Hawaii Longline Observer Program
Field Manual

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Chapter 1 Introduction

Longline Observer Authority and Goal

In the late 1980s there was a rapid expansion of the Hawaii longline fishery for the pelagic species (i.e., tuna and swordfish) in part due to the relocation of U.S. longline vessels from the East Coast and the Gulf of Mexico. This unprecedented and uncontrolled increase in fishing activity raised serious concerns about the impact of longline fishing on the stocks of fish being harvested and on other Hawaii-based fisheries for pelagic species. Reports of longline fishery interactions with the endangered Hawaiian monk seal and several species of listed sea turtles emerged in the early 1990s. To better understand and reduce this fishery's impacts on protected species, interim emergency rules were promulgated. These temporary measures (rules) included requirements for federal longline fishing permits, mandatory logbooks, official identification numbers, and notification to NMFS whenever a longline vessel intended to fish within 50 nautical miles of a protected species study area or if fishing activities would take place around French Frigate Shoals, Gardner Pinnacles, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Island, and Kure Atoll of the Northwestern Hawaiian Islands.

Growing concerns over the expanding Hawaii longline fleet's possible impact on sea turtles and marine mammals and the issuance of NMFS' 1993 biological opinion resulted in the initiation of a voluntary observer program. A letter was sent to all vessel owners with limited-entry Hawaii longline permits requesting their cooperation to voluntarily carry fishery observers. An interim final rule establishing a mandatory program was published on December 22, 1993, and the first mandatory observers were deployed on longline fishing vessels in February 1994. A final rule for the mandatory observer program was published on April 19, 1994, to ensure that observers would continually be placed aboard longline vessels until implementation of Amendment No. 7 of the Pelagic FMP establishing the Limited Entry Program and the longline fishing vessel permit moratorium. Other authorities mandating the program are the Marine Mammal Protection Act and the Endangered Species Act.

Another species that has recently become of concern is the Hawaiian population of false killer whales, *Pseudorca crassidens*. Research over the past few years indicates that the Hawaiian population of this species is genetically distinct from the other populations in the tropical Pacific. More information is needed to assess the impact of the fishery on this population.

Beginning in Fiscal Year 2000, the Pacific Islands Regional Observer Program (PIROP) significantly increased its observer coverage. During the period March 1994 to September 2000, 322 observer trips were completed, averaging 46 trips per calendar year from 1994 to 1999. However, from October 2000 to September 2001, 234 observer trips were completed, over a 500% increase from the previous years. Based on vessel operations, in 2005 over 400 trips were observed. In addition, the program was able to establish a core multi-disciplined observer debriefer/resource management staff to work with observers as they return from sea.

Current observer programs in the Pacific Islands ecosystem are focused on the documentation and description of rates of protected species interactions with commercial fisheries in the region. Other data collected are catch data and biological specimens from target and non-target species. Target species of the fisheries include swordfish, tunas, snappers, and groupers. The observer program is also providing technical assistance and consultation to other fishery observer programs and fishery management agencies throughout the Pacific region and the specific Pacific Rim nations. This assistance includes educational materials to improve protected species identification, release and handling methods to reduce bycatch mortality of sea turtles and seabirds, and methods to improve observer data quality. An improvement in observer programs in the Pacific Islands ecosystem includes increases in the number of sea days to improve the precision and accuracy of estimated parameters. Currently NMFS' Pacific Islands Regional Observer Program (PIROP) operates in the waters surrounding the Hawaiian Islands and the Territory of American Samoa. Future observing efforts in the region may be expanded to the fisheries around the Commonwealth of the Northern Mariana Islands, and Guam.

The program has developed relationships with the Forum Fisheries Agency (FFA) and the Secretariat of the Pacific Community (SPC) with the intention of sharing information on program practices, species identification, labor issues, data harmonization, data sharing, and the "observer" as an effective management tool. PIROP has the resources and experience to offer valuable assistance and support to other observer programs within the greater Pacific region. Intra-program contact and familiarity can help to implement additional data collection and reporting requirements. This may become increasingly important as the Western and Central Pacific Fishing Communities (WCPFC) become more firmly established in the Western and Central Pacific. The response to this outreach manifested itself in the context of multilateral fisheries resource management contacts and an invitation to participate in the annual Pacific Islands Observer Coordinators and Managers meeting which ultimately lead to the Pacific Islands Observer Program becoming a member. PIROP can directly help improve quality of observers, data, and safety training. Indirectly, PIROP can assist foreign observer programs to develop their own capacity to train and maintain observers and observer programs. The Pacific Islands Regional Office, Office of International Fisheries has provided logistical support to national and regional observer programs under the South Pacific Tuna Treaty. By helping the SPC/FFA with their observer trainings, PIROP is expanding upon a pre-existing relationship.

Some important milestones in US fisheries management related to observers.

1. Starting in **1963**, U.S. biologists were placed on some Japanese trawlers and factory ships in the Bering Sea and Gulf of Alaska to obtain data on the catch by species, area, and quantity and on gear efficiency. In essence, this was the first fishery observer program.

2. In **1964**, the Bartlett Act was passed. This act prohibited fishing in US territorial waters (out to 3 miles) by foreign flagged vessels unless they were allowed access by treaty.

3. In **1966**, Public Law 89-658 was passed. This law extended the US exclusive zone to 12 miles.

4. In **1973**, the National Marine Fisheries Service (NMFS) began placing observers on foreign fishing vessels operating off the northwest and Alaskan coasts of the US. This was known as the North Pacific Foreign Fisheries Observer Program. These observers were placed on vessels only upon invitation by host countries.

5. The passage of the U.S. Marine Mammal Protection Act in **1972** led to placing observers on purse seine vessels.

6. In **1978** American fishers began fishing for groundfish in joint ventures with foreign processing vessels.

7. In **1983**, President Regan declared the US Economic Exclusive Zone to cover the area from 12nmi from the coast, out to 200nmi. By **1991**, all foreign fishing within the US EEZ was terminated.

8. By **1986** all non joint-venture foreign fisheries in U.S. controlled waters were halted.

9. In **1988** amendments to the Marine Mammal Protection Act (MMPA) required vessels in fisheries identified as having frequent interactions with marine mammals to carry observers for 20-30 percent of their fishing days.*

10. -In **1987**, the Platform Removal Observer Program begins.(GOMEX)
    -In **1989**, observing began in the Northeast domestic commercial fisheries (NER)
    -In **1990** the North Pacific Groundfish Observer Program begins.(BSAI/GOA)
    -In **1990** the CA Set-net & Drift-net Observer Programs begin.

-In **1992** the Pelagic Longline Observer Program begins.(GOMEX/NER)
-In **1994** the Hawaii Longline Observer Program begins (PIR)
-In **1994**, the Commercials Shark Observer Program begins. (GOMEX/FL & SE)

Objectives for Longline Fishery Observers

To meet NMFS' field responsibilities, the following objectives are established for scientific technicians working as observers aboard longline fishing vessels:

- •Obtain reliable information about the incidental interaction of sea turtles.
- •Record fishing effort.
- •Document interactions of other protected species (marine mammals and seabirds).
- •Record the number and composition of fish kept and discarded.
- •Collect biological information from selected species.

*from http://www.afsc.noaa.gov/FMA/history.htm

Guidelines and Responsibilities

It is of primary importance that you conscientiously follow the guidelines outlined below, with SAFETY and INTEGRITY as the watchwords of your job:

It is your responsibility to observe and accurately record biological research data as instructed. Everything you record is available to the vessel operator or his designate and is subject to legal interpretation. Almost everything you record may be made available as public information. You are not to record extemporaneous comments or personal opinions. It is not your job to evaluate or interpret data; simply record your observations on the data forms that you are issued.

It is your responsibility to maintain open communication with the vessel operator and other vessel personnel to facilitate a clear understanding as to what data are being collected.

It is your responsibility to advise the vessel operator of all data items recorded. If he or she is in disagreement with you, allow operators to record their own views on the original data forms. If they choose, the vessel operators may record their own comments on these forms.

You are hired to be an observer, *not an enforcement agent*. You are not empowered to write citations, make arrests, or carry out enforcement activities. Your responsibilities require you to make observations and collect data, some of which pertain to federal regulations. Your data could be used as evidence to assess penalties and there will be instances where you will be required to write incident reports. Observers do not interpret regulations; however, observers are asked to assist fishermen by providing copies of the current regulations to them upon request, and to direct them to NOAA's Office of Law Enforcement (OLE) for assistance in interpretation. Government attorneys perform legal interpretation.

Your responsibility of observing and recording data is to be performed in such a manner as to minimize interference with fishing operations. Likewise, the vessel operator and any other vessel personnel are not to interfere with your duties.

Observers should not keep personal diaries during a cruise assignment. This does not include material issued to you for documentation purposes. Data forms are to be used for collecting data, not as a sketch pad or notebook. Notebooks are not to be used for collecting data.

Because observer objectives are mandated by federal regulations, personal research is prohibited aboard vessel assignments, and retaining specimens (especially "edible" specimens) of any kind for any personal reason is prohibited.

Intentionally entering the water from an assigned vessel is prohibited; such activity will compromise personal safety and data collection duties.
Sea-assignment readiness is determined by personal fitness, training preparation, and NMFS staff assessments.

Port Coordinators select sea assignments through a predetermined sampling plan and confirm that the boats meet minimum U.S. Coast Guard safety requirements. Observers do not choose vessel assignments; however, **observers have the right to refuse deployment on a vessel they perceive as unsafe.** Any refusal to board a vessel after an inspection must be documented and discussed with management to determine the appropriate course of action.

Fishing activity dictates vessel departures and arrivals. Since vessel notification requirements may limit response time, observers should be prepared for sudden sea assignments of extended and uncertain duration.

An observer's vessel assignment (trip) continues until the vessel returns to port to unload its catch. Occasionally, the port of arrival will be different from the port of departure. In these instances, the trip is considered completed when the vessel arrives in port to off-load its catch. If you are directed by PIROP (or a designated authority) to remain on the vessel and observe the subsequent fishing trip, do not use the same trip number; contact the PIROP office in Honolulu or your contractor for the trip number to use.

Never leave your assigned vessel prematurely without approval from the PIROP Coordinator, Port Coordinator, or acting designate; **to do so is grounds for dismissal.**

Safeguard the return of your data to the port field station. Your work is a valuable investment; treat it like your wallet. **Data loss may be grounds for dismissal.**

Alcohol dependency and other illicit drug use are incompatible with observer duties and are not tolerated. **If detected, disciplinary action will be initiated.**

Falsification of data is grounds for dismissal, and **subject to criminal prosecution.**

Chapter 2 Summary of Duties

Employment Purpose

When aboard an assigned longline vessel, observers collect objective and accurate data on the following:

Vessel fishing gear characteristics and operations
Species composition of the catch
Incidental catch of protected species
Biological (life history) data

General Duties

Work at sea aboard longline vessels.

Work under the authority of the Pacific Islands Regional Office (PIRO) Administrator and direction of the Operations Coordinator.

Collect research and management data from the Hawaii longline fisheries.

Collect data on vessel activity and fishing operations.

Identify protected species, target species, and bycatch species.

Record the number and position of protected species, target species, and bycatch species caught during fishing operations or sighted during the cruise.

Dissect selected species.

Record biological data from protected species and other caught species.

Review collected data and enter data into the database once on shore.

The Observer's Role

(Adapted from an article by P. Cullenberg and K. Rivera in the OTC Quarterly, Vol. 8, No. 3)

Since February 1994, observers have played a role in monitoring interactions between the Hawaii-based longline fleet and sea turtles in the North-Central Pacific. Starting in 2000, the observer's role expanded to cover seabird bycatch in the fishery as well. The observer program has greatly improved the understanding of what the levels of bycatch and interaction are, and what changes can be made in the fishery for the benefit of fishermen and protected species.

When stepping onto a fishing vessel for one week, or one month, you the observer are entering a workplace and a home. It is a place where the crewmen have already established a system of communication and responsibilities. An individual observer's ability to deal with the situation is a reflection of the person's flexibility and resilience. The environment can be lonely, unwelcome, cramped, and sometimes hostile. Your sleeping and eating habits will definitely be disrupted. The quality of your working relationship with the crew can be more important to the overall nature of the trip than the nature of the vessel itself. A good working relationship with the crew makes a good trip. A good working relationship on a good boat makes a great trip!

A longline observer's job in Hawaii has two important phases. The first is the initial collection of the data at sea. The second is processing and verifying the data on land. At the end of a trip, you'll begin the debriefing phase.

Some quotes on observing:

"I simply was not prepared to be so cooped up; trapped in such a small place surrounded by cigarette smoke. I hate to sound so dramatic, but this certainly isn't the life for everyone, and I think potential observers need to be aware of this."

- Anonymous, observer

"They tell you how hard life at sea is and the condition you may face, but they never mention how hard of a mental strain it is."

- Anonymous, observer

"If you don't like to read, learn to like it. Take the number of books you think you can read, and double it."

-Joe Arceneaux, observer

Before a Vessel Assignment

The Placement Meeting

Before each cruise, observers will meet with the vessel operator to review respective responsibilities. The meeting usually will be led by the Port Coordinator, or acting designate. Occasionally, observers may have to conduct their own placement meetings. After the meeting, observers have the responsibility to place their gear aboard their assigned vessels and to be aboard **at least 1/2 hour** before the scheduled departure time.

Observers assigned to a vessel should report to their contractor representative each day until their vessel departs.

An observers cruise assignment (trip) begins when the vessel leaves port to conduct fishing operations.

During a Vessel Assignment

This list of do's and don'ts is the same list that is reviewed with vessel captains during the placement meetings before each cruise.

Observers are to:

1. Collect objective data on all fishing activities, including the take of target and non-target species and selected specimen samples.

This means the observer must see everything that is caught on the line. The observer will record latitudes and longitudes from the ship's GPS, measure fish, collect data on protected species, and collect samples.

2. Perform their duties in a way that minimizes interference with fishing operations.

In order for the observer to perform his or her required duties, the vessel may need to slow down. The observer must see and identify everything that is caught on the line. Do not cut the line until the observer indicates that he or she has identified the animal and says it is ok to cut the line. For example, sharks need to be identified to species, including the different species of thresher sharks and "brown" sharks.

3. Keep open lines of communication with vessel personnel by informing them about observer duties and collected data.

You are welcome to ask the observer what they are collecting. If you are interested in the data that the observer is collecting, please ask the observer and he or she will share this information with you. Vessel operators or crew may not change any data recorded by the observer, but they can add comments in the forms' comment sections.

4. Obtain permission from the vessel captain before using any boat equipment.

The observer is instructed to ask permission from the captain to use the SSB (Single side-band radio) or any other vessel equipment. The observer will also abide by the house rules of the vessel.

5. Collect specimens as instructed by NMFS.

After the observer is finished collecting samples the observer will clean up the work area if needed.

6. Use work cameras for photographing specimens and any other interesting fishing phenomena that may occur. Observers are instructed to ask permission to take pictures of the crew and the vessel.

If a turtle, marine mammal, seabird, or unidentified fish is hooked the observer is required to take pictures of the animal.

7. Ask the captain about emergency procedures and become familiar with the locations of life rafts, fire extinguishers, and first aid kits.

Note: The observer accompanies the Port Coordinator during the safety check so the observer will be familiar with the locations of the safety equipment.

8. Remain onboard the vessel until the vessel returns to port.

For example, if the vessel stops on Kauai or at another port, does not off-load, but will return to Honolulu to off-load the catch, the observer will remain onboard the vessel. However, if the vessel off-loads the catch at a port other than Honolulu, the observer will get off the vessel at that port.

Observers are not to:

1. Dictate procedures or direct fishing operations.

The observer will not tell you how to run the ship, where to fish, or how to fish.

2. Be involved with crew responsibilities such as standing watch or helping with fishing. However, the observer may share housekeeping routines such as washing dishes and post-meal cleanup.

3. Operate the vessel or help with actual fishing operations.

4. Keep specimens not required by NMFS, or edible fish of any kind.

The observer eats what the crew eats. However, the observer may not take any fish home from the cruise unless the observer provides compensation.

5. Discuss the vessel's business, operating strategies, or procedures with other vessels, other observers, or with any fisherman either shore side or at sea.

Captains are to:

1. Cooperate with the observer in the performance of the observer's duties.

Allow the observer to perform required duties. If a turtle or any other protected species is caught, the captain needs to stop the vessel and assist the observer with bringing the animal onboard the vessel.

2. Provide living quarters comparable to a full crew member.

Note: The captain is asked to designate a bunk for the observer during the safety meeting.

3. Provide the same meals, snacks, and amenities provided to crew members.

Often the observer will have a list of additional food items that will be requested for the ship to have onboard. The vessel will be reimbursed $20 for every day the observer is onboard the vessel.

4. Allow the observer access to areas of the vessel necessary to conduct observer duties.

Allow the observer to go to the pilothouse to obtain GPS positions, to store specimens in the ice hold or freezer, and use the SSB radio at least once a week.

5. Notify the observer when commercial fishing operations are to begin and end.

For example, if the observer is sleeping make sure you wake the observer before the vessel begins to set or haul gear.

6. Allow the observer to sample sea turtles, marine mammals, and seabirds hooked or entangled during fishing operations.

When a turtle, marine mammal, or seabird is hooked/entangled, the observer will need the captain's and crew's cooperation. If the turtle or marine mammal is dead or alive, and too large to bring on board, the observer is required to take samples and photos. When this is complete the observer will indicate to the captain and crew that it is okay to release the animal. The observer will work with the captain to make the decision as to whether the animal is too large to bring onboard the vessel. If an animal can be brought onboard alive the observer and crew will use the turtle net. The observer will take samples, photos, and measurements (and may attach a satellite transmitter to the turtle) before release. If the turtle is dead the observer is required to wrap the turtle in plastic bags and store in the ice hold or freezer until the vessel returns to port.

7. Provide refrigerated bait well storage space for observer collected specimens.

The observer may need to store specimens in the ice hold or freezer.

8. Record personal statements on the back of the observer's original forms, if there is disagreement with the observer's collected data.

For example, if the observer identifies a fish as a blue marlin and the captain says it is a striped marlin, the captain can write on the back of the observer's forms that it is a striped marlin.

9. Comply with other guidelines, regulations, or conditions that NMFS may provide in writing to ensure that the observer can complete his or her required duties.

Captains are not to:

1. Ask observers to stand watch or help with fishing operations.

You can not ask the observer to operate the vessel, stand required vessel wheel watches, or help with the actual fishing operations.

2. Forcibly assault, harass or sexually harass, intimidate, attempt to influence, interfere with, or impede the observer while the observer is doing required duties.

If the observer has any questions or problems during the cruise the observer will address these with the captain. If the captain has any questions or problems concerning the fishery observer during the cruise, the captain should speak to the observer and discuss matters of concern.

3. Fish without an observer onboard the vessel after the owner or agent has been notified that they will carry an observer.

Once the owner or agent has been notified that the vessel will carry an observer and the vessel departs without the observer, the vessel will be in violation of its permit.

Captains are to operate the vessel safely and according to established Coast Guard safety regulations. This includes conducting proper wheel watches in accordance with USCG navigation rules.

Rule 5 - "Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."

Interference and Harassment

Record in the Hawaii Longline Observer Program (HLOP) Documentation Notebook any attempt to interfere with you or your observer work, including harassment, by preparing brief, non-inflammatory answers to **WHO, WHAT, WHERE, WHEN, WHY, HOW, and HOW MANY TIMES. Documentation notebooks are to be filled out in ink and pages are not to be removed.**

Harassment is defined as conduct which has the purpose or effect of unreasonably interfering with the observer's work performance, or which creates an intimidating, hostile, or offensive environment.

Federal law defines sexual harassment as "any unwelcome conduct of a sexual nature which has the purpose or effect the substantially interfering with an individual's work performance or creating an intimidating, hostile, or offensive working environment."

Injuries

If you are injured while aboard an assigned vessel, record the details in the PIROP Documentation Notebook. Record the time of the occurrence, the type and extent of the injury, how it occurred, what treatment you received, by whom, and the names of any witnesses.

You may be eligible for compensation under the Federal Employee's Compensation Act (FECA) under an extension of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) section 403 (c).

The MSFCMA section 403 (c) reads as below:

" An observer on a vessel and under contract to carry out responsibilities under this Act or the Marine Mammal Protection Act of 1972 (16 USC 1361 et seq.) shall be deemed to be a Federal Employee for purposes of compensation under the Federal Employee Compensation Act (5 USC 8108 et seq.)"

If you are an observer working for NMFS or under contract as above, you are covered under FECA regardless of how long you have worked as an observer or your work schedule, including if you work on a seasonal, part-time, intermittent, or contracted basis.

If you are injured aboard a vessel, you are legally required to notify the captain of the vessel within seven days of any injury or illness incurred while aboard the vessel.

Make sure to report any injuries or illnesses incurred during a cruise to your employer and your debriefer.

In order to obtain FECA benefits, you must submit the appropriate FECA claim form within 30 days of the injury. The most common claim forms are:

CA-1 Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/ Compensation.

Traumatic injuries are defined as a wound or other condition of the body caused by a single specific event or a series of events or incidents within a single day or work shift.

CA-2 Notice of Occupational Disease and Claim for Compensation

Occupational diseases are defined as a condition produced in the work environment over a period of longer than one workday or shift. It may result from systemic infections, repeated stress or strain, exposure to toxins, poisons, or fumes, or other work conditions of the work environment.

After a Vessel Assignment

An observer's trip assignment ends when the vessel returns to port to sell its catch.

Observers are accountable for all data, issued equipment, and manuals. Observer gear should not be left unattended. To avoid being charged for unserviceable gear, return broken and worn out equipment.

LOSS OF DATA IS GROUNDS FOR DISMISSAL

After each sea assignment observers are to report to the PIROP for debriefing. When observers report for debriefing all data must be complete and in order by form types and set numbers. Data Quality Control sheets must be completed and the electronic gear bag must be brought into the office along with all data and your current field manual. As part of your debriefing duties you will be required to complete the following:

1- Post-cruise questionnaire.
2- Protected Species Permit reports (if applicable).
3- Incident reports for injuries, enforcement violations, and accidents (if applicable).
4- Verify data with debriefer and make all necessary corrections.
5- Enter all data into the Longline Observer Database (LODS).
6- Complete a full read back of the data with your debriefer.
7- Verify Data Quality Control Sheet.
8- Obtain clarification on any issues or collections that are unclear.
9- Replenish data forms for next trip.

* At the conclusion of their first trip, each observer will also fill out a first-trip training critique, and an exit questionnaire. After a trip, each observer should ask if there have been any changes to the procedures for data editing and/or entry.

* At the conclusion of their last trip, each observer will also complete the exit questionnaire.

Travel Responsibilities

Always conduct yourself in a courteous and professional manner. When departing from any port other than Honolulu, board your assigned vessel as soon as possible.

Keep your collected data and electronics bag in close possession at all times. **DO NOT CHECK DATA AS BAGGAGE. DO NOT MAIL ORIGINALS.**

Remember your data are the results of a significant investment; treat it as you would your wallet. Do not entrust it with anyone except observer program staff.

If you incur expenses during transit to or from your vessel, retain all your receipts for reimbursement. If you encounter any travel delays, contact your contractor or the NMFS PIROP office as soon as possible.

NO DATA IS BETTER THAN BAD DATA!

Chapter 3 Data Collection Instructions

General Instructions

If the information requested on a data collection form is not available or not applicable, leave the data field or code box blank. Describe the situation in the Comments section of the form. Use the Documentation Notebook to record information that does not correspond to a specific data form, but that may be worth noting.

1. Use a soft, #2 pencil on all forms. Draw a single line through any errors, and write the correct data above the lined-out item. **DO NOT** make any changes over information that is already recorded.

2. **Print legibly!**

3. Observe and accurately record descriptive and quantitative data, with explicit notes and explanations. **Record the data as events occur, trusting nothing to memory.**

4. Record times as four digits using the 24 hour clock format: for example, 5:34 A.M. is written as 0534, and 5:38 P.M. is written as 1738. Use Hawaii Standard Time.

5. **Protected species are the top priority. Never allow collection of secondary data to interfere with the collection of protected species data.**

6. If data are not available in the proper units, write the measurement and units in the margin or Comments section for later conversion: for example, meters from fathoms.

7. If additional space is required on a data form, continue data entries on additional forms.

8. Include all pertinent facts when writing notes or narrative explanations. Remember that people who were not present will read about the events you are describing. Don't assume that the readers will automatically know what you are describing if you did not write it down.

9. Generally, leading zeros are helpful when filling in data fields. If they are not necessary or desired then the appropriate chapter will explain in the data element definitions section.

