Sea State	Haul	Sample Size (mt)	Start Position			End Position			Debris Code	Size Code	Number	Disposal Code
	Mo	Day				(N) latitude	E/W	(1) longitude	(N) latitude	E/W	(1) longitude				
12	13-14	15-16	17	18-20	21 - 25	26 - 29	30	31 - 34	35 - 38	39	40 - 43	44 - 46	47	48 - 49	50
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OBSERVATIONS OF MARINE DEBRIS

For recording both the disposal and the catch and disposal of marine debris.

Page ____ of ____

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Sighting code
1 = Debris found in sampled portion of haul
2 = Debris found in portion of haul not sampled
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A = < 1 quart
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Disposal code
B = Burned
S = Stored
D = Discarded
L = Lost
U = Unknown
O = Other
N = Not applicable

Sight Code	Date		Sea State	Haul	Sample Size (mt)	Start Position			End Position			Debris Code	Size Code	Number	Disposal Code
	Mo	Day				(N) latitude	E/W	(1) longitude	(N) latitude	E/W	(1) longitude				
12	13-14	15-16	17	18-20	21 - 25	26 - 29	30	31 - 34	35 - 38	39	40 - 43	44 - 46	47	48 - 49	50
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MARINE DEBRIS HTING SURVEY

Page ___ of ___

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Date		Sea State	Vis	Start Position			End Position			Start Time	End Time	Speed (knots)	Sighting Position			Sight Time	Object	Est Dis (m)
Mo	Day			(N) lat	E/W	(1) lon	(N) lat	E/W	(1) lon				(N) lat	E/W	(1) lon			
12	15	16 - 17	18	19-22	23	24-27	28-31	32	33-36	37-40	41-44	45-47	48-51	52	53-56	57-61	62-64	65-68
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MARINE DEBRIS SIGHTING SURVEY

Page ___ of ___

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Date		Sea State	Vis	Start Position			End Position			Start Time	End Time	Speed (knots)	Sighting Position			Sight Time	Object	Est Dis (m)
Mo	Day			(N) lat	E/W	(1) lon	(N) lat	E/W	(1) lon				(N) lat	E/W	(1) lon			
12 -	15	16 - 17	18	19-22	23	24-27	28-31	32	33-36	37-40	41-44	45-47	48-51	52	53-56	57-61	62-64	65-68
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VESSEL ITINERARY SHEET **CRUISE #**_____ **VESSEL CODE**_____

OBSERVER_____ CONTRACTOR_____

VESSEL NAME_____

VESSEL/GEAR TYPE_____

Please have this form filled out before debriefing. Account for every day aboard this vessel. Coverage days begin when gear is set; and ends the day the vessel returns to an Alaskan port, leaves the U.S. EEZ off Alaska, or when the vessel offloads groundfish (if on a catcher boat). Make a new entry for each trip made by the vessel. On catcher boats, start a new line every time there is a break in (a day without) coverage. Be sure that your sampling days do not exceed your coverage days.

BOARDED VESSEL_____ DATE SAMPLING BEGAN_____

DEPARTED VESSEL_____ DATE SAMPLING ENDED_____

TOTAL NUMBER OF DAYS SAMPLED____ TOTAL NUMBER OF COVERAGE DAYS _____

TARGET SPECIES_____

GIVE DAYS NOT SAMPLED AND WHY_____

_____

_____

Date observer on board	Date fishing began	Initial sample date	Last sample date	No. of days sampled	Arrival date into port	No. of coverage days

revised 12/14/93

Date observer on board	Date fishing began	Initial sample date	Last sample date	No. of days sampled	Arrival date into port	No. of days of coverage

Revised AB-11/93