10. Unless otherwise specified, right-justify your numerical entries into the data field boxes. For example, if the vessel documentation number is only six numbers, the far left box of the 7-box data field would be empty.

11. If illness, injury, or rough weather impact your ability to perform your duties, describe the situation in your Documentation Notebook.

Data Collection Priorities

As an observer in the Hawaii Longline Fishery your primary duty is to obtain reliable information about sea turtle and other protected species interactions. All protected species data and sample collection has higher priority than any fish data. In instances where there is a protected species interaction collect all data and samples and just make a note if you are not able to collect lower priority fish data. Keep in mind that while you are collecting protected species data and samples you still need to watch what is coming up on the line so additional protected species are not missed.

Sample Collection General Comments

Make sample collections only if you have the proper storage medium and storage space. *An important note to remember is that it is easier to discard a specimen or sample after it is collected and confirmed you do not need it, than to assume that you do not need to collect it and find out later that the sample was highly valuable for research.*

Sample and Data Collection Priorities

Samples

- Sea turtles: skin biopsies or whole dead animals

- Marine mammals: skin biopsies, or small whole dead animals if possible

- Seabirds: refer to circular update for current protocol

- Fishes: selected biological samples as directed - see Circular Updates

Data

- Collect and document data from all incidental catches and interactions of protected species. Sea turtles have the highest priority; marine mammals are second; and seabirds are third.

- Record species composition and disposition of the catch.

- Record fishing locations and gear characteristics.

- Collect fish and shark measurements.

- Describe all incidents where tags are applied, observed, or removed on any caught animal.

Chapter 4 Trip Specifications Record

Introduction

The Trip Specifications form is used to record the specifics of the fishing trip. It is the only record of the vessel name, permit number, and name of the operator. When separated from other observer data, the data cannot easily be associated with a specific vessel or operator so care must be taken not to separate these. This form is completed only once for each observed fishing trip.

Data Elements

Observer ID - in the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during your training or before your first deployment.

Declared Trip Type - the type of set the vessel will make on this trip. The Port Coordinator will tell you what type of set the vessel will employ during the cruise. Write in the appropriate letter code in the box. There are only two types of sets, Deep Set or Shallow Set. If the type is a **Deep Set**, then enter **D** in the box. If the type is a **Shallow Set**, then enter **S** in the box.

If the vessel did not declare the type of set they will fish when they called in, enter **N** for **Non-declared**. Do not change the Declared Trip Type if the type of gear configuration ("set type") fished during the trip is different from what was declared before the start of the trip. This box must be filled in, it cannot be left blank.

Trip Number - in the upper right hand corner, enter the unique 6-character number assigned by the Operations Coordinator. In the first two blocks enter LL for longline. Starting in the third block, enter the 4-digit number.

Manual Version - in the upper right hand corner of the form, fill in the spaces with the Manual Version number. The version number is located on the title page of the manual. The first two characters are LM for Longline Manual. The number should be left-justified and do not fill in zeros for blank boxes.

Vessel Documentation Number - the 6 to 7 digit number assigned to the vessel by the U.S. Coast Guard. It is painted on the sides of the pilothouse, and both sides of the bow. Right-justify this number and do not put in any leading zeros.

Vessel Name - print the name of the vessel as it appears on the bow, transom, or official records. It is not necessary to precede the vessel name with F/V or "FISHING VESSEL."

Vessel Length - the overall length of the vessel in whole feet. The length may also be obtained from the USCG Certificate of Documentation, which may be kept on the vessel. Round any decimals as appropriate. The captain may also know the length of the vessel. This value can be retrieved by the debriefers from the USCG if you cannot find the correct documented vessel length.

Operator Name - print in block letters the first name, middle initial, and last name of the person responsible for operation of the vessel. Confirm the spelling of all names (a good way to do this is to check the captain's Protected Species Workshop card or from another picture ID). If the operator has no middle name, then write (N.M.I. or NMI) for No Middle Initial, after the operator's first name. **Do not put paper captains in this field. Fill in the name of the actual vessel operator.**

Trip Start

Departure Date/Time - the exact date and time the vessel first departs (lines to the dock are pulled in) for the fishing area using the Day Month Year format (DD MMM YYYY). Use two digits for the day. Write the first three letters of the month (ex: JAN, FEB). Fill in the last two blank spaces representing the year. Example: August 5, 2007 would be recorded as 05 AUG 2007. Use Hawaii Standard Time and the 24-hour clock with two digits for the hour and two digits for the minutes (e.g. 9:09 AM is 0909; 5:13 PM is 1713).

Departure Port - print the name of the port city the vessel departed from, e.g., HONOLULU (do not put in what pier, or what state you departed from).

Intermediate Port Stops

Occasionally, some trips will include port stops for reasons other than to unload the catch. If your assigned vessel makes a Port Stop, complete the required lines in the section. Sometimes a vessel will leave from the pier to tie up in another part of the port to take on ice, bait, or other supplies. These stops should not be considered Port Stops. A stop is considered a Port Stop if the vessel has been untied from the dock, left for the fishing grounds and then returns to the dock for some reason.

Stop No. - record a single digit indicating the number of the Port Stop starting with 1.

Stopped (Day Month Year Hour Minute) - the date and exact time the vessel made a Port Stop (i.e., returned to any port for any reason *other* than the end of the trip). Use the standard date format DD MMM YYYY (ex: 07 AUG 2007) and the 24-hour clock (e.g., 2311).

Resumed (Day Month Year Hour Minute) - the date and exact time the vessel departed port after the Port Stop to resume operations. Use Hawaii Standard Time and the 24-hour clock.

Trip End

Arrival Date/Time - the date and exact time the vessel returns to port (lines to the dock are tied up) after completing the fishing trip. Use the correct Day Month Year format, Hawaii Standard Time and the 24-hour clock.

Arrival Port - print the name of the port city where the vessel off-loads its catch, e.g., HONOLULU (do not put in what pier, or what state you departed from).

Comments - use this section to explain details of Port Stops or to record information not included in the data boxes. This section should also be used to record any specimens that are brought back but do not go on the Catch Event Log form. Examples of these types of specimens are lobster phyllosoma and a seabird that dies on deck after striking the vessel, but was not brought up on the gear.

Observer ID

Declared Trip Type

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Observer Manual Version ID

L M . . . .

Trip Specifications

Vessel Documentation No. | Vessel Name | Vessel Length | Operator Name

First Name and Middle Initial | Last Name

Trip Times and Port Stops

Trip Start — Departure Date/Time (Day, Month, Year 2 0, Hour, Minute) — Departure Port

Intermediate Port Stops

Stop No.	Stopped Day	Stopped Month	Stopped Year	Stopped Hour	Stopped Minute	Resumed Day	Resumed Month	Resumed Year	Resumed Hour	Resumed Minute	Stop Port
			2 0					2 0			
			2 0					2 0			
			2 0					2 0			
			2 0					2 0			
			2 0					2 0			

Trip End — Day, Month, Year 2 0, Hour, Minute — Arrival Port

Arrival Date/Time

Comments

form ver. TS.07.03

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form Trip No.

Trip Specifications Comments

Comments (cont. from the front of this form)

form v. TS.07.03.Back

Chapter 5 Longline Set and Haul Information

Introduction & General Instructions

The Set and Haul Information form is used to record the basic set and haul parameters of longline sets on observed trips.

The information necessary to complete this form is obtained through direct observation. If the information for any data elements is not available or applicable, leave the field(s) blank and describe the situation in the Comment section. If additional space is needed for notes, use extra paper.

Documentation of the incidence of incidental take of protected species is extremely important to the management of this fishery. **Observers must monitor the entire first hour of the setting of gear and during the entire haul back, or gear retrieval process.**

Data Elements

Form Header

Observer ID - in the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip No. - in the upper right corner goes the unique 6-digit number assigned by the Port Coordinator. In the first two blocks enter LL for longline. After the second block, enter the 4-digit number.

Set No. - record the set number; sets are numbered consecutively for each observed trip beginning with 01.

Logbook Page No. - record the page number from the *NMFS Western Pacific Daily Longline Fishing Log* that the captain uses to report the catch for this set. **Note:** Right justify and do not use leading zeros. It is highly recommended that observers obtain the page numbers daily.

Set Information Block

Begin Set

Date - the date when the setting operations start (the first piece of gear goes into the water). Use the standard date format (i.e., DD MMM YYYY).

Time - record the exact time when the setting operations start. Record times using the 24-hour clock and use Hawaii Standard Time. **DO NOT** round the time to the nearest 5-, 10-, or ANY mark. Document well any situations that prevent you from obtaining exact times.

Latitude - the latitude of the vessel at the beginning of the setting operation. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter N in the trailing block for the Northern Hemisphere, and S for the Southern Hemisphere (ex: 21 degrees 18.3 N). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

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Longitude - the longitude of the vessel at the beginning of the setting operation. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter E in the trailing block to indicate East longitude and W for West longitude (ex: 157 degrees 55.3 W). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Weather Code - record the 2-digit number representing the weather conditions at the beginning of the setting operation.

Beaufort Scale - record the Beaufort sea state (0-10) describing the sea conditions at the beginning of the setting operation. A wind of a given speed blowing for a sufficient time over a sufficient surface area of water (fetch) produces a characteristic appearance of the sea's surface. The Beaufort Scale relates wind speed and associated characteristic appearance of the sea (i.e., sea state) to a numerical value (0-10) of the Scale. Refer to the reference tables in your manual and on the bottom of the form.

Sea Surface Temperature - record the *in situ* sea surface temperature as a 3-digit number to the nearest 0.1 degree Fahrenheit. Use the vessel's thermistor (thermometer probe). If the vessel does not have a working thermistor, use the issued back-up thermometer. When using a back-up thermometer, follow these steps. Cast the water-collecting container overboard into water which is least affected by external heating from the vessel (i.e., away from engine cooling water discharges). Avoid sampling near overboard discharges. Collect enough water to fill the well and insert the thermometer. Allow roughly 15 seconds for the thermometer to equilibrate before recording the temperature.

End Set

Date - the date when the setting operations ended (the last piece of gear was put into the water). Use the standard date format.

Time - record the exact time when the setting operations ended. Record times using the 24-hour clock and use Hawaii Standard Time. **DO NOT** round the time to the nearest 5-, 10-, or ANY mark. Document well any situations that prevent you from obtaining exact times.

Latitude - the latitude of the vessel at the end of the setting operation. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter N in the trailing block for Northern Hemisphere and S for the Southern Hemisphere (ex: 21 degrees 18.3 N). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Longitude - the longitude of the vessel at the end of the setting operation. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter E in the trailing block to indicate East longitude and W for West longitude (ex: 157 degrees 55.3 W). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Weather Code - record the 2-digit number representing the weather conditions at the end of the setting operation.

Beaufort Scale - record the Beaufort sea state number 0-10 describing sea conditions at the end of setting operation. Refer to the reference tables in your manual and at the bottom of the form.

Sea Surface Temperature - record the *in situ* sea surface temperature as a 3-digit number to the nearest 0.1 degree Fahrenheit. Use the vessel's thermistor (thermometer probe). If the vessel does not have a working thermistor, use the issued backup thermometer.

Haul Information Block

Begin Haul

Date - the date when the haul back operation is begun (the first piece of gear was pulled out of the water). This is almost always a radio buoy, and is considered *Float No. 1* for counting purpose on the catch record. Use the standard date format (i.e., DD MMM YYYY).

Time - record the exact time when the haul back operation is begun. Record times using the 24-hour clock and use Hawaii Standard Time. **DO NOT** round the time to the nearest 5-, 10-, or ANY mark. Document well any situations that prevent you from obtaining exact times.

Latitude - the latitude of the vessel at the beginning of the haul back. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter N in the trailing block for the Northern Hemisphere, and S for the Southern Hemisphere (ex: 21 degrees 18.3 N). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Longitude - the longitude of the vessel at the beginning of the haul back. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter E in the trailing block to indicate East longitude and W for West longitude (ex: 157 degrees 55.3 W). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Weather Code - record the 2-digit number representing the weather conditions at the beginning of the haul-back operation.

Beaufort Scale - record the Beaufort sea state number 0-10 describing sea conditions at the beginning of the haulback operation. Refer to the reference tables in your manual and on the bottom of the form.

Sea Surface Temperature - record the *in situ* sea surface temperature as a 3-digit number to the nearest 0.1 degree Fahrenheit. Use the vessel's thermistor (thermometer probe). If the vessel does not have a working thermistor, use the issued backup thermometer.

End Haul

Date - the date when the haul back operation is ended (the last piece of gear was pulled out of the water). Use the standard date format.

Time - record the exact time when the haul back operation is ended. Record the times using the 24-hour clock and use Hawaii Standard Time. **DO NOT** round the time to the nearest 5-, 10-, or ANY mark. Document well any situations that prevent you from obtaining exact times.

Latitude - the latitude of the vessel at the end of the haul back. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter N in the trailing block for Northern Hemisphere, and S for the Southern Hemisphere (ex: 21 degrees 18.3 N). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Longitude - the longitude of the vessel at the end of the haulback. Enter Degrees, Minutes, and Tenths of Minutes. Obtain positions from the vessel's GPS unit, or your handheld. Enter E in the trailing block to indicate East longitude and W for West longitude (ex: 157 degrees 55.3 W). **DO NOT** record positions from the captain's logbook without noting this in the comments section.

Weather Code - record the 2-digit number representing the weather conditions at the end of the haulback.

Beaufort Scale - record the Beaufort sea state number 0-10 describing sea conditions at the end of the haulback operation. Refer to the reference tables in your manual and on the bottom of the form.

Sea Surface Temperature - record the *in situ* sea surface temperature as a 3-digit number to the nearest 0.1 degree Fahrenheit. Use the vessel's thermistor (thermometer probe). If the vessel does not have a working thermistor, use the issued backup thermometer.

Set/Haul Events

Haul Back Direction Code - Enter the appropriate 2-digit code to indicate which end they started hauling the gear from. If the haul back commences more than five (5) floats from an end, select 03 (Other) and describe the float number and situation in the Comments section.

Line Parted? - Place a check mark or X in the box if the main line unintentionally parted while the gear was hauled. If the crew cuts the line to fix a bad section or cut out a bad line tangle, do not count that as a line part.

Number of Sections Retrieved - If the main line parts, enter the number of pieces that were hauled back. For example, if the main line parts one time and all of the gear was retrieved, then you would enter 02 to indicate that two sections were hauled back. It is always one more section hauled back than the number of times the main line parted unless a section is lost. Enter descriptive remarks in Comments section if a portion of the main line is lost.

Set Interaction? - Place a check or X in the box if you observe a protected species interaction during the observed portion of the set. If there was an observed interaction (contact or attempt on gear), make sure to record the details in the **P**rotected **S**pecies **E**vent **L**og form and the appropriate Biological Data form.

Haul Interaction? - Place a check or X in the box if there was a protected species interaction during the haul back. If you observe a protected species get hooked or entangled during hauling operations or have a protected species come up in the gear place a check or X in the box. If there was an observed interaction, make sure to record the details in the PSEL form, the CEL form, and the appropriate Biological Data form.

Comments - Use this section to describe any particulars that could not be codified from the available data element choices. If any data elements were left blank, record what was left blank and why the information could not be collected, in this section. If you run out of room, indicate that there are notes elsewhere, and continue on another form. If you collect any specimens that do not get recorded on the Catch Event Log form, note it here; an example would be a lobster phyllosoma, which also goes on the Trip Specifications form.

Weather Code Table

01	Clear
02	Partly Cloudy
03	Cloudy (One or More Layers)
04	Drizzle
05	Showers
06	Rain
07	Thunderstorms
08	Rain and Fog
09	Fog/Thick Haze
10	Snow, or Rain/Snow Mix
99	Other

Beaufort Scale

Sea Surface State	Beaufort	Wave Height
Surface is like a mirror	0	0 ft
Ripples with the appearance of scales, no foam	1	1/4 ft
Small wavelets, glassy crests, not breaking	2	1/2 ft
Large wavelets, crests break, some scattered whitecaps	3	2 ft
Small waves, becoming longer, numerous whitecaps	4	4 ft
Moderate waves, longer form, many whitecaps, some spray	5	6 ft
Larger waves forming, whitecaps everywhere, more spray	6	10 ft
Sea heaps up, white foam from breaking waves blown into streaks	7	14 ft
Moderately high waves of greater length, edges of crests break into spindrift, foam is blown in well marked streaks	8	18 ft
High waves, vessel rolling starts, foam in dense streaks spray may reduce visibility	9	23 ft
Very high waves with overhanging crests, sea takes white appearance, foam is blown in dense streaks obscuring visibility, heavy rolling of vessel	10	29 ft- on

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Logbook Page No.

Set and Haul Information

Begin Set

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

End No. 1

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

Weather Code

Beaufort Scale

Sea Surface Temperature: . | Degrees F.

End Set

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

End No. 2

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

Weather Code

Beaufort Scale

Sea Surface Temperature: . | Degrees F.

Begin Haul

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

Weather Code

Beaufort Scale

Sea Surface Temperature: . | Degrees F.

End Haul

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

Weather Code

Beaufort Scale

Sea Surface Temperature: . | Degrees F.

Weather Codes

01	Clear
02	Partly cloudy
03	Layers of clouds
04	Drizzle
05	Showers
06	Rain
07	Thunderstorms
08	Rain and fog
09	Fog/thick haze
10	Snow, rain/snow mix
99	Other

Beaufort Scale

00	Surface like a mirror	0 f t
01	Ripples like scales, no foam	.25 f t
02	Sm. wavelets, glassy crests	.50 f t
03	Lg wavelets, some whitecaps	2 f t
04	Sm, waves, numerous whitecaps	4 f t
05	Mod. waves, some spray	6 f t
06	Lg. waves, more spray	10 f t
07	Sea heaps up, spray & foam	14 f t
08	Mod. waves, foam in streaks	18 f t
09	High waves, rolling, reduced vis.	23 f t
10	Very high waves, hanging crests, heavy rolling	29 f t

Set/Haul Events

Haul Back Dir. Code: 0 _

01 Begin Set
02 End Set
03 Other

Line Parted? ☐ ✓

No. Sections Retrieved

Protected Species Interactions

During Set? ☐ ✓

During Haul? ☐ ✓

Comments

form ver. SH.07.03

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Chapter 6 Gear Configuration

Introduction & General Instructions

The Gear Configuration form is a record of longline fishing gear characteristics. The data on this form are used to describe specific parts of the gear. Vessels may occasionally change or alter their gear according to local conditions. This data can be used with other observer-collected data elements to determine the effects on the catch of protected species as well as target species.

This form should be filled out before fishing operations begin. Most of these elements are obtained through direct observation or measurement by the observer. There are a few elements with "Reported" in their name. To obtain the values of the *Reported* fields, ask the captain or crew, or check with the packaging labels. A form needs to be completed for each day fished, even if nothing changes.

Data Elements

Observer ID - In the upper left hand corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip No. - Record the number of the cruise assigned by the Port Coordinator.

Set No. - Record the number of the set.

Hooks/Floats Block

No. Floats - Record the number of floats used on this set to suspend the gear in the water column. Radio buoys are considered floats and counted the same as the other floats. Occasionally some crews will connect 2-3 floats together. In these cases, all the connected floats would be counted as one.

Hook Type Code - Select the appropriate code indicating the *predominant style of hook used* in this configuration. Use the hook reference chart to determine size and style of hook. If the code is 06 (Other), describe the hook in the Comments section and ask for a hook as an example to bring into the office. *If more than one hook style is used*, *describe all of the hook types used and approximate amounts or percentages in the Comments section.*

How to determine if a hook is offset: Hold the hook with both the eye and point pointing upwards with the point in line and in front of the shank. If the point does not line up exactly with the shank, it is offset. Also, if the hook does not lay flat on both sides with the point in line with the shank, it is offset. Offset hooks do not lay flat.

Hook Size - record the size number of the hooks used. Ignore "aught" (zero) designations. For example, a 9/0 ("nine aught") hook would be entered as 09. Some hooks (e.g., tuna hooks) may have a metric measurement, such as 3.6 mm. In that case, disregard the decimal point and enter the size as 36 in two boxes. If more than one hook size is used, record the predominant size in the data field and note the other size(s) used in the Comments section along with approximate amounts or percentages of each size(s) used.

Hooks Per Float - Record the typical number of hooks deployed between the floats. Count several floats (baskets) of gear during the set to find the predominant number. Sometimes the crew puts out hooks inconsistently during the beginning of the set, which is the portion that you are required to observe. If this happens try to get your counts after the second scan count during the set. It is acceptable to collect this during the haul but it is **not** preferred due to hook loss, tangles, and other higher priority duties.

No. Hooks Set - Count and record the number of hooks deployed on each set. The way to get this number is to count all the hooks/branch lines in the boxes before the setting operations start each day. Once the setting is completed, count the remaining hooks/branch lines and subtract from the first count. As branchlines are repaired or manufactured, be sure to include these in your counts. It is advisable to ask the Captain or crew how many lines were made. If the lines were made during the haul, you should be able to incorporate them into your begin set count. Document any variation on this counting method in the Comments section.

Fishing Techniques Block

Reported Target Depth - Ask the vessel operator how deep he wants the deepest part of the gear to fish. The units for this are in meters. If the operator gives you the depth in fathoms or feet, refer to the conversion formulas in the Appendices. If you have to convert fathoms (fm) to meters (m), make sure to note this conversion in the Comments section of the form.

Target Species Code - Enter the 3-digit code from the Species Code List (Chapter 20).

Name - In the box labeled Name, print the English or common name of the target species. Use the full names from the Species Code List (Chapter 20).

Bait Code - Enter the 2-digit code from the list to indicate which bait was used on this set. Small squid (code 02) are 4 to 7 inch long calamari-sized squid. If the bait code is 05 (Mixed), or 06 (Other), describe in the Comments section the approximate amounts or percentages. If you are unsure of what the bait type is, take a picture. Examples: "*Mixed bait, 80/20 sanma/sardines" or "10 cases sanma, 2 cases sardines"*

Light Devices Block

Type Code - Enter the 2-digit code representing the type of light device, if any, attached to the gear to help catch fish. This does not cover strobes or other lights attached to floats or radio buoys. These lights are used to help locate the gear if the main line parts. If you use code 03 (Other), describe the device with notes in the Comments section. If you use code 00 (None), leave the No. Devices and Color Code elements blank. Some vessels use small glow-in-the-dark plastic wedges near the hook on the branch lines to help hold the wire leader loop open. These are not considered light devices and should not be counted as such.

No. Devices - Record the number of light devices deployed on this set. You do not need to count every lightstick that is deployed individually. You can get an estimate based on hook count and the placement on branch lines; an example would be if they put one on every other branch line or 3 out of 4 branch lines between each float. In other words, it is acceptable to do calculations based on baskets set and number of lightsticks placed on a basket.

Color Code - Record the color light the devices emit. If you use code 08 (Mixed), describe the colors used and approximate percentages in the Comments section of the form.

Main Line Block

Material Code - Select the appropriate code. If the code is 03 (Other), describe the material with notes, and collect a short sample. If the main line is constructed of two or more different materials, record the material code of the majority material in the space provided on the form. Record the other main line materials (write the names of the materials and approximate amount) in the Comments section of the form.

Diameter - Record the diameter of the main line to the nearest tenth of a millimeter (0.1 mm). Use vernier calipers for this measurement. If the main line is constructed of two or more different materials with different diameters, record the diameter of the longest length of main line in the space provided on the form. Record the other mainline diameters in the Comments section of the form. Example: A vessel has a main line composed of two different types of monofilament line of two different diameters. One piece is 25 miles long and 3.6 mm in diameter. The second is 7 miles long and 4.1 mm in diameter. In this case you would record the data on the 25-mile piece on the front of the form, and the information on the shorter, 7- mile piece in the Comments section.

Reported Length - Record the length of main line actually deployed on this set. Ask the vessel operator for this value. Do not use the GPS plotter or latitude/longitude coordinates to figure out distance between the two ends of the set. Example: A vessel has 45 miles of mainline on its reel. The captain says he'll set 38 miles. You would record 38 miles as the Reported Length.

Reported Test - The test strength of the main line material in pounds. Ask the captain or try to determine this from the package. If the main line is constructed of two or more different materials with different strengths, record the strength (Reported Test) of the longest length of main line in the space provided on the form. Record the other main line strengths (write the names of the materials, the codes and the strength) in the Comments section of the form. If the reported test is unknown, make a note in the Comments section as well.

No. Strands - Record the number of strands of material the main line is woven of, or braided from. Occasionally a vessel may have several long pieces of main line tied together. Do not count these pieces to find the number of strands.

Color Code - Select the appropriate code indicating the color of the main line. If the code is 09 (Other), describe in the Comments section of the form. If the main line is constructed of different materials of different colors, record the color code of the majority of material in the space provided on the front of the form. Record the color and percentage of the other main line materials in the Comments section of the form.

Float Line Block

Select examples of typical float lines used on this set. If the float lines are constructed of two or more different materials, record the materials and percentages used (write the names of the materials and the codes) in the Comments section of the form. There can be some variation. For the measured data elements (length and diameter), measure **at least** three typical float lines and take the average.

Material Code - Select the appropriate code. If there are more than two materials, select the material code of the majority of the materials. If the material code is 03 (Other), describe the material with notes, and collect a short sample if possible. Record all materials used to construct the float line (write the names of the materials and the codes) in the Comments section of the form.

Diameter - Record the diameter of the float line to the nearest tenth of a millimeter (0.1 mm). Use vernier calipers for this measurement. If the float line is constructed of two or more different materials with different diameters, record the diameter of the longest length of float line in the space provided on the form. Record the other float line diameters (write the names of the materials and the codes) in the Comments section of the form. Example: A vessel is using float lines composed of two different types of materials with different diameters. One section is 18.2 m long and 4.8 mm in diameter. The second is 2.4 m long and 5.9 mm in diameter. In this case you would record the diameter of the 18.2 m section on the front of the form, and the information on the shorter 2.2 m portion of the float line in the Comments section.

Measured Length - Record the length of the float line to the nearest tenth of a meter. Measure the line from end to end without float attached to it. If the float line is constructed of two or more materials; measure all of the materials together as a single length. Use the 2 m calipers. *If you are on a deep-set trip and your average of at least three float lines comes out to less than 20 meters, measure at least 2 more float lines and document the lengths in the Comments section.*

Branch Line Block

Select examples of typical branch lines used on this set. If each branch line is constructed of two or more types of materials, record the materials (write the names of the materials and the codes) in the Comments section of the form. Some variation in the construction of branch lines can be expected. For measured data elements (length and diameter), measure three typical branch lines and take the average.

Material Code - Select the appropriate code. If there are more than two materials, select the material code for the majority of the materials. If the material code is 03 (Other), describe the material in the Comments section of the form, and collect a short sample if possible. Record information on the other materials used to construct the branch line (names of the materials and the codes) in the Comments section of the form. Example: If a branch line was made of 2.5 m of multifilament line and 10.5 m of monofilament line, you would enter the code for monofilament on the form.

Diameter - Record the diameter of the branch line to the nearest tenth of a millimeter (0.1 mm). Use vernier calipers for this measurement. If the branch line is constructed of two or more materials, record the diameter of the majority material in the space provided on the front of the form. Record the diameters of all other branch line materials in the Comments section.

Measured Length - Record the length of the branch line to the nearest tenth of a meter (0.1 m). Measure the line from the top of the snap to the leader. If there is a weighted swivel (weight) between the branch line and the leader, measure to the "hook side" of the weight. If the branch line is constructed of two or more materials; measure all of the materials together as a single length. Use the 2 m calipers to obtain this measurement.

Reported Test - The breaking strength of the line branch in pounds. Ask the captain or try to determine this from the package. If the branch line is constructed of different materials, record the Reported Test of the majority material in the space provided on the front of the form. Record the Reported Test of the other line branch materials in the Comments section of the form. If the reported test is unknown, make a note in the Comments section as well.

No. Strands - Record the number of strands of material the branch line is woven of, or braided from.

Color Code - Select the appropriate code indicating the color of the branch line. If the color code is 09 (Other), describe with notes and collect a small sample if possible. If the branch line is constructed of different materials of different colors, record the color code of the majority of material in the space provided on the front of the form. Record the color of the other material used to construct the branch line in the Comments section of the form.

Leader Block

Select examples of typical leaders. If the leaders are of different materials, record the percentages of materials used (names of the materials and the codes) in the Comments section. There can be expected to be some variation. For the measured data elements, measure three typical leaders and take the average.

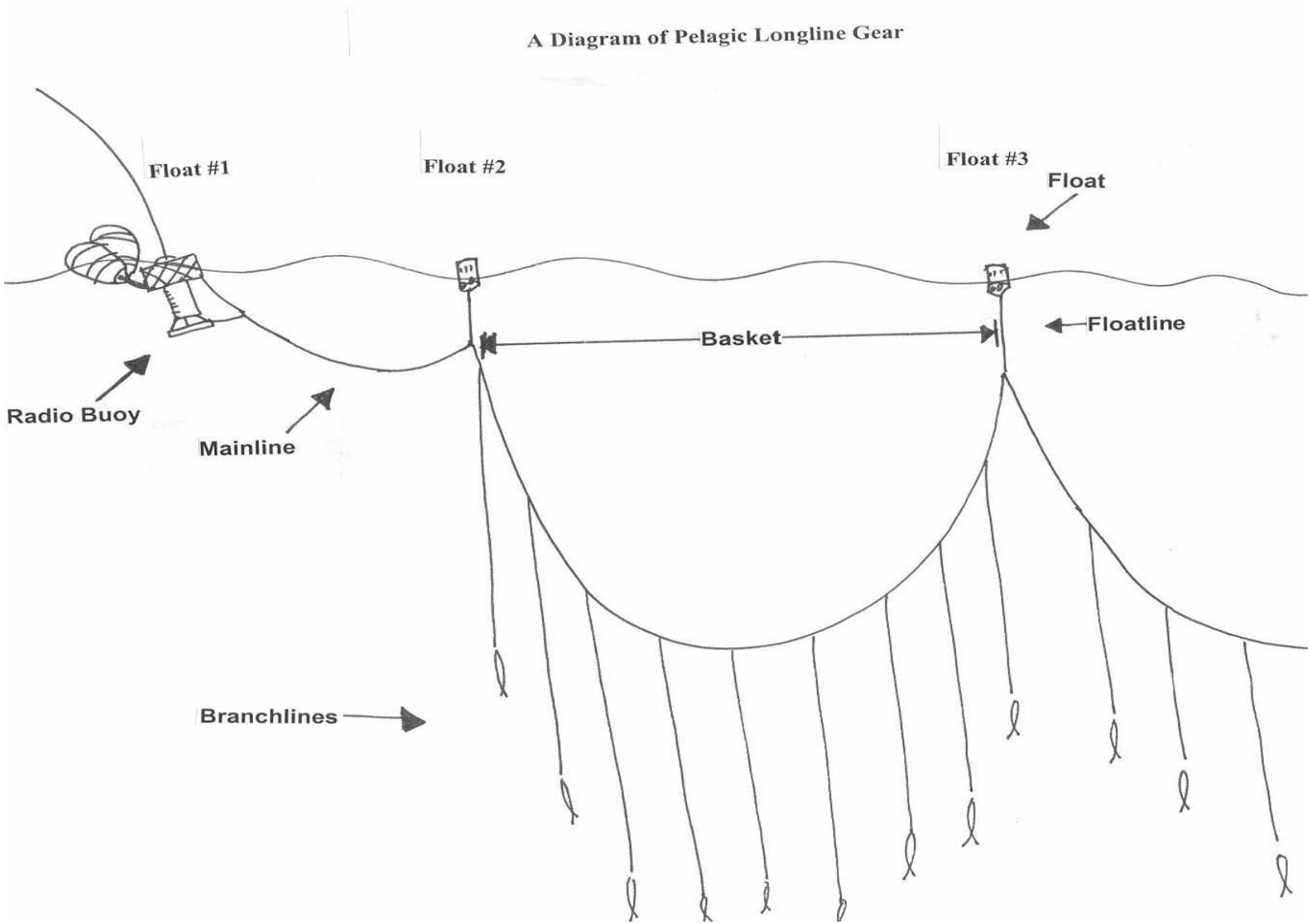
Material Code - Select the appropriate code. If the material code is 3 (Other), describe the material in the Comments section of the form and collect a short sample.

Diameter - Record the diameter of the leader to the nearest tenth of a millimeter (0.1 mm). Use vernier calipers for this measurement.

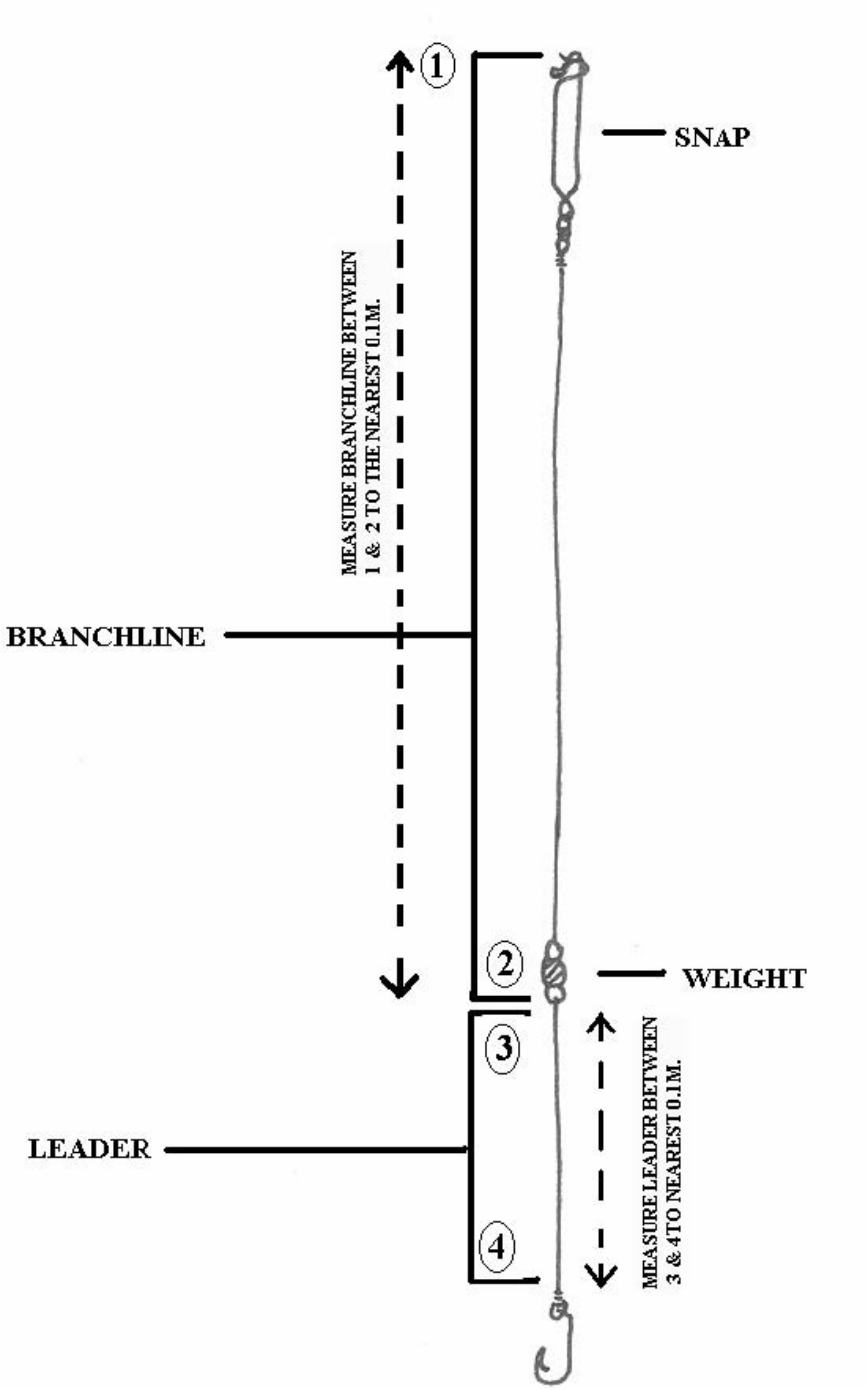
Measured Length - Record the length of the leader to the nearest tenth of a meter (0.1 m). Measure from the eye of the hook to the end of the leader, usually to the hook side of the weight. Use leading zeros; for example, if the length is .5 meters write 0.5 in the boxes.

Reported Test - The breaking strength of the leader material in pounds. Ask the captain or try to determine this from the package. If the reported test is unknown, make a note in the Comments section as well.

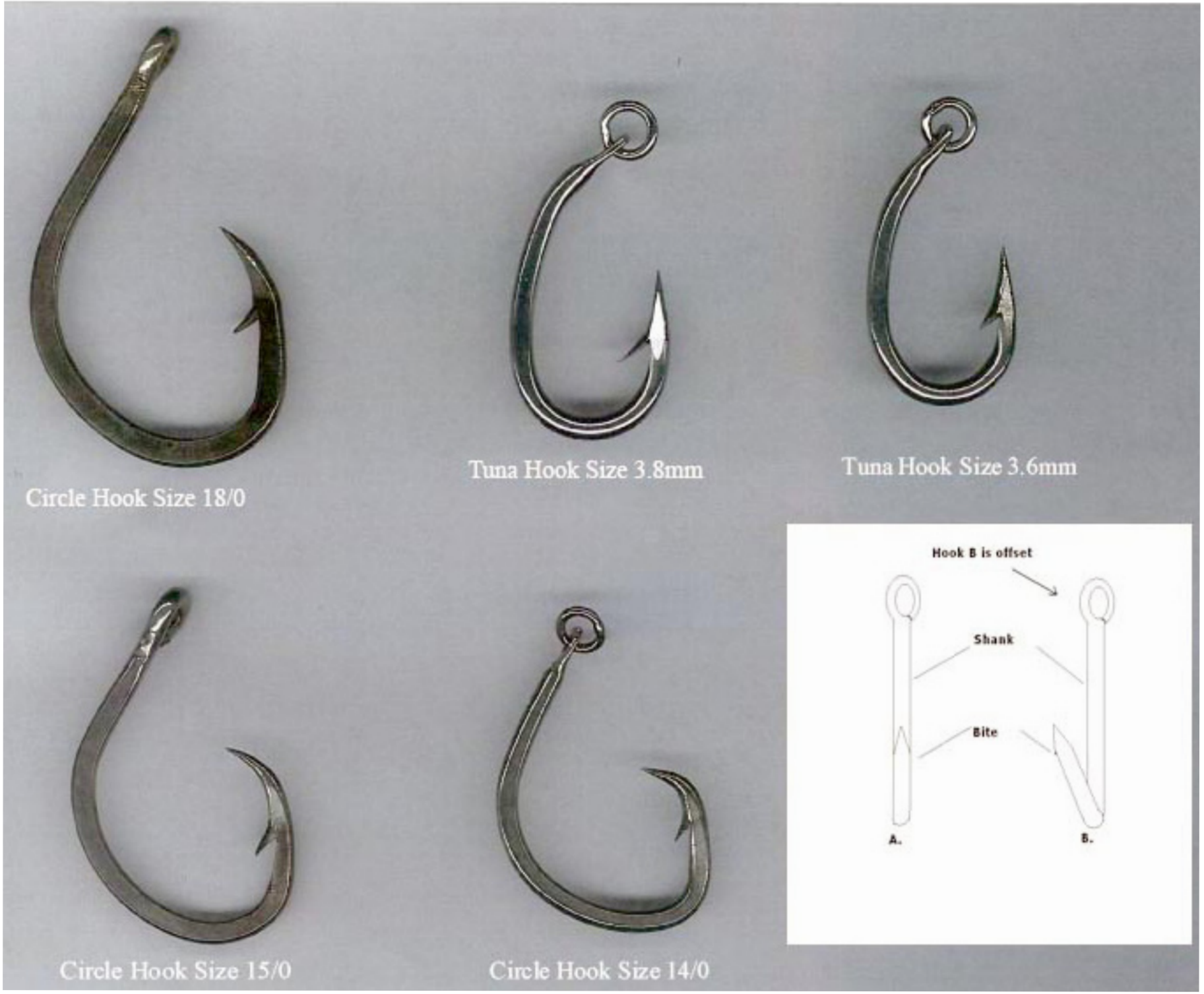
Weight Size - Record the predominant size of the weights used, in grams. If weights of different sizes are used, describe the percentage of the different weights used in the Comments section of the form. If you can not determine the weight size ask the captain for one to bring back to the office.


A Diagram of Pelagic Longline Gear
Float #1
Float #2
Float #3
Float
Floatline
Basket
Radio Buoy
Mainline
Branchlines

Branch Line Diagram



♦ Points 1 and 2 indicate the points to measure to obtain the branch line length.
♦ Points 3 and 4 indicate the points to measure to obtain the leader length.
♦ The branch line diameter is obtained by measuring the diameter of the line anywhere between the snap and the weight.



DO NOT ALTER SCALE!

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Gear Configuration

Hooks/Floats

No. Floats

Hook Type Code

01 Tuna	03 Offset Tuna	05 Circle
02 J-Hook	04 Offset J-hook	06 Other
		07 Offset Circle

Hook Size

Hooks Per Float

No. Hooks Set

Fishing Techniques

Reported Target Depth m

Target Species Code

Name:

Bait Code

01 Large Squid	05 Mixed
02 Small Squid	06 Other
03 Saury (Sanma)	07 Sardine
04 Mackerel (Saba)	

Light Devices

Type Code

00 None	02 Glow Bead
01 Light Stick	03 Other

No. Devices

Color Code

01 Blue	06 Yellow	11 Red
02 Green	07 Magenta	12 Orange
03 Black	08 Mixed	13 Silver/Metal
04 Pink	09 Other	
05 White	10 Clear	

Main Line

Material Code

01 Mono	03 Other
02 Multi	

Diameter . mm

Reported Length nm

Reported Test lbs

No. Strands

Color Code

01 Blue	06 Yellow	11 Red
02 Green	07 Magenta	12 Orange
03 Black		13 Silver/Metal
04 Pink	09 Other	
05 White	10 Clear	

Float Line

Material Code

01 Mono	03 Other
02 Multi	

Diameter . mm

Measured Length . m

Branch Line

Material Code

01 Mono	03 Other
02 Multi	

Diameter . mm

Measured Length . m

Reported Test lbs

No. Strands

Color Code

01 Blue	06 Yellow	11 Red
02 Green	07 Magenta	12 Orange
03 Black		13 Silver/Metal
04 Pink	09 Other	
05 White	10 Clear	

Leader

Material Code

01 Mono	03 Other
02 Wire	

Diameter . mm

Measured Length . m

Reported Test lbs

Weight Size g

form ver. GC.07.12

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form

Trip No.

Set No.

Gear Configuration Comments

Comments

Chapter 7 Protected Species Event Log

Introduction
The Protected Species Event Log (PSEL) form is for observers to record collected data describing the nature and numbers of protected species observed in association with longline fishing operations. This form provides a means to record data from sightings and interactions which have been categorized into three types of events. These event types are Behaviors, Contacts, and Scans.

Behaviors - Descriptions of marine mammal, sea turtle, or seabird activity that does not involve contact with the fishing gear. In general this event type code is used to describe all recorded sightings and marine mammal attempts on gear that do not lead to contacts. Described behavior data can be a critical tool in managing protected species, and this information is highly valuable to NMFS.

Contacts - Events where the animal is observed coming into contact with any part of the gear. Contact with bait or catch that is on the hook are considered contacts. Animals observed becoming hooked or entangled in the gear are considered "catch-contacts" and are counted as contacts on this form. Birds that are observed "catch contacts" get a **Catch Scan** performed and recorded in the comments section of that contact. Data from these caught (catch-contact) animals would then also be completed on the Catch Event Log form. Birds consuming bait or catch that has been removed or fallen from a hook are not classified as gear contact. Birds that land on, or come into contact with the boat or buoys are not considered contacts. If you have a protected species come up on a hook, *but you did not actually observe it getting hooked* then you do NOT record this on the PSEL; it will be recorded on the Catch Event Log and other pertinent forms, such as the Biological data forms.

Scan Count (Seabirds only) - This event type is only used to describe seabird sightings at prescribed times. Scans are done twice during the set and every other hour during the haul back Seabird sightings outside of scan count times should only be recorded if they are short-tailed albatross. Birds observed on buoys are only recorded during scan counts. Night time scans (anything later than 1 hour after sunset) are no longer performed. Scan counts should resume at sunrise. Scan counts should only include birds within 150 yds of the vessel (use your best judgment of distance). A scan count is performed by doing a visual sweep of 360 degrees around the vessel from your observation post, for 1-5 minutes to determine the species and number of seabirds around (not on) the vessel. Do not spend more than five minutes scanning for seabirds.

Special Notice for Short-tailed Albatross Observations
Short-tailed albatross observations are a high priority. Record ALL sightings no matter when you see one and try to get a photo IMMEDIATELY!

General Instructions - Observations of protected species can be separated into a series of steps based on changes in the behavior or condition of the animal(s). For example, a single event like an observed hooking could include such steps as:

1. The observed arrival, investigation, or sighting. (BEHAVIOR).

2. The observed contact with the fishing gear (CONTACT).

Incidents that are clearly separated by relatively long periods of time should be considered separate events. This form allows observers to record information from a group of animals or a single individual. A group is defined as an association of animals behaving in a similar or unified manner. Groups composed of separate species get recorded on separate lines, but as one event.

During the Set

Seabird Scans During the Set - During setting operations, you will observe for seabirds at two periods in the hour immediately after the start of the set. You will do a scan count for 1-5 minutes when they start setting (after recording Set and Haul data) and a second scan count 30 minutes after the *start of the set*. You will not do these scans if the set occurs 1 hour after sunset, but you may resume at sunrise (this generally happens on the second scan). For example, if they start setting at 0812 then you would start your first scan count between 0812 and 0817 and then start your second scan between 0842 and 0847. Only record your scan count if you can start within 5 minutes of your prescribed time. If the time is past 5 minutes when you were supposed to do your scan, make a comment that the scan time was missed on the next scans comment section.

A scan count is performed by doing a visual sweep of 360 degrees around the vessel from your observation post, for 1-5 minutes to determine the species and number of seabirds around (not on) the vessel. After you've done a scan count for seabirds, you will need to record the following data elements on the PSEL. Do not spend more than five minutes scanning for seabirds. Do not record GPS positions for scans.

Data Recorded for Scan Counts:

1. Page number
2. Event number
3. Date and start time
4. Event type code
5. Activity of the vessel
6. Set number
7. Weather code
8. The species (name abbreviation and code) observed and their numbers
9. Association code (only if more than one species is observed during the same event)

If multiple species are observed during the same scan period **each species is recorded on its own line.** All data elements listed above, except date and time, must be filled in for every species observed. The event numbers will be the same for the same scan period. The associations must be filled in if there is more than one line for a scan.

If no birds are seen during a scan count, you will still need to record the data; leave the species code blank, and the number of birds will be recorded as zero. If you see birds after you've completed a scan count, even one minute later, do not record them as being observed during the scan count since they were not there when you did your scan.

Seabird Contacts During the Set

All incidents of seabirds observed making contact (including becoming hooked or entangled) with the gear should be recorded on the PSEL as soon and completely as possible It may be difficult to determine the exact number of birds involved in an interaction. Try to determine, given the local conditions, an estimate of the numbers of individuals involved in any observed interaction. *Don't forget to check the interaction box on the Set and Haul Information form, and put your Catch Scan counts in the comments section of the contact line.*

During the setting of the longline, seabirds that are observed becoming injured (hooked or entangled) or killed should be recorded on the PSEL. Obtaining accurate counts of seabirds involved in interactions with fishing gear may present difficulties to field workers. Under ideal circumstances, even experienced field workers attempting to accurately quantify seabird numbers during fishing operations would be hard pressed to capture data as precisely as one might desire.

NMFS and USFWS are aware of the realities of the situation. However, the presence or absence of interactions is very important in assessing the efficacy of seabird bycatch mitigation techniques. Even imprecise estimates of the numbers of individuals and any associated time and location factors are useful when documenting the frequency at which seabird interactions occur.

At times, you may only be able to get the lat/lon coordinates from the GPS receiver after the interaction is over. It is acceptable to record the lat/lon coordinates at the next possible opportunity that does not jeopardize your other duties. When there has been a period of several minutes between the time of the interaction and when you were able to record the lat/lon coordinates, make a note of when you were finally able to record the coordinates in the Comments section.

During the Haul

Seabird Scans During the Haul - During the haul back operations, record seabird sightings and numbers by doing a scan count. You will do a scan count every other hour. The first haul scan will begin at the top of the first hour after the haul has started within a 5 minute window (xx:00 to xx:05). If a haul starts at 0753, you would do your first scan count for that haul at 0800; if the haul started at 0802, you would start your first scan count for that haul scan at about 0803 because it is still within the 5 minute window. If the haul started at 0809, you would do your first scan count at 0900, then at 1100, and so on. If for some reason you are not able to perform a scan count at the prescribed time, skip it and document why it was not done at the prescribed time. Make a note in the Comments section that the scan count was skipped and wait until the next time you need to do a scan count. In other words, stick to the original time schedule for that day. Do not do scan counts if they are later than 1 hour after sunset. Resume scan counts at sunrise sticking to your scheduled scan times. After you've done a scan count for seabirds, you need to record the following data elements on the PSEL. Do not record GPS positions for scans.

Data Recorded for Scan Counts:

1. Page number
2. Event number
3. Date and start time
4. Event type code
5. Activity of the vessel
6. Set number
7. Weather code
8. The species (name abbreviation and code) observed and their numbers
9. Association code (only if more than one species is observed during the same event)

If multiple species are observed during the same scan period, **each species is to be recorded on its own line.** All data elements listed above, except date and time, which must be left blank, will be filled in for every species observed. The event numbers will be the same for the same scan period. The associations must be filled in if there is more than one line for a single event.

If no birds are seen during a scan count, you still need to record the data; leave the species code blank, and the number of birds will be zero (0). If you see birds after you've completed a scan count, even one minute later, do not record them as being observed during the scan count since they were not there when you did it.

Seabird Contacts During the Haul - All incidents of seabirds observed making contact (including becoming hooked or entangled) with the gear should be recorded on the PSEL as completely and as soon as possible. Observed incidents of seabirds making obvious attempts (i.e., unsuccessful dives on baited hooks or captured fish) on "tended"or "untended lines"(refer to Ch 8 for definitions) should be recorded on the Bird Mitigation form as completely as possible. During longline retrieval when a protected species is observed becoming hooked or entangled, record the steps up to the hooking/entanglement on the Protected Species Event Log and then the information (i.e., float and hook numbers, and condition information) about the catch/entanglement on the Catch Event Log form and the appropriate Biological Data form. NOTE: If you did not actually observe the animal becoming hooked or entangled during gear retrieval, do not record the information on this form. In these cases, the data would be entered on the Catch Event Log form and the appropriate biological data form. Don't forget to check the interaction box on the Set and Haul Information form.

****

Catch Scan (this is a special condition for seabird catch contacts only) - When a seabird is observed becoming caught (hooked or entangled) perform a 360 degree scan around the vessel to determine the number and species of birds within 150yds of the vessel. Record this information in the comments section of the line the contact is on. This scan is performed during the set or haul, and is the only scan that is performed at night. This survey gives a snapshot of one bird catch from a field of how many and what type of birds present.

****

Data Elements

Observer ID - In the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip Number - The unique 6-digit number assigned by the Operations Coordinator. In the first two blocks, record LL for longline. After the second block, enter the 4-digit number of the trip.

Protected Species Page No. - enter 01 for the first PSEL form used, 02 for the second form used, etc.

Page No. - Enter the page number (same number as Protected Species Page No.) for every line that contains data. You may enter the page number on the first line and then draw an arrow down to the end. Do NOT start a new page for each set. Fill in all the lines, then start a new page.

Line Number - This element should be pre-filled.

Event Number - Enter a sequential number for each separate event recorded throughout the trip. The first event observed is numbered 01. **Do NOT start at 01 for each new page.** For example, page 1 may have events 01-08, page 2 may have events 09-18 depending on the situations.

Date/Time - The date and time the event occurred. Use the standard date and time formats (e.g., 12 Jun 2007).

Group/Individual ID - This element is not collected.

Event Type Code - Enter the letter code that describes the type of event.

Event Type Codes List

B = Behavior, **C** = Contact, **S** = Scan (Scan Count), **X** = Event ended (B and C events only)

B - Behavior is used to signify that the data on that line describes an animal(s) exhibiting a specific pre-defined behavior from the Behavior Codes list. **Note:** This Event Type Code is used for any sightings of short-tailed albatross, and sightings of marine mammals and sea turtles.

C - Contact is used to signify that the data on that line describes an animal(s) that were observed making contact with the gear. Contact includes hooking, entanglements, and simple contacts that do not result in a hooking or entanglement. This Event Type Code should only be used if you saw the animal make the contact.

S - Scan or Scan Counts are used to signify that the data on that line(s) describes seabirds that were sighted during a specifically scheduled observation period. The "S" Event Type Code should not be used to describe seabirds observed preying on baited hooks or caught fish (that would be evnt type C). Type S should not be used as the Event Type code when recording sightings of marine mammals or sea turtles. S is the only Event Type that will not have an end event X.

X - Event ended. This code is used to signify that an event is completed or your observations of the situation ceased. Every event, except for Scans, will end with an Event Type Code of X. After entering X in the Event Type Code Box, no additional information is required for the line except the association codes.

Vessel Activity Code - Record the activity of the vessel at the time of sighting.

Vessel Activity Codes List

01 - Gear Retrieval

02 - Gear Set

03 - Gear Drift/Soak - Use only if gear is in the water after setting operations are completed and hauling or retrieval operations have not started.

04 - Pre-Set Preparation - Crew is preparing the vessel and gear for setting operations.

05 - Post-Haul Cleanup - Crew is cleaning up and reorganizing the fishing gear after the last piece of gear is on board.

06 - Running - Traveling while all the gear is on board the vessel.

07 - Other

Set Number - Record the set number if the vessel activity is setting, soaking, or retrieving. Sets are numbered consecutively for each observed trip beginning with 01. This number will be the same as on the Set and Haul Information form for this set.

Sighting Method - Enter the code that indicates the method by which you first became aware of the event. Leave this field blank for Scan Count events.

Sighting Method Codes List

01 - Sighted with naked eye

02 - Sighted with binoculars

03 - Sighted (first) by captain/crew, then by observer

04 - Sighted by captain/crew only

09 – Other

Latitude and Longitude - Record the vessel's lat/lon coordinates from the GPS receiver or plotter at the time of the sighting. Record the minutes to the nearest tenth (only one place behind the decimal point; for example, 15 degrees 45.3 N or 153 degrees 19.1 W). If you are unable to obtain the coordinates right away, record them as soon as you are able. You may encounter a situation where there are many changes in behavior in a short period of time. In a case like this, record the initial position and leave the coordinates in the following lines blank.

Direction N/S - Indicate the hemisphere of the latitude. North = N, South = S.

Direction E/W - Indicate the hemisphere of the longitude. East = E, West = W.

Weather Code - Enter the appropriate code that describes the weather from the Weather Codes list at the bottom of the form

Species English Name Abbreviation - Enter an abbreviation for the common name of the species (e.g., BF ALB for black-footed albatross, FKW for false killer whale, GRN ST for green sea turtle, etc.).

Species Code - Enter the 2- or 3-letter species code corresponding to the species from the Most Common Protected Species Code English Name list at the bottom of the form (e.g., dNG for black-footed albatross, PC for false killer whale, CM for green sea turtle, etc.). aVO and aVE species codes need comments on the back of the form for identification and/or explanation. Anytime the aVO code is used, comments must be recorded. Record all aVO members of the same family on the same line, with species noted in the comments.

Behavior Code - Indicate the activity of the animal(s).

Behavior Codes List

01 - Physical Contact with Gear - The animal(s) were observed making contact with any part of the gear (including hooked bait). Animals observed becoming hooked or entangled get this code and are also recorded onto the Catch Event Log form.

02 - Attempt, no contact - An observed unsuccessful attempt to steal/feed on hooked bait or catch. No observed contact with the gear. The animal(s) were observed making direct close approaches/dives at the gear or hooked catch, and were neither observed making contact nor showing evidence of making contact. *This code should not be used to record seabird activity on this form.*

03 - Near gear, within 50 m - Animal observed within 50 m of gear or vessel**.**

04 - Near gear, 51 to 150 m - Animal observed within 51 m to 150 m of gear or vessel**.**

05 - More than 150 m form gear- Animal is observed more than 150 m from gear or vessel. DO NOT USE THIS CODE FOR BIRDS

08 - Bow riding - The animal(s) were observed keeping pace with the vessel in front of the bow wave.

09 - Breaching - The animals were observed leaping or jumping clear out of the water and crashing down on flank, back, or belly.

10 - Swimming at surface - The animal(s) were observed to be at or just under the surface, not diving for long periods of time. They may be moving slowly.

12 - Motionless at surface - The animal(s) were observed floating at the surface and not moving.

15 - Feeding on discard- Animal(s) were observed feeding on discarded fish, fish part, or bait that was thrown overboard. This may occur during the set or the haul.

16- Feeding from gear- Feeding from Gear- Animal(s) were observed feeding on catch that was still attached to gear. This does not include bait (which would be contact), and may occur during the set or the haul.

99 - Other - The animal(s) were observed exhibiting a behavior not described in the above available choices. *Please describe the behavior(s) on the back of the form in the Comments section.*

Condition Code - Select the code that represents that state of the animal at the end of the event you are recording on the line. There can only be one condition code per line. A change in the condition requires a new line.

Condition Codes List

01 - Unknown

02 - Alive, not injured - The animal(s) of this species involved in this event are alive and uninjured.

03 - Injured - The animal(s) of this species are injured at the end of this event. The Behavior Code of injured animals must be 01 and the event type code must be C.

04 - Killed - The animal(s) of this species are clearly dead at the end of this event.

05 - Dead, fresh - The animal was dead when first observed, and appears not to have died as a result of fishing operations. The Behavior Code of dead animals can only be 03, 04, 11, or 99.

06 - Decomposed - The animal was dead and exhibiting signs of decay when first observed.

Species Count

Often you will observe a large number of animals, such as a mixed species flock of albatross or a large pod of dolphins. In these cases it may be difficult to accurately determine the number of individuals in the group(s). If you are confident that you were able to obtain an accurate count of individuals, like a small group of 1 to 6 individuals, you can enter the same number for the High, Low, and Best estimates. For example, if you observed a single black-footed albatross, the High, Low, and Best estimates will all be 1. Similarly, if you saw two false killer whales for a period of time and only observed evidence that there were two, then the species count estimates would be recorded as 2, 2, and 2. If the group is too large to get an accurate number use high, low, and best estimates as accurately as possible.

Low Estimates - Record your low estimate of the number of individuals of this species present. Use leading zeros if entering a single digit. For Scan Counts, enter a zero "0" if no seabirds are seen.

Best Estimates - Record your best estimate of the number of individuals of this species present. Use leading zeros if entering a single digit. For Scan Counts, enter a zero "0" if no seabirds are seen.

High Estimates - Record your high estimate of the number of individuals of this species present. Use leading zeros if entering a single digit. For Scan Counts, enter a zero "0" if no seabirds are seen.

Sketch Drawn? - Place a check mark or X in the box if you drew a sketch of the animal(s).

Photo Taken? - Place a check mark or X in the box if a photo was taken. Make sure to record the details on your Photo Log form.

Comment Written? - Place a check mark or X in the box if there are comments recorded.

Association Code

The elements in this section associate which other lines or forms relate to this event. For example, if the event on line 3 is a continuation or the same event as line 2, the form code PS indicates that there is another preceding event on this log. The association code would tie line 3 with line 2. It is possible to have other forms other than the PSEL in association with an event. If an animal is observed becoming hooked, the form code CL element will indicate that the capture information is in the Catch Event Log. **Just remember that association codes always connect with only one other line. You cannot have more than one association code with the same page and line numbers!** If you have one event with three different lines, the third line would associate with the second, and the second would associate with the first.

Form Code - The 2-letter abbreviation of each form title. It can be found in the lower right hand corner of each form. (PS for Protected Species Event Log, CL for Catch Log)

Page Number, Line Number - The page and line number of the form that contains the related information to this event.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Protected Species Page No.

Protected Species Event Log

Write ***PSI comments*** and ***PSI Identifying Characteristics*** for specific Protected Species Event Log records in the Comments Log.

Page No.	Line No.	Event No.	Event Date/Time: Day	Month	Year	Hour	Minute	Event Type Code	Vess. Activity Code	Set No.	Sighting Method	Latitude: Degree	Minute	Direction N/S	Longitude: Degree	Minute	Direction E/W	Weather Code	Species English Name Abbr.	Species Code	Behavior Code	Condition Code	Species Count: Low Estimate	Best Estimate	High Estimate	Sketch Drawn ? ✓	Photo Taken ? ✓	Comment Written? ✓	Association: Form Code	Page No.	Line No.
	1												.			.										☐	☐	☐			
	2												.			.										☐	☐	☐			
	3												.			.										☐	☐	☐			
	4												.			.										☐	☐	☐			
	5												.			.										☐	☐	☐			
	6												.			.										☐	☐	☐			
	7												.			.										☐	☐	☐			
	8												.			.										☐	☐	☐			
	9												.			.										☐	☐	☐			
	10												.			.										☐	☐	☐			

Event Type Codes

B Behavior
C Contact
S Scan Count
X Event Ended

Vessel Activity Codes

01 Gear Retrieval
02 Gear Set
03 Gear Drift/Soak
04 Pre-Set Preparation
05 Post Haul Clean-up
06 Running
07 Other

Sighting Method Codes

01 Sighted with naked eye
02 Sighted with binoculars
03 Sighted by capt./crew, then Observer
04 Sighted by capt. or crew only
09 Other

Weather Codes

01 Clear
02 Partly cloudy
03 Layers of clouds
04 Drizzle
05 Showers
06 Rain
07 Thunderstorms
08 Rain and fog
09 Fog/thick haze
10 Snow, rain/snow mix
99 Other

Most Common Protected Species

Code	*English Name*
681	Black-Footed Albatross
682	Laysan Albatross
601	Other Identified Bird
504	Loggerhead Sea Turtle
505	Olive Ridley Sea Turtle
506	Leatherback Sea Turtle
502	Green Sea Turtle
500	Unid. Hard Shell Sea Turtle
742	False Killer Whale
746	Risso's Dolphin
743	Short-Finned Pilot Whale
731	Bottlenose Dolphin
755	Humpback Whale

Behavior Codes

01 Physical contact w/gear
02 Attempt, no contact
03 Near gear, within 50 m
04 Near gear, 51 to 150 m
05 More than 150m from gear
08 Bow riding
09 Breaching
10 Swimming at surface
12 Motionless at surface
15 Feeding on discard
16 Feeding from gear
99 Other

Condition Codes

01 Unknown
02 Alive, not injured
03 Injured
04 Died
05 Dead, fresh
06 Decomposed

form v. PS.10.01

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form Trip No.

Page No.

Protected Species Comments

Line	Comments (Precede each comment with the appropriate line number. Use as many lines as needed.)

form v. PS.10.01.Back

Chapter 8 Seabird Mitigation Techniques

Introduction

The Seabird Mitigation form is used to record the mitigation techniques employed by the vessel during setting and retrieval operations. It is also used to record seabird species, and their attraction to "tended" and "untended" branchlines during gear retrieval.

General Instructions

The mitigation techniques are recorded both during the set and haul of the longline gear. Observers are required to observe the first hour of the set and the entire gear retrieval. This form provides a place for observers to record seabird activities associated with fishing operations, and the techniques vessels employ to deter seabird interactions.

Branchlines that are not connected to the mainline during gear retrieval are considered "tended" or "untended" lines. When a branchline is unsnapped from the mainline, it becomes a"tended" line while it is actively being pulled in. If the unsnapped line is reattached to the vessel and left trailing in the water until it can be pulled in later, this would be an "untended" line. Seabirds are able to steal bait from these "tended" and "untended" lines and this can result in an interaction or hooking. An **attempt** is a concerted effort to feed on bait or catch from a hook or line without making any actual contact. A seabird altering it's course to fly lower over a "tended" line would not be an attempt. Seabirds making attempts to take bait from "tended" or "untended" lines during gear retrieval get tallied in the comments sections by species. The comment can be as simple as "Attempts-10 shearwater on untended lines, 3 Laysan Albatross on tended lines". Any observed seabird or protected species **contact** with "tended" or "untended" lines during gear retrieval needs to be recorded on the PSEL form, and any observed contact that results in a **catch** would go on the PSEL , the Catch Log, and an appropriate Biological Data form with a Sketch.

Data Elements

During Set Block

Place a check mark or X in the appropriate box for each deterrent used during the setting of the longline gear. If the deterrent was not used, leave the box unchecked.

Number of Floats Observed During Set - Record the number of floats you watched set out during the setting of the longline gear. Use leading zeros as necessary. If set is made during daylight hours, try to observe a minimum of 10% of the floats.

Set at Night? - Check this box if the **Begin Set** time is **at least one hour after sunset,** and the set is completed at least one hour before sunrise. Use your issued GPS to figure out the time of local sunset. Do this by pressing menu-celestial-sun and moon after the GPS has been connected to the satellites for a couple of minutes.

Towed Buoy Used? - A buoy or other floating object towed behind the vessel where baited hooks are deployed during the observed portion of the set.

Tori Line Used? - Check this box if a line approximately **150 m** in length with intermittent swivels and streamers towed behind the vessel that covers the area where baited hooks are was deployed during the observed portion of the setting of the longline gear. Note in the Comments section if the line did not completely cover the gear.

Line Shooter Used?- A mechanical line-setting device (line shooter) was used to deploy the main line during the observed portion of the set.

Water Sprayed on Sea Surface? - During the observed portion of the set, water was sprayed on the sea surface, near, or behind the area where the fishing gear was entering the water.

Bird Curtain? - During the observed portion of the setting of the longline gear the vessel deployed a bird curtain aft of the line shooter.

Gear Set from Side? - The line shooter is mounted on the port or starboard side (not the stern) of the vessel and this is where the gear is deployed from; this alone is not considered side-setting.

Birds Present? - Were there seabirds present at any time during the setting of gear? If this box is checked, state which family, genus, or species of seabird was present in the Comments section. List all the species observed during the set even if the seabirds are observed between scan counts. For example, if you saw unidentified storm petrels during the set, write "storm petrels". If there was a black-footed albatross present also, write "storm petrels and black-footed albatross".

Bait Blue-Dyed? - During the observed portion of the setting of the longline gear, the bait was dyed blue. The blue color must be at least the same intensity as the NMFS blue color standard for bait. If the blue does not match the NMFS color standard, leave this box blank.

Branch Line Weighted? - Weighted branch lines are used during the observed portion of the setting of the longline gear.

Strategic Offal Discard? - Did vessel personnel discard offal (fish parts, excluding bait, not intended for human consumption) off the opposite side of the vessel from where the longline gear is set out when there were seabirds present? If so, mark this box. **Note:** Use of this deterrent is not possible while deploying the gear for the first set of a trip or when no birds are present.

Strategic Bait Discard? - Did the vessel personnel discard spent bait off the opposite side of the vessel from where the longline gear is being set out when there were seabirds present? If so, mark this box. **If the spent bait is retained on board and not discarded, leave this blank. If the spent bait is thrown overboard on the same side of the vessel as the gear is hauled aboard, leave this blank.**

Bait Thawed? - During the observed portion of the setting of the longline gear, the bait was *completely* thawed.

Bait Cast OutsideWake? - During the observed portion of the set, the baits were thrown outside the vessel's wake.

Other Deterrent? - During the observed portion of the set, the vessel crew did something specifically to reduce seabird bycatch that is not included elsewhere in this list.

During Set Seabird Mitigation Comments - Describe any other seabird deterrent(s) used during the set. Describe any deterrents used, that were not properly deployed or performed. If seabirds were present, list the species here.

<u>During Haul Block</u>

Place a check mark or X in the appropriate box for each deterrent used during the hauling of the longline gear. If the deterrent was not used, leave the box unchecked.

Hauled at Night? - The **Begin Haul** time is **at least one hour after sunset.** If the end of the haul was not completed at least one hour before sunrise note this in the Comments section. Use your issued GPS to figure out the time of local sunset. Do this by pressing menu-celestial-sun and moon after the GPS has been connected to the satellites for a couple of minutes.

Towed Buoy Used? - A buoy or other floating object towed behind the vessel where baited hooks are present during the hauling of the longline gear.

Tori Line Used? - A line approximately 150 m in length with intermittent swivels and streamers deployed so that it covers the area where baited hooks are retrieved during the hauling of the longline gear. Note in the Comments section if the line did not completely cover the gear.

Water Sprayed on Sea Surface? - During the haul, water was sprayed on the sea surface on or near the area where the fishing gear was exiting the water.

Bait Blue-Dyed? - During the hauling of the longline gear, the bait was still dyed blue. Properly dyed bait will be faded upon the haul back, but a light blue color will still be evident. If more than a few baits appear undyed or several undyed baits are on consecutive hooks (i.e., one or more baskets), do not check this box. Document the details in the Comments section.

Branch Line Weighted? - During the haul, the branch lines observed had weights attached. If more than a few branch lines did not have weights on them or several consecutive unweighted branch lines were observed, leave this blank and describe the situation in the Comments section on the form.

Strategic Offal Discard? - Did vessel personnel discard offal (fish parts, excluding bait, not intended for human consumption) off the opposite side of the vessel from where the longline gear is hauled aboard when there were seabirds present? If so, mark this box. **Note: Use of this deterrent is not possible while deploying the gear for the first set of a trip or when no birds are present.**

Strategic Bait Discard? - Did the vessel personnel discard spent bait off the opposite side of the vessel from where the longline gear is hauled aboard when there were birds present? If so, mark this box. **If the spent bait is retained on board and not discarded, leave this blank. If the spent bait is thrown overboard on the same side as the gear is hauled aboard, leave this blank.**

Other Deterrent? - During the haul, the vessel crew did something specifically to reduce seabird bycatch that is not included elsewhere in this list, or recorded during the set.

Birds Present? - Were there seabirds present at any time during the hauling of the gear? If this box is checked, state which family, genus, or species of seabird was present in the Comments section. List all the species observed during the haul even if the seabirds are observed between scan counts. For example, if you saw unidentified storm petrels during the haul, write "storm petrels". If there was a black-footed albatross present also, write "storm petrels and black-footed albatross".

Attempts - This box should be checked whenever a seabird is observed making an obvious attempt to (without making contact) feed on bait or catch that is on tended or untended lines. Attempts should be tallied in the Attempts Comments section by species and line types.

During Haul Seabird Mitigation Comments - Describe any other seabird deterrent(s) used during the haul. Describe any deterrents used that were not properly deployed or performed. If birds were present, list them here by species.

Attempts Comments - Tallie counts should be a simple total by seabird species that have made attempts to remove bait or catch from "tended" or "untended" lines. Be sure to tally species for each line type. This is written in the comments box as a brief statement like "Attempts = 5 Laysan Albatross on untended lines, 4 Shearwaters on tended lines".

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Seabird Mitigation

During Set

Mitigation Techniques Used ✓

Number of floats observed during set

[1] Set At Night ?	☐	Bait Blue-dyed ?	☐
Towed Buoy Used ?	☐	Branch Line Weighted ?	☐
Tori Line Used ?	☐	Strategic Offal Discard ?	☐
Line Shooter Used ?	☐	Strategic Bait Discard ?	☐
Water Sprayed on Sea Surface ?	☐	Bait Thawed ?	☐
Bird Curtain?	☐	Bait Cast Outside Wake ?	☐
Gear Set From Side ?	☐	Other Deterrent ?	☐

Birds Present? ☐

During Set Seabird Mitigation Comments

[1] Set at Night - the Begin Set time is at least one hour after local sunset and set is completed at least one hour before sunrise. Obtain local sunset/sunrise by pressing menu->celestial->sun and moon on GPS handheld device.

During Haul

Mitigation Techniques Used ✓

[2] Hauled At Night ?	☐	Bait Blue-dyed ?	☐
Towed Buoy Used ?	☐	Branch Line Weighted?	☐
Tori Line Used ?	☐	Strategic Offal Discard ?	☐
		Strategic Bait Discard ?	☐
Water Sprayed on Sea Surface ?	☐		
Other Deterrent ?	☐		

Birds Present? ☐ **New-->** Attempts ☐

During Haul Seabird Mitigation Comments

Attempts Comments

[2] Hauled at Night - The Begin Haul time is at least one hour after the setting of the sun. If the end of the haul is not completed at least one hour before sunrise note this in the comments. Obtain local sunset/sunrise by pressing menu->celestial->sun and moon on GPS handheld device.

form ver. SM 10.01

Chapter 9 Catch Event Log

Introduction

The Catch Event Log form is a record of the total number of fish and protected species (sea turtles, seabirds, marine mammals) **captured** during a set and their condition, disposition, and measurements. The data are used to determine catch rates for target and non-target species in the fisheries.

General Instructions

Record each fish and protected species in the order it is caught. Use the common English names from the Species Code List (Chapter 20) for the species caught. Each fish and protected species should be listed individually. Corresponding photos, specimens, tags, sketchs, and comments should be marked in the check boxes at the end of line. Out of protocol measurements should only be collected when directed for specimen collections or unsual and rare examples of animals are recorded.

It is your duty to personally see everything that comes up on the line. You must tell crew members to wait until you have witnessed and identified the catch before they cut or unsnap any leader to release an animal. This request may need to be made several times for some crews who continue to cut or unsnap leaders before you have identified the catch. If your requests are denied, document each incident of potential interference in your Documentation Notebook.

DO NOT record unknown objects, unseen animals, or squid and other invertebrates on this form. Remoras that come up on the gear, like buoys,or on animals *but are not hooked or entangled* do not get recorded on the Catch Event Log. Remoras should be treated like any other catch when they are hooked or entangled. If there is an unknown object on the line (i.e., something that came off the hook/line before you could determine what it was), describe the situation in the Comments section of the form. Likewise, record squid or other invertebrates that come up hooked or entangled in the Comments section. Make sure to record the float and hook number with the comment. Comments on unknowns and invertebrates will be also be recorded on the Set and Haul comments section.

*** Special Note For Observing Seabirds and Recording *** Protected Species Interactions

During bird scans or protected species interaction reporting on the PSEL, you must continue to keep track of what is coming up on the hooks and record everything caught on the data forms. However, it is okay if you do not get all of your measurements. Record the approximate length (AL) for fish or sharks that you are unable to measure. Do not measure fish with missing tails, broken or damaged spinal columns, or if taking the measurement will endanger you (such as with a large active shark, or during severe weather). Record the approximate length of fish that fall off or are accidentally knocked off the hook before they are landed.

Observers should ask that, if possible, every 3rd fish be brought on board to measure. It is again allowable to give an AL for sharks that the crew does not want to land for safety reasons. Some vessel crews do not want to injure small tunas by bringing them aboard. If they are doing this, ask them to bring aboard the fish so you can measure them quickly before returning them overboard.

Data Elements

Observer ID - In the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip Number - The unique 6-digit number assigned by the Operations Coordinator. In the first two blocks, record LL for longline. After the second block, enter the 4-digit number.

Set Number - Sets are numbered consecutively for each observed trip beginning with 01.

Catch Page Number - Number the first page of each set 01. This means that the first page you start with each day should be 01. Do not number pages consecutively throughout the trip.

Haul Date - Record the day that the haul back begins using the standard date format. Note: Continue to use the same haul date even if the haul goes past midnight.

Page Number - Number the first page of each set as "1." This means that the first page you start with each day should be 1; do not number pages consecutively throughout the trip. It is acceptable to record the page number on the first line and draw an arrow down the column.

Line Number - These are already filled in and cannot be changed.

Species English Name - Record the English common name of the species caught. A list of commonly encountered fish with their species codes is at the lower left corner of this form. A complete list is located in the Species Code List section (Chapter 20) of this manual. If you run out of lines, continue recording the data on another Catch Event Log form. If you run into a situation where there are numerous fish of the same species being pulled up one after the other, it is acceptable to write the name of the species on one line and then draw an arrow down to all subsequent lines.

Species Code - Enter the 3-digit species code from the Species Code List for all fish. Note: There are separate codes for unidentified types of animals and other identified animals. "Other Identified" means you were able to identify the animal, but the species doesn't have a species code assigned to it. DO NOT draw arrows down for the same species codes.

Float Number - Floats are counted sequentially beginning with the first float (usually a radio buoy) brought aboard a vessel during the haul. Record the number of the float that immediately *preceded* the fish that are caught. For example: If float 10 comes up, then three hooks later a fish is caught, record float number **10** for that fish. Should the line part, continue to record float numbers sequentially. For example, if the line parts at float 50 and the vessel motors to the other end of the set to haul the gear, that radio buoy is counted as float 51 and the other floats are counted sequentially for the rest of the haul. DO NOT draw arrows down for the same float numbers. Anything observed caught on a branchline that is not connected to the mainline does not get a hook or float number, and must have comments (these include both "tended" and "untended lines).

Hook Number - Hooks are counted sequentially between each float. Start with number 1 after each float is brought aboard. For example: If float 10 comes up, then three hooks later a fish is caught, record hook number **3** for that fish. Occasionally two fish will come up on the same hook due to predation on the first fish that was hooked. Both fish should be recorded on separate lines with the same hook and float number. The fish that was caught first should have a damage code of CO with comments. The second fish should have comments stating that it became hooked while feeding on catch. If it is not obvious predation, still record both fish and describe the situation. If branch lines have become tangled and there are fish or other animals present on/in the tangled lines, do not attempt to ascertain the hook number. Leave the field blank and record the species in the order that they are landed on the deck. Anything observed caught on a branchline that is not connected to the mainline, either "tended" or "untended" does not get a hook or float number, and must have comments.

Caught Condition Codes - Indicate the condition of the animal at capture with these codes:

Fish and Sharks: A = Caught **A**live (active). **D** = Caught **D**ead (or inactive). If you are unable to determine whether or not a fish is alive enter D.

Protected Species: A = Caught **A**live, **D** = Caught **D**ead, **I** = Caught **I**njured, **U** = Caught Condition **U**nknown.

*** Condition Codes I and U are reserved for protected species. They will not be accepted for fish or sharks. If an interaction occurs with a live protected species the default condition code should be recorded as I, caught injured. It is extremely rare to have a caught condition code of A, caught alive.**

Kept/Return Codes - Indicate if a fish is kept or returned, and its condition at the time of return, by entering the appropriate letter code from one of the following categories. Fish that are returned to the sea, non-marketable species (including non-marketable species retained by the observer), and fish that come off hooks should be marked with one of the return codes.

*** Anything retained by the observer as a specimen (for identification purposes or a research request) should be marked as though it were returned dead. If you retain a specimen from an animal that the vessel retains for it's catch, this should be recorded as Kept.**

K = Kept - Fish retained, in part or whole, by the fishermen for sale or personal consumption. Note: Sharks are considered kept only if the body is kept. If any other part of the shark, besides the fins, are kept but the carcass is returned to sea, record this in the comments section with a dispositon code of either D or A.

A = Returned Alive - *For a fish or shark*, a return code of Returned Alive indicates that the animal was active when it was returned to the sea. Thresher sharks are often "tail hooked." In this case, if the tip of the shark's tail is cut off to remove it from the hook, the moving shark should be marked with a return code of A.

For a protected species, a return code of Returned Alive indicates that the animal freed itself and swam or flew away from the gear with no visible injuries or deformations. They must have freed themselves from the gear through their own efforts. For example, an animal is observed lightly entangled, but frees itself and swims free of the gear. Note: This situation will be very rare. However, protected species that are observed hooked before freeing themselves should be marked as **I** (Returned Injured), even if you don't see any blood or a wound.

D = Returned Dead - Dead indicates the animal did not swim away after being returned. There may be no visible muscular activity. The animal may be stiff from rigor mortis or limp. Inactive fish and fish which you are unable to determine if they are alive or not should be marked as Returned Dead. Anything retained by an observer as a specimen (for identification purposes or a research request) should be marked as D (Returned Dead), if the vessel would not otherwise keep it. The vessel's crew would be assumed to have discarded the fish, and not retained it for sale or personal consumption. This is also the default return condition if you are unsure of a fish's condition when discarded. Do not make assumptions as to an animals potential to survive (the only exception is Lancetfish that have thier heads sheared off, but are still moving).

I = Returned Injured (Only for protected species) - "I" indicates the protected species was physically damaged or injured as a result of becoming hooked or entangled in the longline gear. The injuries can be visible, like open wounds, or not visible, like bruising, internal bleeding, and stress. Mark as I (Returned Injured) any animal that: has visible deformations of the body or body parts; flies or swims in an abnormal manner after being released; is hooked, no matter the severity; is observed entangled and is unable to free itself, or is disentangled or cut free of the longline gear by the crew or observer, or is released with part(s) of the fishing gear attached to its body. Describe all injuries of protected species on the appropriate biological form as fully as you can, in addition to recording the data elements required to complete the form. Take photographs of the injury, if possible. Make sketches to help describe the location of the injury. For the injury, make notes on the color, the shape, any bleeding or other discharge(s), missing body parts, any abnormal function, and the behavior of the animal after it was released.

F = Returned Finned (Only for sharks) - It means that any fins were retained and the rest of the shark's body was discarded. By law, *50 CFR §600.1203(a)(3)*, it is prohibitted for a vessel to retain shark fins without a corresponding carcass. If any other part of the shark besides the fins are kept, but the carcass is returned to sea, record this in the comments section.

U = Returned, Unknown Condition (Only for protected species) - The animal was returned to the sea, but the observer was unable to determine the condition of the animal, or the animal was returned to the sea in a condition other than above. Be sure to include comments whenever this occurs.

Damage Codes - Record the appropriate code for any predation damage observed. Refer to the damage code list here and on the form. Use the code ND (observation showed no damage) if you looked and did not see any damage. This is also the default damage code. Do not consider damage caused by efforts to land the fish, such as marks from the lines or gaffs, or if the fish falls apart from the stresses of being hooked (like a lancetfish's head coming apart). It is NOT acceptable to draw an arrow down if you have numerous fish with No Damage, ND. Describe any damage not covered by one of the damage codes with a CO and comments. Refer to Catch Event Log page and line number, as well as the fish's common name in the Comments section of the form.

Bird damage (BD) - This damage occurs when a dead animal is floating close to, or at the surface of the water. Swordfish, for example, will sometimes float when they are dead. The damage will appear as ripped and torn skin and muscle from the body with strings of flesh around the edges. Scratches on the body may also be visible from beaks or birds feeding from on top of the fish. Can also be confused with SQ damage. Most fish will not ever exhibit this type of damage, because they will not float near the surface. This type of damage is not normally encountered on deep set trips.

Cookie cutter shark damage (CC) - This damage will appear as a circular or oval-shaped cut out of the animal's body. The damage is usually a small scoop taken out of soft muscle. Only record what appear to be fresh bites. Animals will get bitten by these sharks naturally, so do not record healing or old damage.

Other damage (CO) - Occasionally two fish will come up on the same hook. Both fish should be recorded on separate lines with the same hook and float number. If the first fish was preyed upon by the second fish, the fish that was caught first should have a damage code of CO with comments. The second fish should have comments stating that it became hooked while feeding on catch. Also, use CO if 2 or more types of damages are noted and explain in the Comments. For example, if a dead skipjack tuna is landed with squid and cookie cutter shark damage your comment could read, "CC and SQ damages".

Marine mammal damage (MM) - This type of damage occurs when marine mammals are consuming the catch on the line. The damage will usually result in nearly all of the fish's body being removed often leaving only the fish's head or mouthparts on the hook. The bite will often look jagged with strips of skin and tendons. You may be able to see more widely spaced tooth marks, or strips of flesh removed, in comparison to shark damage. It is required that you take photos of suspected MM damage the first few trips you encounter it to be sure you are not confusing this damage with another type.

Shark damage to the body (SB) - This damage will usually appear as fairly sharp, defined edges of flesh removed as if cut from the body. May see teeth puncture marks, or slashes in the flesh.

Shark damage - Head on hook (SH) - extensive shark damage that has resulted in approximately one-third of the fish or less remaining including the head.

Shark damage to the tail (ST) - The tail section of the animal has been damaged by a shark. Do not measure if the spine is not intact, or a portion of the body that includes the spine is missing.

Squid damage (SQ) - This type of damage will exhibit jagged edges around the wound from the beaks of the squid. Sucker marks may also be visible on parts of the body where the squid was holding on to the animal. Can be confused with BD damage.

Swordfish damage (SW)- This damage usually resembles knife slices.

Undetermined source of damage (UN) - Take a picture of this damage so that it may be determined during debriefing.

Gender Codes - Indicate the sex of species that are measured with an M or F whenever a corresponding measurement is recorded. If the gender of the animal is unknown or undetermined, leave this blank. Refer to the species group instructions in this chapter for information on determining the sex of an individual fish. It is not necessary to obtain gender for every fish captured; however, it is recommended that you try to determine the gender for measured fish. DO NOT ASK the crew to hold on to sharks for extra periods of time to check gender. If you are collecting a gender for a specimen, it is acceptable to collect an out of protocol measurement to record the gender.

Measurement

Measure every 3rd fish caught (hooked or entangled), whether or not the vessel intends to keep the fish. **Record the length to the nearest centimeter.** Place the fish on its *right* side and measure the left side of the body, if possible. Start by measuring the 1st fish caught and every 3rd fish after that. For example, you will only record measurements for fish recorded on lines 1, 4, 7, 10, and 13. You will need to ask the crew to bring aboard species that they don't usually keep such as lancetfish and snake mackerel. If a shark is alive and the crew would not normally bring it on board because of safety reasons then you do not need to ask them to bring it aboard; just record the approximate length. If a "3rd" fish comes off the hook before being brought on board, make a visual approximation of the fork length in feet. Approximate length should also be used when fish can not be measured due to higher priority duties, dangerous conditions (severe seas), and sea-sickness. **Rays: DO NOT MEASURE!** Out of protocol measurements should only be collected when directed for specimen collections or unsual and rare examples of animals are recorded. Out of protocol measurements require comments unless they coincide with a collected specimen.

Accurate length measurements cannot be obtained from fish whose tails have been cut off, damaged, or have a severed/damaged spinal column. If the fish is too damaged to **accurately** measure, record the appropriate approximate length (AL); however, do **not** record an approximate length if portions of the body length that include the spinal column are completely missing. In other words, if a fish comes up looking like it has been bitten in half, don't guess on how long you think it may have been; just leave the measurement field blank and enter a Comment.

Measurement Codes - Enter the 2-letter code indicating which measurements(s) were taken. Different species groups have the following different measurements taken:

Billfish:	**EF - Eye to Fork Length**
Sharks:	**FL - Fork Length**
	PC - Pre-Caudal Length
	CI - Clasper Inner Length
All other Fishes:	**FL - Fork Length**
	AL - Approximate Length

Measurement - Enter the length to the nearest whole centimeter. The dimension(s) of the animal as measured with the 2 m calipers (or measuring tape for the clasper inner length (CI) of male sharks). There are instructions and diagrams at the end of this section for clarification. Do not write **cm** in the box after the numbers.

Approximate (Fork) Lengths:

Billfish: For approximate lengths (AL) estimate the Eye to Fork Length (EF) in whole feet (estimated length in feet from the posterior margin of the eye orbit to the fork in the tail).

Sharks and other Fishes: For approximate lengths (AL) estimate the Fork Length (FL) in whole feet (estimated length in feet from the tip of upper snout to the fork in the tail).

Check boxes

Tagged - Check or X this box to indicate that a tag was recaptured or applied on this animal. If no tags were recaptured or applied, then leave this blank.

Specimen - Check or X this box to indicate that a biological specimen was collected from this animal. This could include a whole animal (fish, turtle, or bird). All specimens require photos. If a specimen was not collected from the animal, leave this blank.

Photo - Check or X the box if you took a photo of the animal. See Photo Log chapter for a list of required photos.

Sketch - Check or X the box if you made a sketch on a Sketch Log form of this animal. If you made a sketch of this animal on one of the sketch forms required on your first couple of trips, do not check this box.

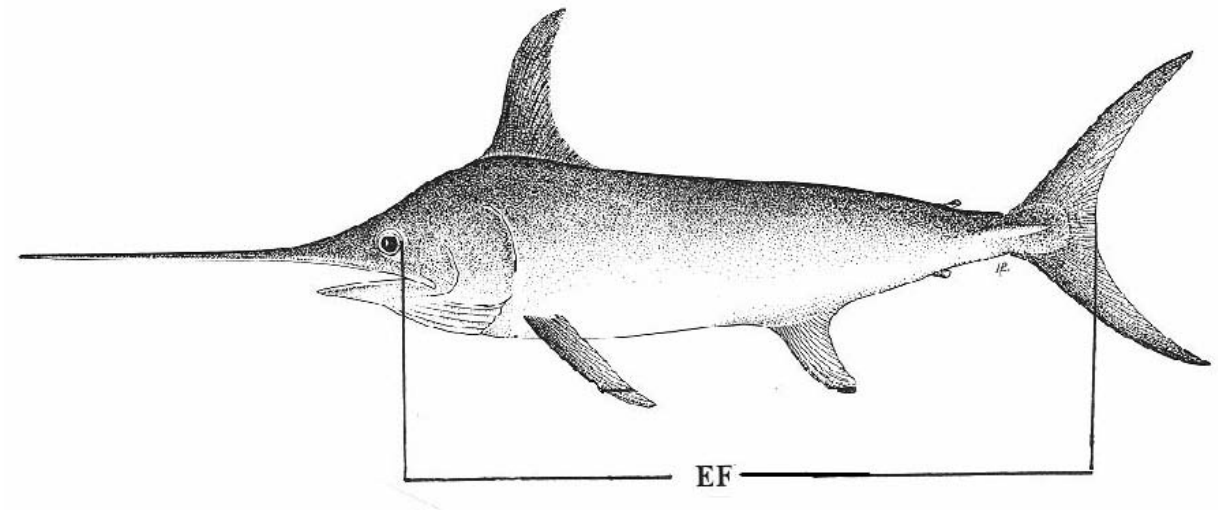
Comments - Check or X this box to indicate that notes exist describing damaged animals, animals with unknown disposition, or other notes on the catch.

Use comments to note when breaks are taken from observing for a quick break to get some food from inside or use the restroom. In cases like these though, it would be a good idea to wait until just after a float comes up to take your leave. That way you have a better chance of maintaining a more accurate float count. Remember that you are responsible for monitoring the entire haul, so plan any breaks at times when fishing operations are halted; like searching for a float, untangling a snarl, or putting fish in the hold. With instances that require time away from on deck observations, be sure to add a comment to the last line entered about why you need to leave the deck, and the period of time you were absent (very bad weather, seasickness, etc.).

Fish Measurement Instructions
and Gender Identification Diagrams

Billfish: Marlins, Swordfish, Spearfish

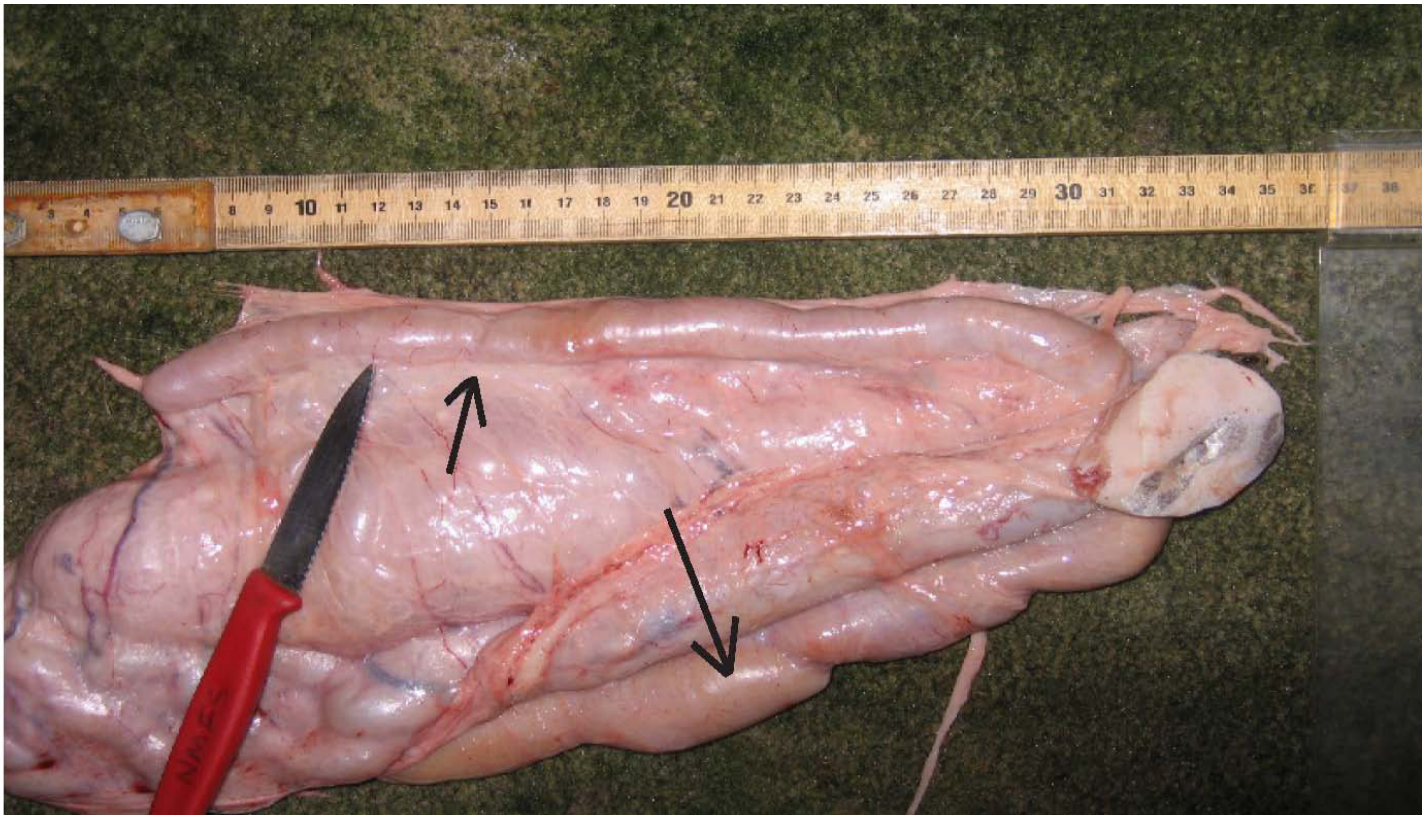
Eye to Fork Length (EF): Measure from the posterior margin of the LEFT EYE orbit to the inside of the fork of the tail. This measurement is taken with the 2 meter calipers.



Arrow pointing to location of gonads when fish is split open. These gonads are ovaries.

Mature Ovary

Cross section of an immature ovary. Notice the granulated texture of the lumen.



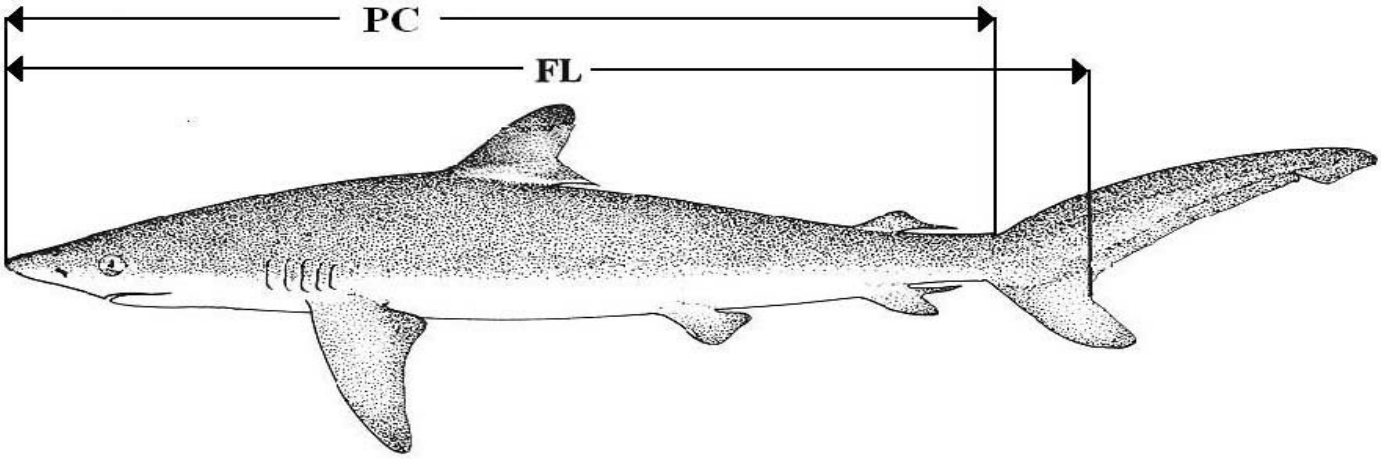
Arrows pointing to testes

Cross section of a testis. Notice the smooth texture compared to the granulated texture of the ovary.

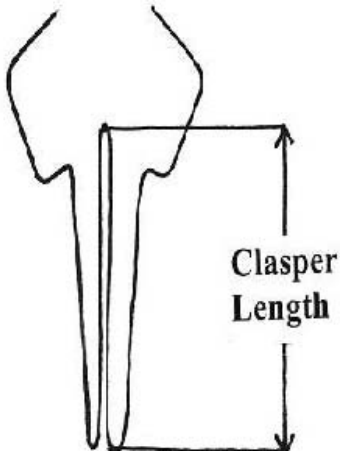
SHARKS

Fork Length (FL): Measure from the tip of the snout to the center of the fork in the tail.

Pre-Caudal Length (PC): Measure from the tip of the snout to the pre-caudal pit (small crease) at the end of the caudal peduncle. If the shark does not have a pre-caudal pit, use the point where the front edge of the upper tail lobe meets the caudal peduncle.

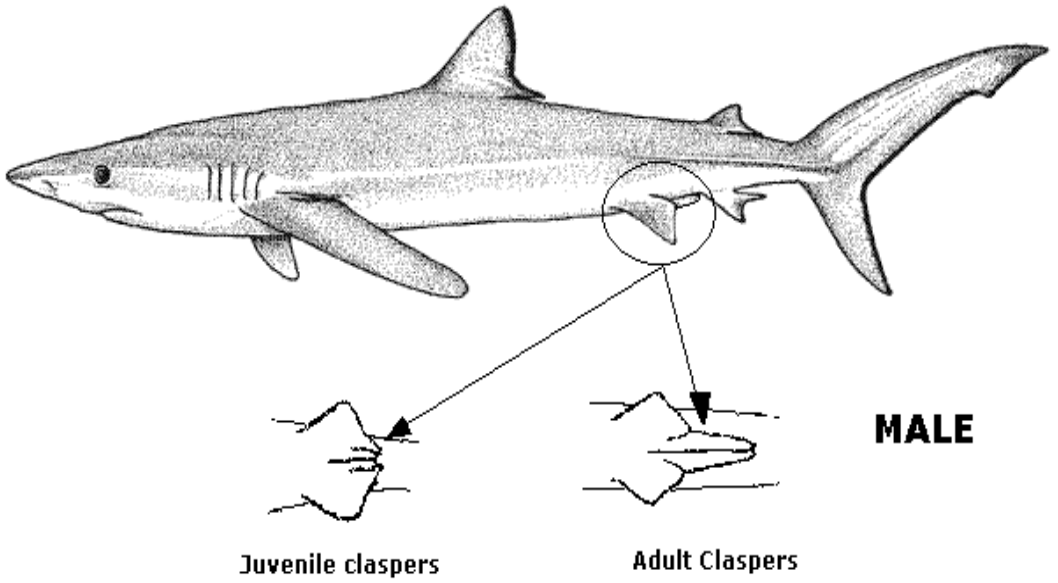


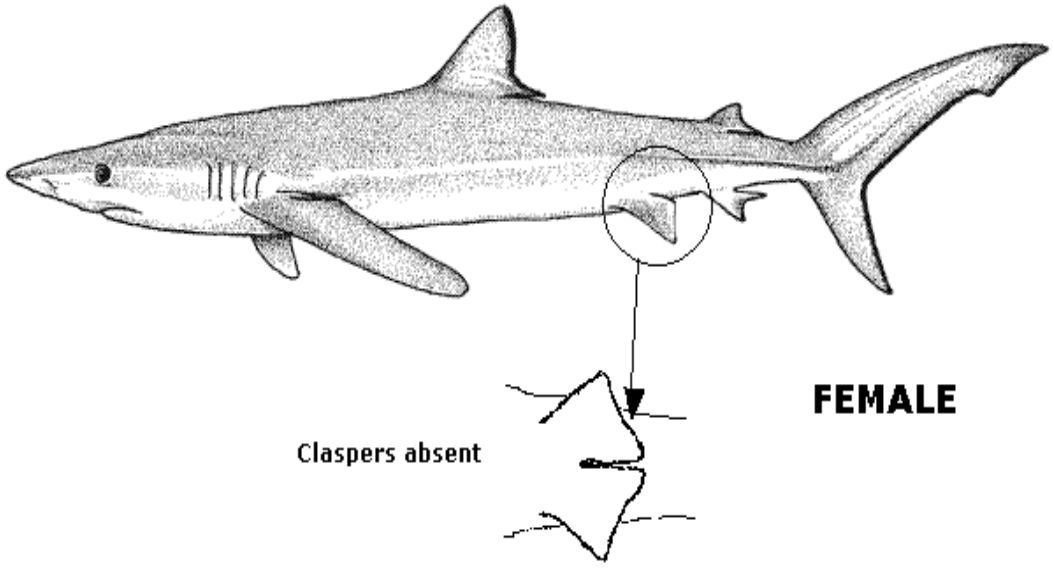
Clasper Inner Length (CI): For male sharks, measure from the tip of the clasper to the center of the angle between the claspers. Use the tape measure to obtain the clasper inner length measurement.



HOW TO DISTINGUISH MALE AND FEMALE SHARKS

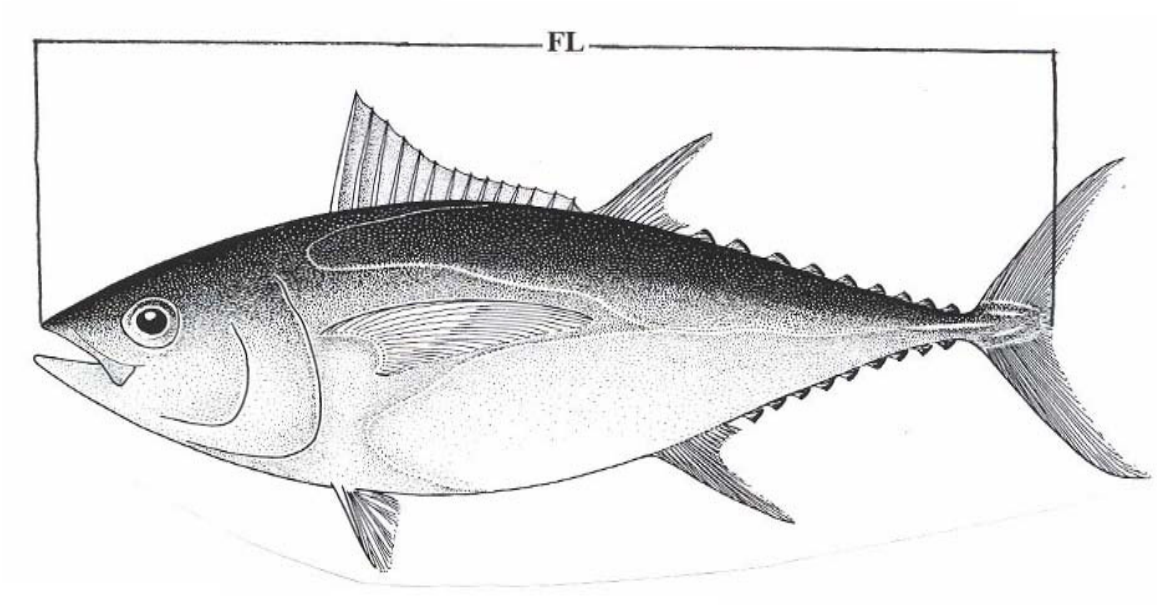
Shark Sexing Diagram (also works for rays)





TUNAS and All Other Fishes

Fork Length (FL) - Measure from the tip of the snout to the inside of the tail. If an opah's mouth is open, close it to take the measurement. NOTE: For fish with modified caudal fins (e.g., slender molas, crestfish, etc.), measure to the middle of the tail.



TUNA SEXING:

The only way to sex a tuna is to look at the gonads after the crew has gutted the tuna. At first it may be difficult to determine the sex, especially in immature fish. Use the following pictures and descriptions to distinguish ovaries from testes. Whenever possible compare ovaries and testes of similar sized fish to become familiar with the differences. If you are unsure take photos similar to the ones shown in this chapter for verification.

Females: The ovaries are fusiform (spindle shaped) paired structures. They are suspended from the ventral surface of the gas bladder, which can be confused with the dorsal wall of the coelom (gut cavity), and are united at their posterior extremities, terminating just behind the anus. The ovaries are yellowish/orange in color and circular in cross section.

Males: The testes are compressed (somewhat flattened compared to ovaries) lanceolate paired structures. The testes are white or light cream in color inside and flattened in cross-section.
The chief distinctions between the sexes are the cross sectional shape of the gonad, and the size of the lumen (central cavity of the gonad). In female tunas the gonad cross section should reveal a round shape and the lumen should be large and convoluted. The male gonad should be flatter and have a small, smooth lumen. In all cases, squeeze the gonad gently prior to looking for a lumen. This should open the lumen for observation.

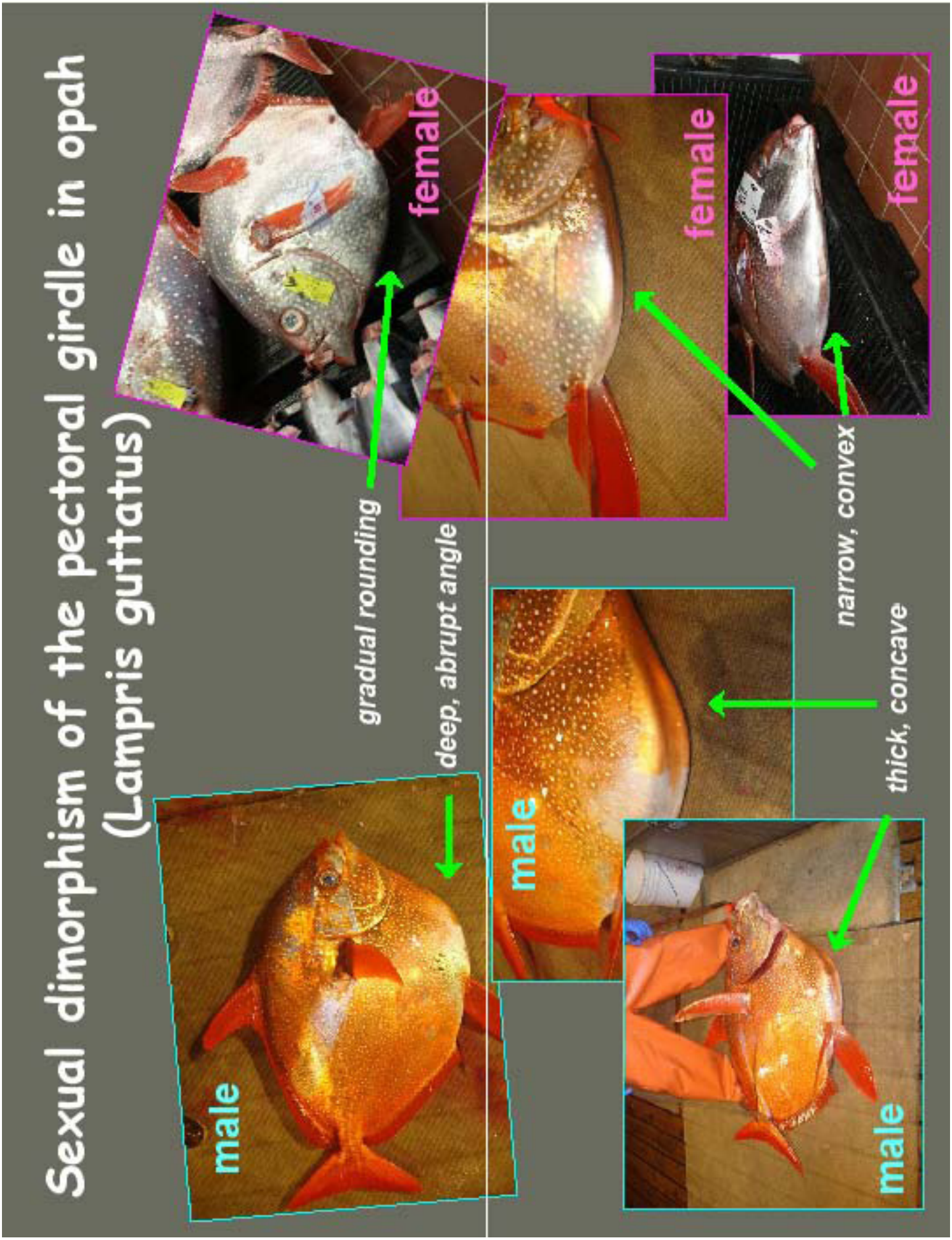
Top: Mature ovary
Bottom: Mature testis

Pair of immature ovaries

Immature tuna ovary cut open to show the fringes of egg producing tissues.

Left side: Cross section of testis.
Right side: Cross section of ovary showing lumen in center.

Do not attempt to collect gender on Opahs less than 85cm FL.



Dolphinfish Sexing Diagram

Male

Female

*** Note the pronounced bony crest of the male forehead and the gently sloping, convex nature of the female forehead.**

Observer ID

Haul Date: Day | Month | Year 2 0

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

This Catch Page No.

Catch Event Log

Log comments for specific Catch Log records on the back of this form.

Page No.	Line No.	Species Common Name	Species Code	Float No.	Hook No.	Caught Condition Code (A, D, I, U)	Kept/Return Code (K / A, D, F, I, U)	Damaged Code	Gender Code (M, F, U)	Length 1 Code	Length 1 Measurement	Length 2 Code	Length 2 Measurement	Length 3 Code	Length 3 Measurement	Tag(s)? ✓	Specimen(s)? ✓	Photo(s)? ✓	Sketch(es)? ✓	Comment(s)? ✓
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	2															☐	☐	☐	☐	☐
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	15															☐	☐	☐	☐	☐

Most Common Fish

Code	Common Name
216	Yellowfin Tuna
212	Skipjack Tuna
215	Albacore Tuna
211	Bigeye Tuna
301	Swordfish
302	Striped Marlin
303	Shortbill Spearfish
424	Bigeye Thresher Shark
418	Blue Shark
191	Escolar
221	Wahoo
193	Snake Mackerel
144	Opah
185	Sickle Pomfret
121	Lancetfish
218	Dolphinfish

Most Common Protected Species

Code	Common Name
681	Black-Footed Albatross
682	Laysan Albatross
601	Other Identified Bird
504	Loggerhead Sea Turtle
505	Olive Ridley Sea Turtle
506	Leatherback Sea Turtle
502	Green Sea Turtle
500	Unid. Hard Shell Sea Turtle
742	False Killer Whale
746	Risso's Dolphin
743	Short-Finned Pilot Whale
731	Bottlenose Dolphin
755	Humpback Whale

Code	Damage
BD	Bird Damage
CC	Cookie Cutter damage
CO	Other Damage, see comments
MM	Marine mammal damage
SB	Shark damage to body
SH	Shark damage - Head on hook
ST	Shark damage to tail
SQ	Squid damage
UN	Undetermined source of damage
ND	Observation shows No Damage
SW	Swordfish Damage

Note: Code CO must have comments but others may need comments also.

Measure fish logged on gray lines (1,4,7,10,and 13). For all fish recorded Out of protocol (white lines), prefix the measurement code with 'O'; e.g. 'OFL'.

Measurement Codes
- AL Approximate Fork Length (ft)
- FL Fork Length (cm)
- EF Eye to Fork (cm)
- CI Clasper Inner Length (cm)
- PC Pre-Caudal

Measurement Protocols
Sharks: FL, PC, CI
Billfish: EF
All Other Fish: FL

Caught Condition Codes
- A Caught Alive
- D Caught Dead
- I Caught Injured
- U Caught Condition Unknown

Kept/Return Codes
- K Kept
- A Returned alive
- D Returned dead
- F Returned Finned
- I Returned Injured
- U Returned, Unknown condition

Gender Codes
- M Male
- F Female
- U Unknown

A blank Gender field indicates Unknown.

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Observer ID

Haul Date: Day | Month | Year 20

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form — Trip No. | Set No. | This Catch Page No.

Catch Event Log

Log comments for specific Catch Log records on the back of this form.

Page No.	Line No.	Species Common Name	Species Code	Float No.	Hook No.	Caught Condition Code (A, D, I, U)	Kept/Return Code (K / A, D, F, I, U)	Damaged Code	Gender Code (M, F, U)	Length 1 Code	Length 1 Measurement	Length 2 Code	Length 2 Measurement	Length 3 Code	Length 3 Measurement	Tag(s)? ✓	Specimen(s)? ✓	Photo(s)? ✓	Sketch(es)? ✓	Comment(s)? ✓
	1															☐	☐	☐	☐	☐
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Pg.	Ln.	Catch Record Comments (from either the front or back of this form, indicate appropriate catch record page and line number for each comment)

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Chapter 10 Sea Turtle Handling and Data Collection

Introduction

If a sea turtle is caught incidentally there are specific protocols that must be followed when handling it. These protocols and guidelines have been developed to reduce the risk of further injury to the turtle and to the people handling it. When a turtle is caught, work with the crew to get the turtle on board safely or alongside the vessel if it is too large to bring aboard. Special dehooking equipment has been developed to remove gear from hooked and/or entangled sea turtles and is described in detail in the first section of this chapter.

Once a sea turtle has been safely brought onboard or alongside the vessel, your job is to collect samples, take photographs and measurements, apply tags to turtles being released or retrieve tag information from previously tagged turtles, remove as much gear as possible from live turtles, and draw a sketch. Procedures are found throughout this chapter. All information is to be documented on the Sea Turtle Biological Data form. Instructions on how to fill out this form can be found towards the end of this chapter. In addition, photographs, sketches, specimens, and tags applied or recaptured need to be filled out on the appropriate logs. Incidentally-caught protected species need to be reported as soon as possible to PIROP using the satellite phone. Instructions on what needs to be reported when calling in can be found at the end of this chapter or in your Circular Updates. (Note: Follow the most recent procedure as reporting instructions may change)

Data Collection Requirements:

1. Collect skin biopsies from ALL turtles.
2. Retain carcass of dead animals when possible to bring aboard.
3. Take photographs and draw a sketch.
4. Describe any/all identifying characteristics.
5. Measure landed turtles.
6. Record the lat/lon position and time of capture and release.
7. Write a **detailed description** of how the fishing gear is attached and how much remains if not all can be removed.
8. Write a d**etailed description** of how the turtle was landed and handled on deck.
9. Apply flipper tags to live turtles brought aboard.
10. Apply PSAT (Pop-up Satellite Archival Tags) to live, hard-shelled turtles brought aboard.

Take photographs of all turtles brought aboard, including **dorsal**, **ventral,** and **frontal** views (to enable positive identification by scute counts), as well as a photo showing the **hook location** in the turtle. (Note: If the hook will be removed, take the photo before removing the hook). If a satellite tag (PSAT) is attached to the turtle, take a picture of the carapace showing the satellite tag after attachment. For turtles that are too large to bring aboard, try to get as many photos as possible showing any distinguishing ID characteristics and where the gear is attached. It is important to record, as accurate and descriptive as possible, the precise location and impact of gear on the turtle. This data is used to determine survival rates and efficacy of mitigation measures.

Data collected on turtles will be used to determine the number, species, size, and condition of sea turtles interacting with the Central Pacific longline fishery. Other data are recorded on the movements and preferred habitats of the various populations of sea turtles. These data are critical to the development of conservation and recovery strategies for these marine reptiles.

Sea Turtle Handling and Dehooking

In April 2004, the shallow-set swordfish fishery for Hawaii-based longline vessels re-opened, requiring the use of specialized equipment, specific gear configurations, 100% observer coverage, and a limited set certificate program. In 2010 the certificate program was deleted. Dehooking equipment is required aboard all vessels with a general permit for the Hawaii longline fishery for both deep-set and shallow-set vessels. The dehooking equipment is used for the safe release of incidentally caught sea turtles and has been demonstrated to be effective at increasing the post-hooking survival of sea turtles. A 3-year study in the Northeast Distant waters off the East Coast of the U.S. showed that dehooking increased survival for both loggerheads and leatherback turtles (Watson 2003). In Hawaii, there is currently a cap (established by a NMFS biological opinion written pursuant to the ESA) on how many loggerheads and leatherbacks can be caught in the shallow-set fishery in a calendar year. The Incidental Take Statement of the most recent NMFS biological opinon on the Hawaiian pelagic longline fisheries sets a maximum limit of sea turtle interactions (including both lethal and non-lethal interactions) for both leatherback and loggerhead sea turtles. When either of the two sea turtle interaction limits has been reached, the shallow-set fishery will be closed for the remainder of the calendar year. Vessel owners will be notified of the closure and must stop shallow-set longline operations north of the Equator immediately when the shallow-set fishery is declared closed by NMFS.

Releasing turtles with minimal injury:

A number of specific dehooking tools and related items that meet specific minimum design and performance standards must be carried aboard the vessel. As a NMFS observer, you must be familiar with the equipment your assigned vessel has and where it is kept in case you need to use it. Though there are a few different options in the regulations, most vessels carry the "pigtail" version of the dehooker. There are also "J-style" and "Scotty's" dehookers for external hooks.

What are dehookers and what are the incentives for using the equipment?

The most important purpose of the dehooker is to reduce the mortality of turtles. Turtle post-hooking survival can be increased when the hook is removed with minimum injury. By re-opening the fishery with the dehooker requirement, NMFS continues to collect valuable data on turtle/fishery interaction rates while reducing the mortality and severity of injuries of sea turtles that are hooked and/or entangled. Fishers assist in sea turtle conservation (which helps reduce closures), retain their hooks (which can be costly), and reduce their re-rigging time.

What are the observer's responsibilities?

Observers are responsible for attempting to remove all hooking or entangling gear from "captured" turtles, including line and hooks, with the assistance of the vessel crew. **All efforts should be made to release the turtle with minimal injury.** Owners and captains are required to attend an annual protected species workshop where they are presented with the dehooking techniques and turtle handling procedures. Though captains are presented with this material, you obtain a more hands-on and extensive training; therefore, it is up to you to ensure that the crew follows the required procedures. Each vessel has the same laminated instructional placards given out during observer training. During the haul, while scanning the mainline, keep watch for turtles. Upon sighting a caught turtle, the vessel operator must stop the vessel. Bring the turtle alongside the vessel by slowly and gently retrieving the branchline. Do not use gaffs or any other sharp devices to retrieve the turtle. Determine if you are able to safely land the turtle, depending on its size and the sea conditions. Turtles less than three feet in carapace length can generally be brought aboard safely. Coordinate the work with the crew. Dehooking a turtle, especially one that is too large to bring aboard, requires the assistance and cooperation of the crew. This is not a one person operation. Cooperation will result in the best possible release of the turtle. If possible, take a picture of the turtle as it is being pulled to the vessel or while it remains in the water. Assess the location of the hook/entanglement and, if the turtle is alive, proceed carefully with the best possible hook/line removal method that will be *least injurious* to the turtle. Afterwards, you also need to draw a sketch clearly illustrating the location and effect of the gear on the turtle.

What should I do if the turtle is too large to bring aboard or safety conditions are questionable?
If you are unable to land the turtle due to size or safety considerations, take photos and samples then remove the gear while the turtle remains in the water. The turtle may need a short time to calm down. Make sure to try to do the following in the order below:

1. Get a skin sample with the biopsy pole
2. Take photos to show where the turtle is entangled/hooked and for species identification
3. Begin the dehooking/release process as quickly as possible
4. Complete a Sea Turtle Biological Data Form
5. Complete a Sketch form

What should I do if the turtle is small enough to board?

1. Bring the turtle aboard using a dip net
2. Take photos to show where the turtle is entangled/hooked and for species identification
3. Dehooking (only if sea turtle is alive)
4. Biological sampling
5. Complete a Sea Turtle Biological Data Form
6. Complete a Sketch form

What if removing the hook may cause more damage?
Deciding whether or not to remove a hook is a judgment call by the observer; however, almost all external hooks should be able to be removed. If the hook is in a place where removal may cause further damage to a live turtle, then the hook should be left alone. For example, a hook embedded in the brain or glottis might be best left alone. Remove hooks where the insertion point is visible. Bolt cutters may be more efficient than using a dehooker. Cut the eye or barb of the hook (or flatten the barb) and pull out the other end using the longnose pliers. If the hook cannot be removed, cut off as much of the visible part of the hook as possible. **Always cut away as much gear as possible on live turtles.**

What equipment is required on all Hawaii longline vessels?
Make sure you familiarize yourself with the different types of equipment as there are different options for each requirement. All observers will go through classroom and dock side training with the pigtail dehookers (both long- and short-handled).

1. Long-handled dehooker for ingested hooks
2. Long-handled dehooker for external hooks
3. A long-handled device used to pull an "inverted V"
4. Short-handled dehooker for ingested hooks - pigtail with bite block
5. Short-handled dehooker for external hooks - J-style and Scotty's
6. Long-handled device for pulling an "inverted V" - gaff or long-handled J-style dehooker for external hooks
7. Long-handled line clipper - NOAA/LaForce
8. Tire
9. Long-handled dip net
10. Mouth openers and gags (a minimum of 2 of the following list of 7): block of hard wood; set of 3 canine mouth gags; set of two sturdy canine chew bones (e.g., nylabones); set of two rope loops covered with hose; hank of rope; set of 4 PVC splice couplings; large avian oral speculum (to be used to hold a turtle's mouth open and control the head with one hand while removing a hook with the other).
11. Wire or bolt cutters

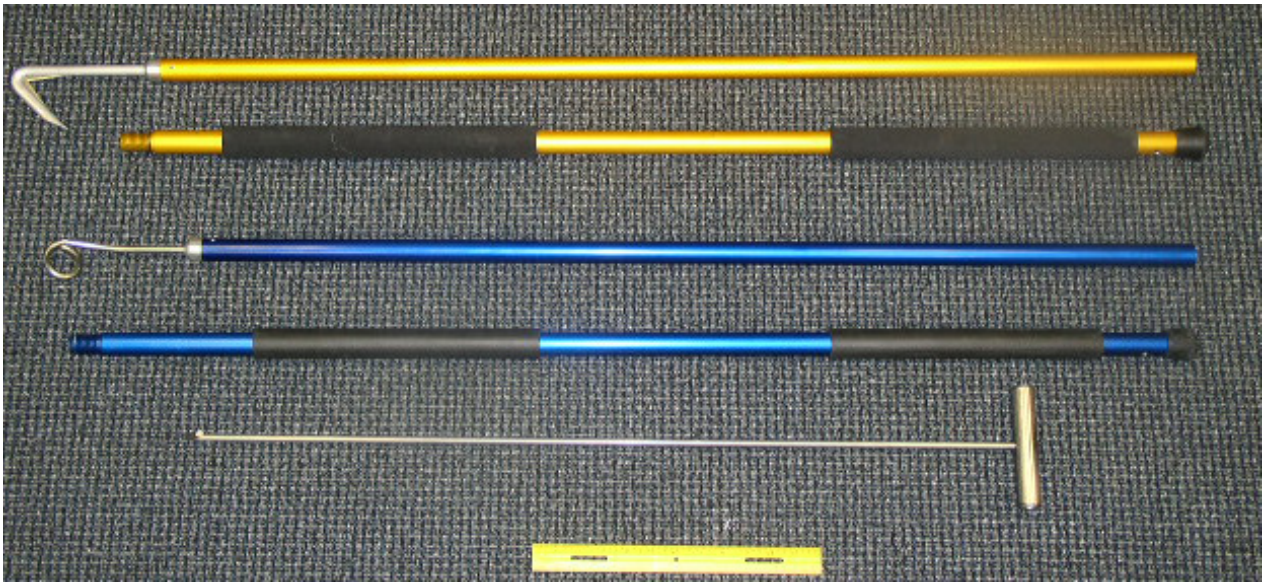
What is the minimum equipment that fulfills the regulations?

1. Long-handled pigtail dehooker for both external and ingested hooks
2. Short-handled pigtail dehooker with bite block for both external and ingested hooks
3. Device for pulling an "inverted V"; either the long-handled dehooker for external hooks (J-style) or a gaff
4. Mouth gags and openers: two of the previously-described seven
5. Tire
6. Dip net
7. Bolt cutters

Gaff: A standard gaff found on almost any fishing vessel can be used to fulfill the requirement of a device to "pull an inverted V" (technique described later in chapter). It will be used to assist in disentangling, never to control the turtle.

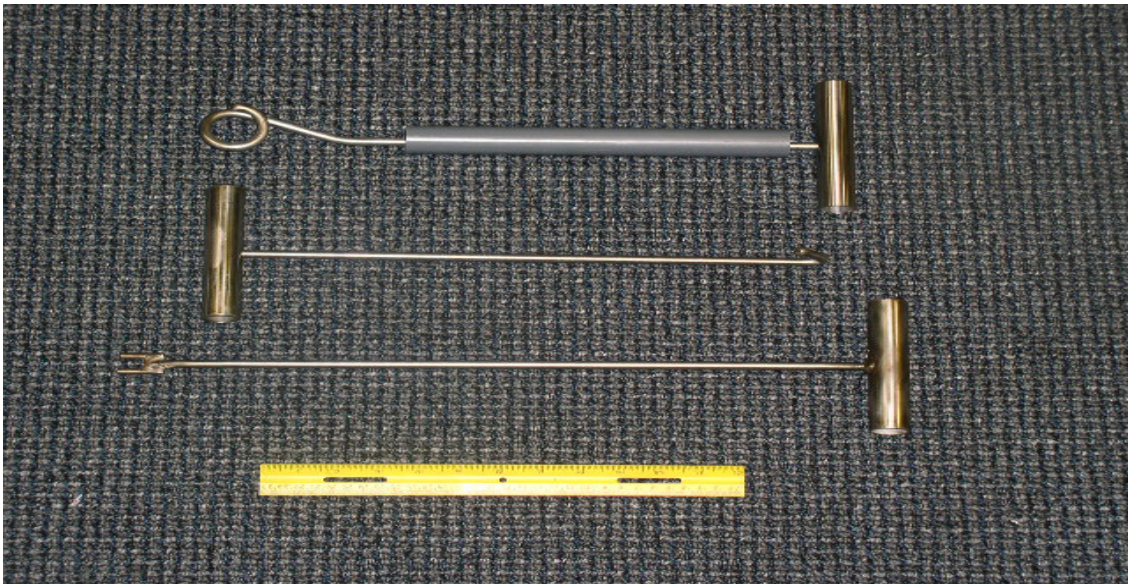
Long-handled "pigtail" dehooker: This dehooker comes in two pieces that are easily assembled by twisting them together. Use this dehooker to remove hooks from turtles that are too big to be boarded.

Line cutter: Every vessel must carry a long-handled line cutter to assist in cutting the lines from turtles that are released while they remain in the water.

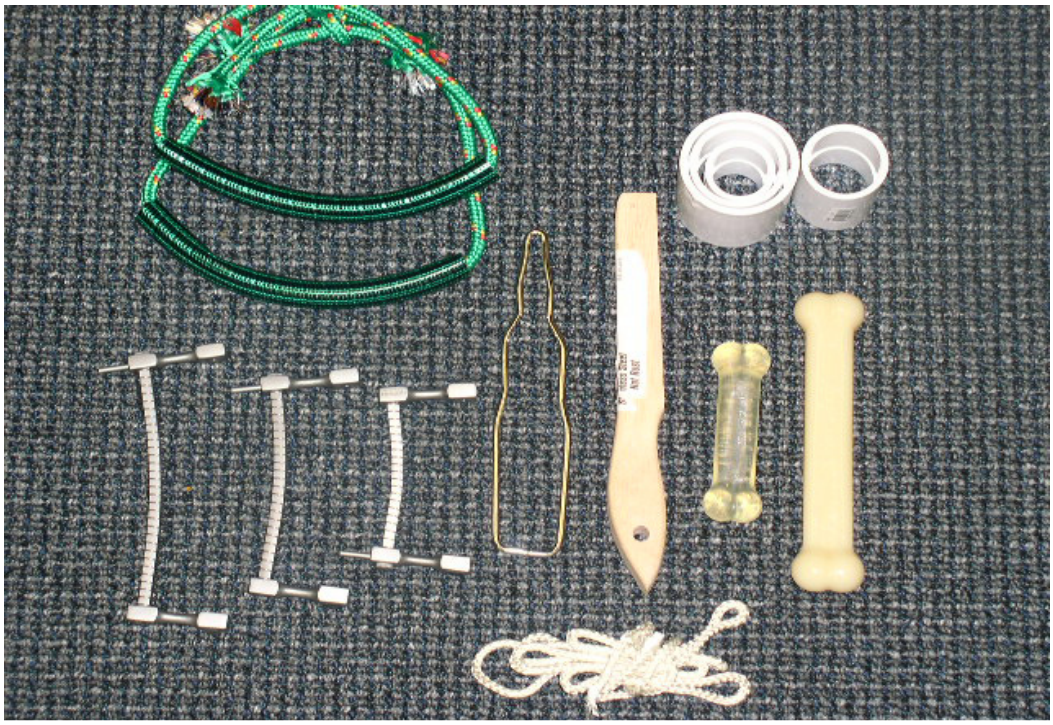


Top: Line cutter
Middle: Long-handled pigtail dehooker
Bottom: Long-handled J-style dehooker

Short-handled "pigtail" dehooker: This dehooker is used for turtles brought on board. The PVC pipe is to protect the turtle's beak from becoming damaged from the metal of the dehooker. It also serves to shield the barb of the hook to prevent re-engagement once the hook has been released. The J-style and Scotty's dehookers are also shown here and are used to remove external hooks that are not too deep.



Top: Short-handled pigtail dehooker
Middle: J-style dehooker
Bottom: Scotty's dehooker



Examples of mouth openers and gags

How to use a long-handled pigtail dehooker:
1. The person holding the line attached to the turtle should try to stay to the left of the dehooking person while keeping the line taut. The dehooking person should have the mono to the left, and the dehooker to the right. Make sure to stay clear of being in between the leader and the dehooking device because if the line snaps it could be dangerous.

2. The person dehooking will place the dehooker on the line (perpendicular, at a 90-degree angle) with the opening of the pigtail facing up.

3. Pull the device toward you as you would a bow and arrow, until you engage the line.

4. Turn the dehooker a 1/4-turn clockwise, putting the line in the center of the curl.

5. Slide the dehooking device down the line until it engages the shank of the hook and bottoms out. You may have to rotate and move the device back and forth until the top portion of the pigtail is resting on the shank of the hook. This is the proper engagement on the hook.

6. Once engaged, bring the line and the device together making sure the mono is tight and parallel with the hooking device.

7. Communicate with the leader person so you know when to give slack and when to pull taut and prevent injury. Give a thrust downward until the hook disengages, then gently pull the dehooker upwards, with the hook holding the line taut so the hook is not too loose and does not re-engage.

How to use a short-handled pigtail dehooker:
1. The dehooking person should hold the mono in the left hand, and the dehooker in the right holding the PVC pipe towards you up against the handle.

2. Place the dehooker on the line (perpendicular / at a 90-degree angle) with the opening of the pigtail facing up.

3. Pull the device toward you as you would pull back on a bow and arrow, until you engage the line.

4. Turn the dehooker a 1/4-turn clockwise, putting the mono in the center of the curl.

5. Release the PVC and slide the dehooking device down the mono, holding until it engages the shank of the hook and bottoms out. You may have to rotate and move the device back and forth until the top portion of the pigtail is resting on the shank of the hook. Drop the PVC pipe down. This is the proper engagement on the hook

6. Once engaged, bring the line and the device together making sure the mono is tight and parallel with the hooking device.

7. Give a thrust downward until the hook disengages, then pull up the dehooker holding the PVC down. Hold the line taut so the hook is not loose and can't possibly re-engage.

Refer to the laminated placards handed out during dehooking training for a step-by-step diagram demonstrating the instructions above.

What type of scenarios might I encounter if a vessel fishing gear interacts with a turtle?

(A) Entangled but not hooked
(B) Hooked but not entangled
(C) Hooked and entangled

1. The "inverted V" technique: Used when it is difficult to engage the line closest to the hook with the dehooker. With the gaff, carefully engage the line closest to the hook. Pull the line upward with the gaff, so that the monofilament line forms an "inverted V." The dehooker person can then engage the line and continue with the steps for using a long-handled dehooker.

Care and release of the turtle once the hook has been removed:

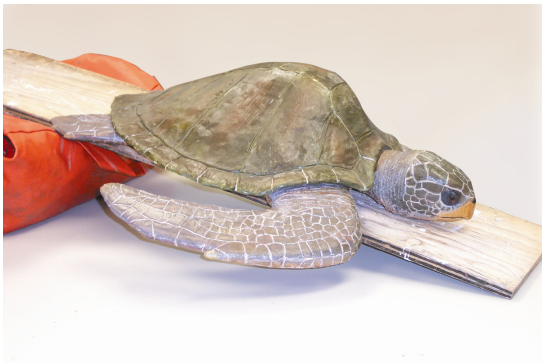
1. Place the turtle in a secure and shaded location. If the turtle appears dead or comatose follow the resuscitation protocol on the following pages.

2. Cover the turtle with wet towels, occasionally spraying the animal with a deck hose. Be careful not to spray its head and nostrils.

3. When the turtle is ready to return to sea, make sure there is no fishing gear in the water and that the vessel is stopped by placing it in neutral to disengage the propeller.

Resuscitation

All turtles that appear dead or comatose (unconscious) should be brought on board to attempt to revive the animal when practical. The following resuscitation techniques should be implemented:



1. Place the turtle on its bottom shell (plastron) so that the turtle is right side up and elevate its hind quarters at least 6 inches (15.2 cm) for a period of 4 to 24 hours. The amount of the elevation depends on the size of the turtle; greater elevations are needed for larger turtles. Periodically rock the turtle gently left to right and right to left by holding the outer edges of the shell (carapace) and lifting one side about three (3) inches (7.6 cm), then alternate to the other side. Gently touch the eye and pinch the tail (reflex test) periodically to see if there is a response.

2. Sea turtles being resuscitated must be shaded and kept damp or moist, but under no circumstances be placed into a container holding water. A water-soaked towel placed over the head, carapace, and flippers is the most effective method of keeping a turtle moist, but do not cover its nostrils.

3. Sea turtles that revive and become active must be released from the area of the boat that is closest to the water only when fishing gear is not in use, when the engine gears are in a neutral position, and in areas where they are unlikely to be recaptured or injured by vessels. This means that hauling operations must stop during release. Sea turtles that fail to respond to the reflex test or fail to move within 4 hours (up to 24, if possible) must be retained for scientific research.

Observers are to request from the vessel personnel that **any dead sea turtles** encountered during the cruise be **retained** after processing for return to Honolulu. This includes dead turtles that may be encountered "free floating" and which are not necessarily attached to any gear. Very large sea turtles, i.e., full-grown leatherbacks, may present a problem with handling and storage on board the vessel until the end of the cruise. Dead turtles that are too large to bring aboard or store in the vessel's hold space may be released only after ALL samples, measurements (if possible), and photographs are taken.

When a sea turtle comes aboard dead and will be brought back to port:

1. Leave any entangled line or hook in place. Leave the free end about 2 feet long.
2. Do not apply flipper tags and leave any tags present in place.
3. Collect 2 skin biopsies and all other measurements.
4. Take photographs of gear location, injuries, and identifying characteristics showing dorsal, ventral, and frontal views.
5. Complete a Sea Turtle Biological Data form.
6. Complete a Sketch form.
7. Call into the PIROP following the current reporting instructions.
8. Record the turtle on the Specimen Log form.
9. Double-wrap it, with a specimen tag inside and out, and store it, frozen or buried in ice, until the turtle is secured at the NMFS Pacific Islands Fisheries Science Center in Honolulu.

Instructions for Applying Metal Flipper Tags To Sea Turtles

Special Conditions

All tags shall be cleaned (to remove oil residue) and disinfected before being used. First, wash the tag with soap and rinse thoroughly. Next, rinse the tag with disinfectant. Applicators must be cleaned (and disinfected when appropriate) between animals.

1. Remove a tag from the strip and record its alphanumeric number. Be careful not to bend the tag from its original shape. Peel back only enough tape to remove 1 or 2 tags at a time. If more tape is removed, the tags may fall off or become damaged.

2. With the piercing side of the tag up, place your index finger tip inside the bend of the tag. The piercing side of the tag has the numbers stamped into it (see Figures 1 and 2).

3. Hold the tag applicator pliers in the other hand, making sure the handle with the paint mark (or label) is up. Using your index finger, pull the tag straight back into the open jaws of the applicator pliers. A firm pull will be needed to completely seat the tag into its correct position. Take care not to squeeze the applicator handles before you are ready to apply the tag. If the handles are squeezed partway and then released, the bent tag will fall out and will not function properly (see Figure 3).

4. Locate the correct site where the tag will be applied on the trailing edge (rear) of the front flipper. Ask for assistance holding the turtle still. Make sure to position the tag so there is some overhang after it is attached to the flipper (see Figures 4 and 5).

5. Apply the tag by squeezing the applicator handles firmly. The tag point will pierce the flipper and lock into place through the other tag end. The piercing tip must be bent over completely to lock the tag. The handles of the applicator must be squeezed together very firmly at the final point in order to fully bend the point down.

6. Repeat the procedure in the same place on the other front flipper. All turtles should be double-tagged. Try to use consecutive numbers on the same turtle whenever possible. If a tag is ruined, record the number of the ruined tag, and use another tag. If the recommended tagging site cannot be used, find another site on the rear edge of the front flipper.

7. For each tag applied fill out all the tag information on a Tag Event form and describe any difficulties encountered while trying to apply the tags.

Adapted from instructions by George H. Balazs
Marine Turtle Research Program, NMFS Pacific Islands Fisheries Science Center
Honolulu, Hawaii

Figure 1: Holding a flipper tag in correct orientation to load into applicator. Note that the number side of the tag is up.

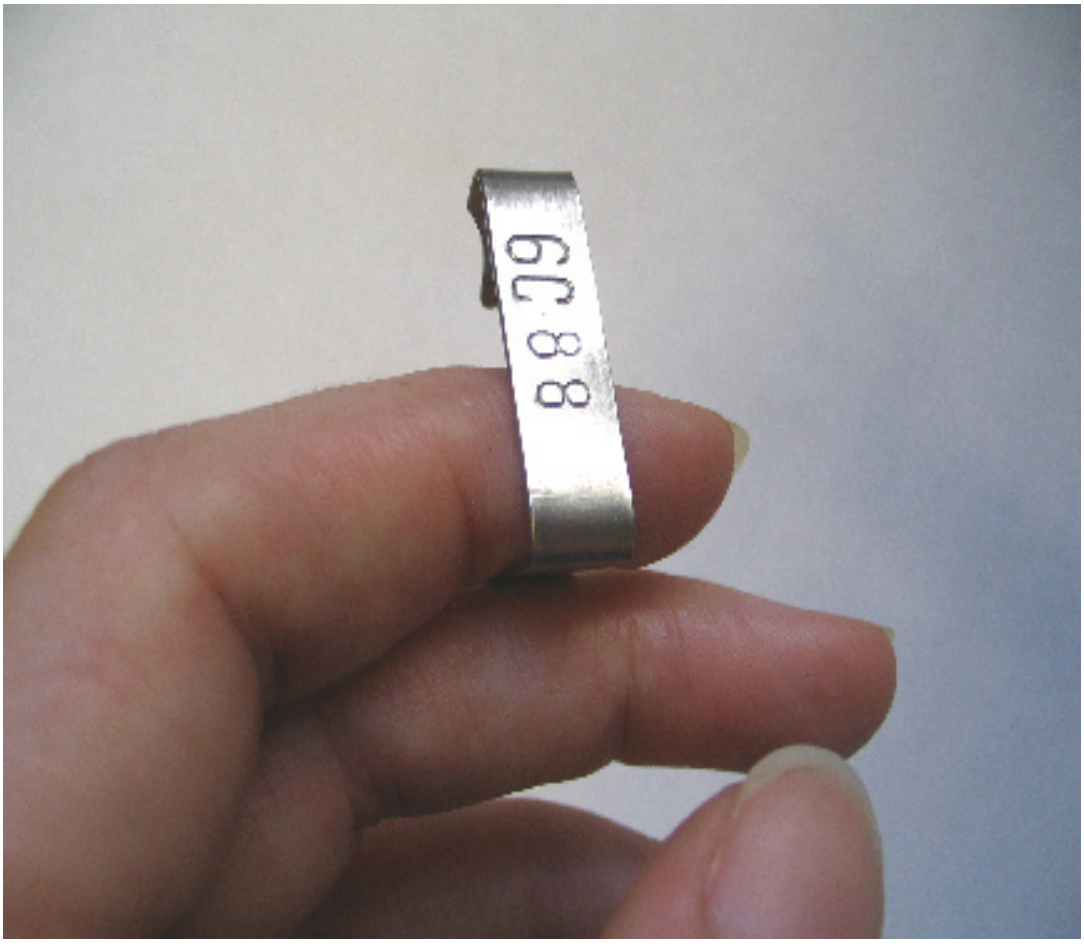


Figure 2: Loading a flipper tag into tag applicator. The arrow indicates which handle should be up.

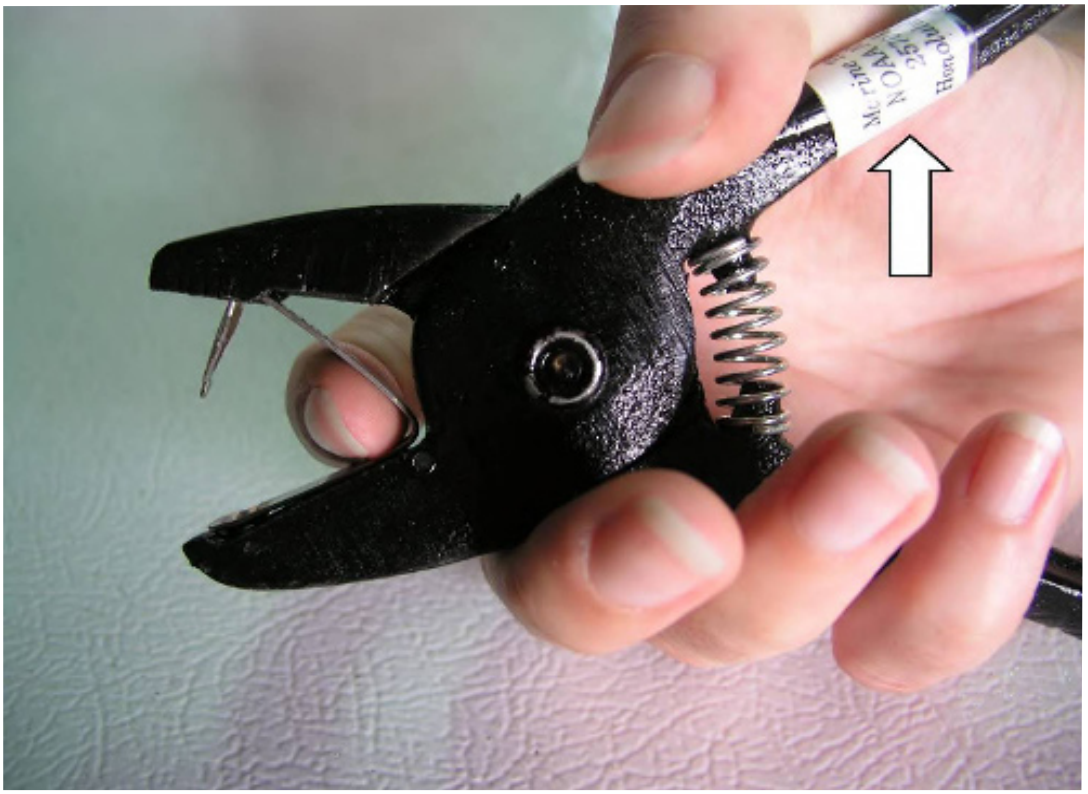


Figure 3: A fully-seated tag in the tag applicator pliers.

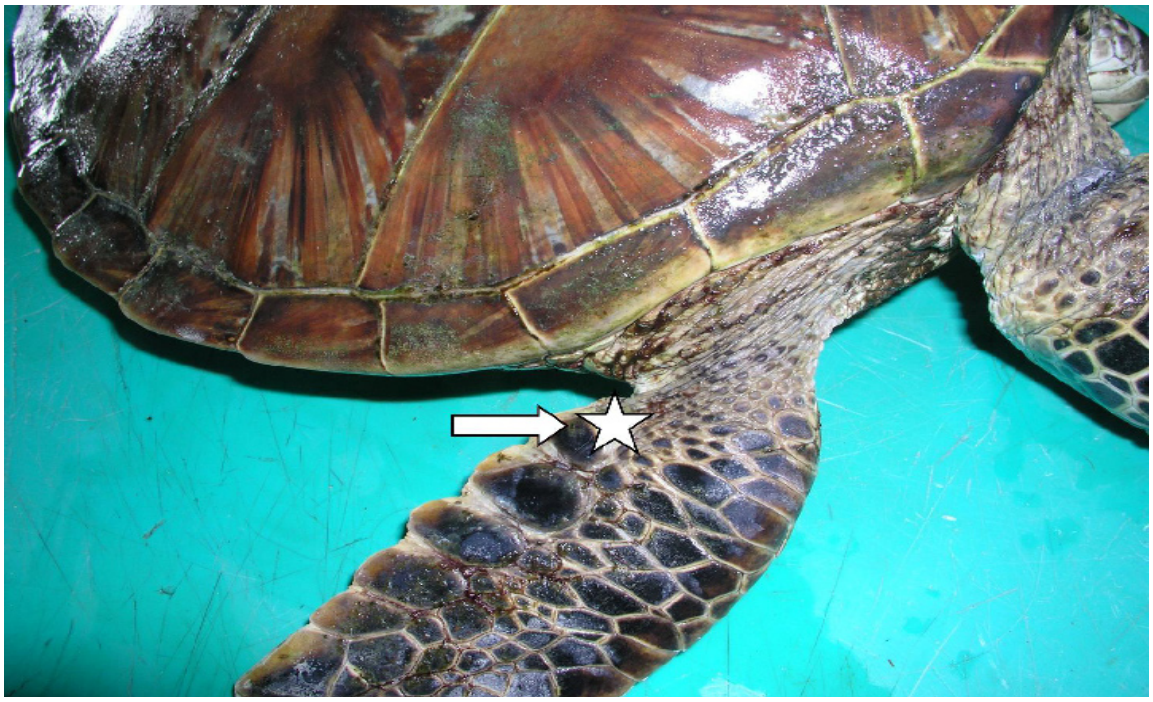


Figure 4: Arrow indicating the preferred location for flipper tag replacement. The next preferred location is between the two large scales to the right of the arrow.

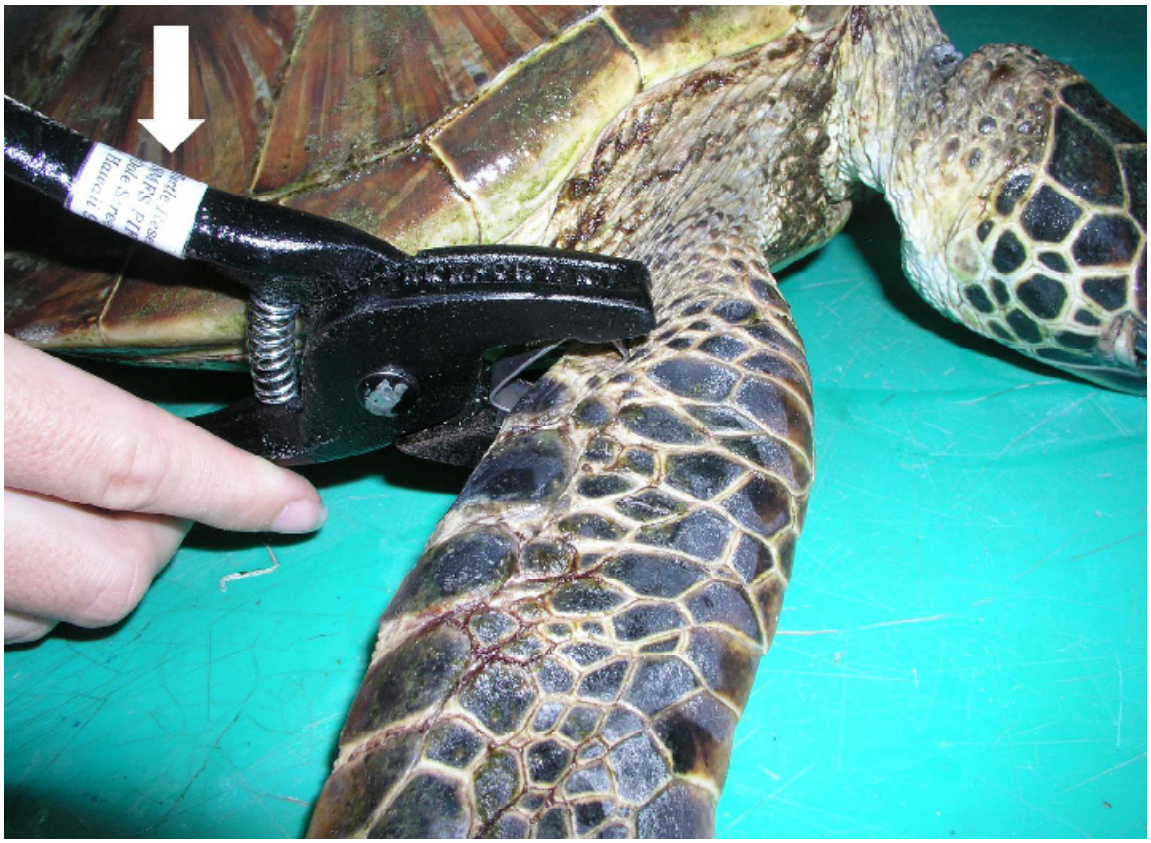


Figure 5: Applying flipper tag to a front flipper of a green sea turtle. Note the slight gap between the angle of the tag and the edge of the flipper.

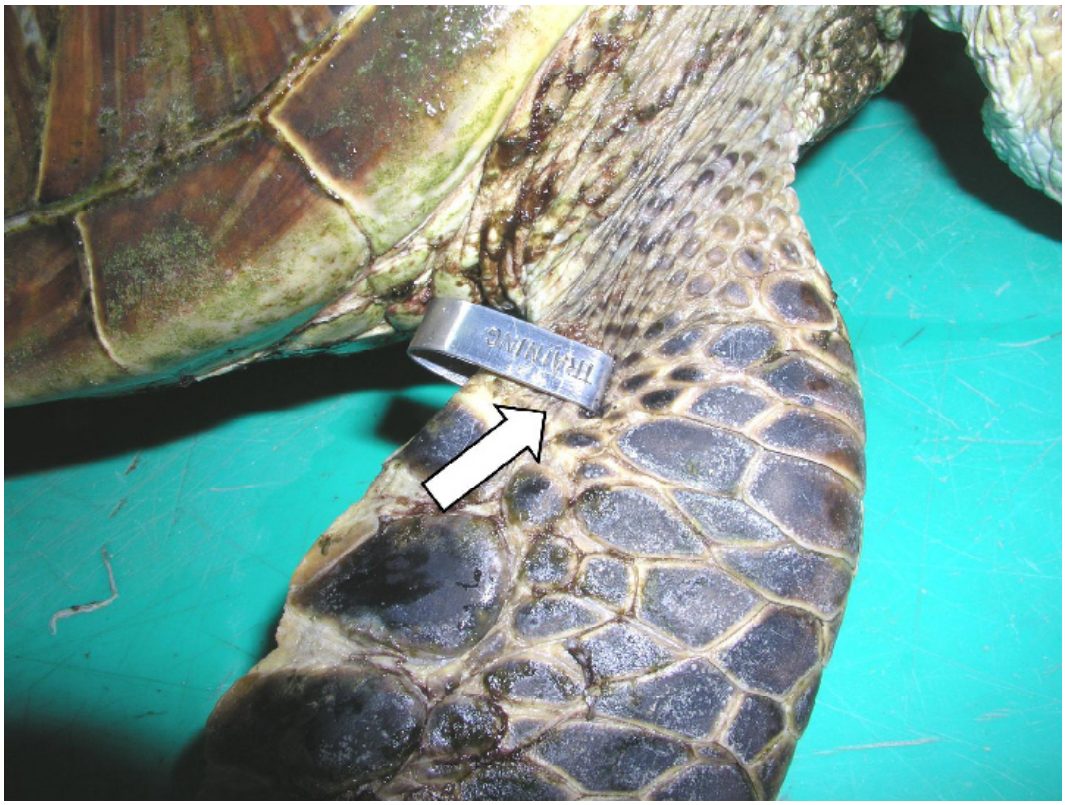


Figure 6: A properly applied flipper tag.

Procedure For Attaching Pop-up Satellite Archival Tags (PSAT)

The following is a detailed procedure for the attachment of PSATs on incidentally caught hard-shelled sea turtles. Observers should follow all standard protocols for handling turtles that have been hooked or entangled.

Assessment
Once on deck, guide the turtle to a safe area, preferably out of the weather and salt spray. Make sure it is in an area where the turtle will have adequate ventilation around its head. To calm the turtle place its head in a corner. Follow the protocols for obtaining the information for the Sea Turtle Biological Data form and Catch Event Log, as well as for applying metal flipper tags, and collecting skin plugs and photographs. Make sure the photo of the PSAT includes the ID label for the tag (either from the base plate or from the stickers).

Preparation
Identify a good position on the carapace to attach the PSAT. Flat and clean scutes toward the back of the carapace generally work best (Figure 1). Use freshwater to help clean the attachment area. Scrub away algae and remove any barnacles as best you can. Use sandpaper, gently, for finer cleaning. Finally, wipe the area with a clean dry cloth.

Attachment
Have all of your supplies (including watch) available. Make sure the carapace is clean and dry before beginning attachment procedures. Put on gloves and perform the following steps as quickly as possible.

1. Open the box of MarineFix® Fast and put the contents from both containers (A and B) into a large plastic cup. Mix thoroughly for 90 seconds using the large wooden stirrer (Figure 2).

2. Using the same stirrer, apply a thick coat of the mixed epoxy to the flat bottom part of the white baseplate (Figure 3).

3. Press against the carapace for a few minutes to squeeze out any air pockets. Be careful not to press down so hard that too much epoxy is pushed from under the baseplate. Smooth out the excess epoxy that oozes out of the side with the stirrer or wet (gloved) fingertip.

4. Take a photograph showing the transmitter attached to the carapace (Figure 4).

Release the turtle back into the water from as close to the surface as possible. Be sure to record the PSAT number, the position of release, and behavior of the turtle when released on the Sea Turtle Biological Data form and the Tag Event form.

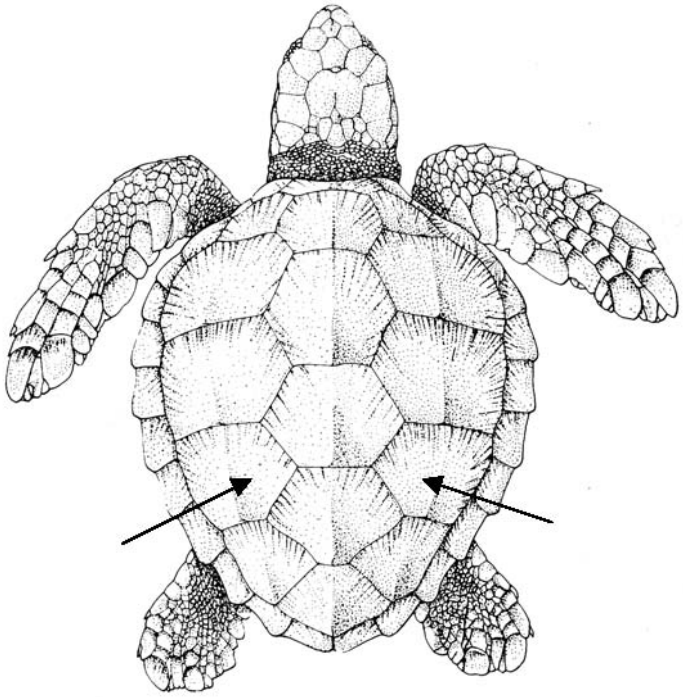


Figure 1: Attachment areas for PSAT

Figure 2: Mixing the epoxy compound. **Wear the latex gloves while handling the epoxy compound.**

Figure 3: Applying the epoxy compound to PSAT baseplate.

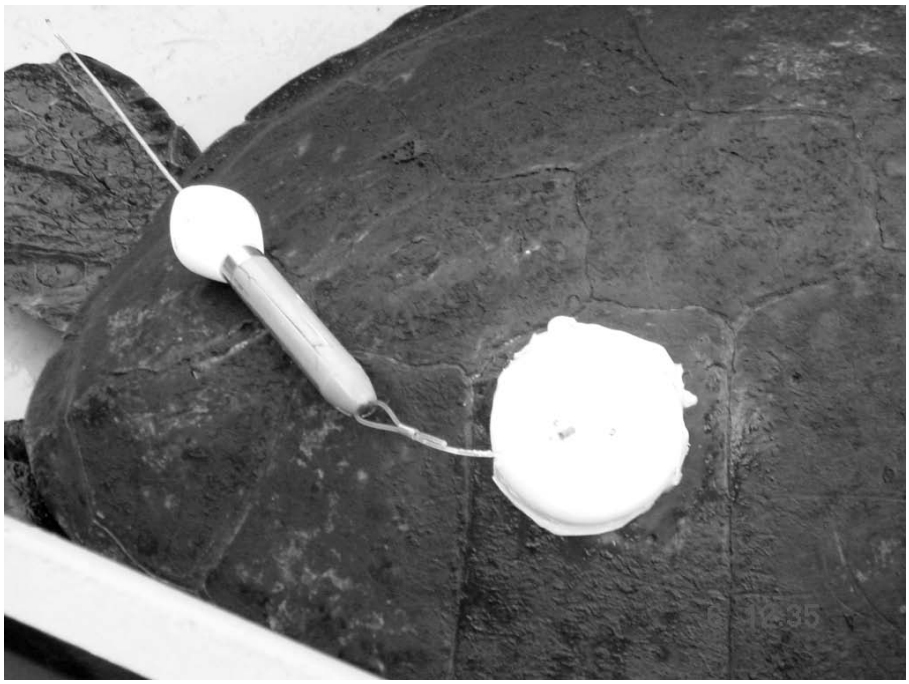


Figure 4: A properly attached PSAT

Protocol For Collecting Sea Turtle Skin Biopsies

Category A: Sampling a live sea turtle brought aboard the vessel

1. Turtles are always to be protected from temperature extremes of heat and cold, and kept moist during sampling. Place the turtle on a disinfected pad for cushioning. Note: Make sure to disinfect the pad after each use. The area surrounding the turtle should be clear of materials that could be accidentally ingested.

2. Stabilize the turtle by turning it over and holding it still in a supine position (face up). If available, a second person should provide assistance.

3. Using a disposable alcohol/Betadine swab, clean the skin region between the plastron and the base of the hind flippers (inguinal region). The skin in this area (ventral side at the base of the hind flippers) is normally soft and smooth and devoid of hard or enlarged keratinized scales and is the preferred area to biopsy. However, if for some reason it is not possible to sample this region, skin in the ventral pectoral area, at the base of the front flippers, may be used.

4. Carefully remove a new biopsy punch (Acu-Punch® brand) from its sealed wrapper. Exercise care in handling as the circular cutting end of this instrument is very sharp. Use caution by holding the cutting edge away from you and other persons at all times.

5. Hold the plastic handle of the biopsy punch (this is the handheld biopsy punch) using your thumb and index finger. Place the circular cutting end on the cleaned smooth skin at the base of a hind flipper and rotate the punch while pressing down with moderate force. A circular cut will rapidly be made through the skin. Continue to rotate and press down to about 5 mm depth, or until the blade reaches maximum penetration. For samples taken from small turtles (< 25-35 cm carapace length), cutting to a depth of only 2-3 mm, or about half the length of the steel blade, will be sufficient.

6. Withdraw the biopsy punch from the skin by lifting it straight out. Use clean forceps to grasp and remove the thin circular plug of skin resulting from the cut made with the biopsy punch. The plug of skin may momentarily adhere to the underlying tissue, but will easily detach when lifted away.

7. Immediately place the plug of skin in a designated container (Whirlpak™) containing purified granular salt (NaCl). Shake the container for several seconds after placing the skin sample inside, to make sure the sample is covered by the salt. Using another disposable alcohol/Betadine swab, clean around and inside the region of the turtle where the skin plug was taken. Label the container with the specimen number, date, the turtle's flipper tag number, and/or any other unique identifying information available for the turtle.

8. Using the same biopsy punch, obtain a second disk of skin from the turtle, but from the other hind flipper region. This should be accomplished by repeating the procedures listed in steps 1-6. Place the second plug of skin in the same container (Whirl-pak™). Again, using another disposable alcohol/Betadine swab, clean around and inside the region of the turtle where the skin plug was taken. Store the labelled container in a secure location reserved for valuable scientific specimens.

9. When both skin samples have been obtained, immediately return the biopsy punch to its protective wrapper and mark the package as "USED." Return it to the PIRO Observer Program for proper disposal. Additional new biopsy punches have been supplied to each observer; therefore, the same punch should not be used to obtain skin samples from another turtle. The forceps used to grasp the skin plug must always be thoroughly cleaned of any adhering tissue and rinsed with 90% alcohol after each turtle is sampled.

10. The live turtle should be released in an appropriate and safe manner after all the pertinent data have been collected and the turtle has been tagged. No other special treatment of the biopsy site is necessary prior to release. Slight bleeding may occur, but this will cease shortly after the turtle is returned to the ocean.

Category B: Sampling a dead sea turtle brought aboard a vessel

1. Follow the same protocol as described above for a living turtle (Category A, Steps 1-8).

2. Be certain that the turtle is in fact dead prior to freezing it for transport to NMFS. A comatose, but live sea turtle, may in some cases exhibit absolutely no movement or signs of life. In other cases, an unconscious sea turtle may show some evidence of eyelid or tail movement when touched. Note: Make sure the turtle is in the shade where further damage won't occur. A turtle that shows no signs of life after at least 4 hours on deck may be safely considered as dead.

Category C: Sampling a large sea turtle dead or alive in the water alongside the vessel that has been hooked or entangled

1. The sampling gear consists of a 10-ft pole with a threaded adapter securely fixed to one end. The threads have silicone grease on them and are fitted with a protective rubber sheath that can be easily removed. Each pole comes with a biopsy corer. This is a small stainless-steel cutting tool with prongs extending from the inner surface to entrap the tissue once coring has occurred. Each corer is stored in a 2-cc plastic cryovial in a small Ziplock bag. The bag also contains a vial of liquid salt (NaCl) solution.

2. When a large turtle is hauled in alongside a vessel and is available to sample, the corer should be threaded to the adapter. A forceful jab should be made to ensure full penetration by the corer. Suitable sampling sites include anywhere on the flippers, shoulder region, pectoral, and pelvic regions. The 1-cm depth of the corer is such that no permanent damage will result if a strike to the carapace is made. For leatherbacks, the somewhat soft nature of the carapace will allow sampling of tissue that will be entirely suitable for DNA analysis. Do not target the carapace, but if a tissue core is taken from this area, the sample can be successfully used to extract DNA.

3. The corer should be unscrewed once the pole is brought back on deck and it is checked to ensure a sample is within it. Care should be taken not to strike a crewmember while swinging the 10-ft pole aboard. Once unscrewed, the entire corer with tissue inside should be placed into the vial containing the salt solution and properly labeled. Do not attempt to remove the tissue from the corer. Only one sample can be collected with each corer.

Sea Turtle Biological Data Form

General Instructions

Complete a Sea Turtle Biological Data form for every sea turtle caught, including entangled individuals. If a sea turtle is observed caught, but is not landed, complete as much of the form as possible. For unlanded turtles (turtles that are not brought on board the vessel) you should complete at a minimum, the following data elements:

1. Header information on the form
2. Capture information block
3. Release information block

Data Elements

Observer ID: In the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip Number: The unique 6-digit number assigned by the Operations Coordinator. In the first two blocks, record LL for longline. After the second block, enter the 4-digit sequential number.

Set No.: Record the set number from the Catch Event Log form.

Species Code: Record the 2-letter code for the species of turtle captured from the Species Code List.

Associated Log Forms (Photo? Specimen? Sketch? Tag?): Place a check mark or X in the box to indicate which additional log forms contain data associated with this turtle. If you mark a log form box, make sure to complete the information on the indicated log.

Catch Form Page Number: Record the page number from the appropriate Catch Event Log form.

Catch Form Line Number: Record the line number from the Catch Event Log form that contains information on the capture of this particular sea turtle.

Capture Block

Date/Time: The date and time the turtle was caught. Use the standard date format DDMMMYYYY (example: 24 JUL 2007) and 24-hour format.

Latitude: Record the position of capture in degrees and minutes of latitude of the vessel at the time the animal was landed. Record N/S in the last blank to indicate which hemisphere.

Longitude: Record the position of capture in degrees and minutes of longitude of the vessel at the time the animal was landed. Record E/W in the last blank to indicate which hemisphere.

Landed: Place a check mark or X in the box to indicate whether or not the turtle was landed. Landed means the turtle was brought on board the vessel. Leaving this box blank means that the turtle was not brought on board the vessel. Describe in detail the landing of the turtle in the Comments section, including whether or not a dip net was used.

Tags Present? Record a Y, N, or U (unknown) to indicate whether tags were present on the sea turtle at the time of capture.

Release Block

Date/Time: The date and time the turtle was released. Use the standard date format (example: 24 JUL 2007) and the 24-hour format.

Latitude: Record the position of release in degrees and minutes of latitude of the vessel at the time the animal was released. Record N or S in the last blank to indicate which hemisphere.

Longitude: Record the position of release in degrees and minutes of longitude of the vessel at the time the animal was released. Record E or W in the last blank to indicate which hemisphere.

Note: Sometimes an animal may be observed caught and then quickly released from the gear during hauling operations. In such cases, the Position of Capture and the Position of Release can be the same. Make sure the Time of Capture and Time of Release are different.

Disposition Code: Record the code corresponding to the fate of the turtle. In the Comments section on the back, record specific notes about any damage to the turtle. Describe the behavior of the turtle when released. **Note:** If the initial condition of the turtle changes, then the final condition should be recorded. Record detailed notes of the change.

Disposition Code List

Previously Dead [01]: The turtle was already dead when it was captured/taken. This does not include turtles that appear to have died as a result of fishing operations. Note: A previously dead turtle will usually have rotten tissue around the eyes and cloaca. It may also be bloated, have a foul smell, and/or have sloughing scutes and scales.

Released Unharmed [02]: You observed the turtle returned to sea alive and uninjured. This would apply to entangled sea turtles that escape from the gear before landing, and show no signs of injury. Refer to chapter 9 for clarification.

Released Injured [03]: The turtle was injured as a result of fishing operations, or by vessel personnel. "Injured" applies to animals removed from the gear with obvious physical injury or gear attached. Turtles that are hooked are considered injured. Turtles that are entangled and landed should also be considered injured.

Died [04]: The turtle died due to injuries incurred during fishing operations .

Escaped [05]: You observed the turtle leaving the gear or deck unaided after capture or entanglement with no apparent injuries.

Treated as Catch [06]: The turtle was not previously dead and was sacrificed for market, table, or other use.

Other [07]: The final fate of the turtle was different from the above codes. Describe in the Comments section.

Tags Removed? Put a check mark or X in the box to indicate if tag(s) were removed from the turtle. Tags should only be removed if they are unreadable or in danger of falling off. Salvage any tags you remove for return to port.

Tags Applied? Put a check mark or X in the box to indicate if tags were applied to the turtle. Make sure to fill out a Tag Event form for each tag applied (flipper or PSAT) to the turtle.

Hooking/Entanglement Block

Hooked? Entangled? Answer each question with a Y, N, or U. A turtle can be both hooked and entangled.

Hook/Entangle Location: Select a code that indicates which part of the turtle the line was hooked and/or entangled on. If more than one part is hooked or entangled, use the code indicating the part that had the most or more severe connection. Photograph the hook/entangled area if possible and describe in Comments section. Refer to the end of this chapter for pictures and definitons of these codes.

Gear Removal: Choose the code that best indicates how the animal was removed from the longline gear.

Remaining Gear: Select the letter code indicating what type of fishing gear, if any, was removed from the turtle. On the lines below, describe what type and amount (length) of gear was left on the turtle. If the turtle is dead, photograph the remaining gear before wrapping the turtle up for storage.

Morphology Block

Answer these four questions with a Y, N, or U.

Skin Covered Carapace? Y if the carapace covered by a thick rubbery skin? N if the carapace is covered with scutes.

Overlapping Scutes? Y if there are overlapping scutes on the dorsal surface; N if not.

Inframarginal Scutes with Pores? Y if the inframarginal scutes have pores; N if not.

One Pair Prefrontal Scales? Y if the turtle has *only* one pair of prefrontal scales. If there is more than one pair, enter an N in the box.

Carapace Scute Counts

No. of Left Costal Scutes: Count the number of costal (= lateral) scutes on the left side of the carapace and record the number. Refer to the diagrams on your sea turtle ID handouts.

No. of Right Costal Scutes: Count the number of costal scutes on the right side of the carapace and record the number. Refer to the diagrams on your sea turtle ID handouts.

No. of Vertebral Scutes: Count the number of vertebral (= central) scutes in the midline of the carapace and record the number. Refer to the diagrams on your sea turtle ID handouts.

No. of Inframarginal Scutes: Count the number of scutes on either side of the plastron. If the number of inframarginal scutes on each side differs, enter the higher number in the box and record details on the Comments section.

Dorsal Coloration: Select the code that describes the general color of the carapace: Orange/ Red, Grayish, or Other. If Other, please describe.

Measurements Block

Take measurements in centimeters to the nearest 0.5 cm using a tape measurement for curved measurements and a meter stick (calipers) for the straight measurements. Try to remove any epibiota that affects any of these measurements. Record the details on the back of the form.

Carapace Length (curved): Record the distance between the front edge of the nuchal scute (the scute in the middle of the front edge of the carapace) and the rear of the carapace, following the curvature of the dorsal centerline. If there is a notch between the two posterior marginal scutes, measure the distance to the rear most point of the scutes. For turtles with a keel running down the center of the carapace (leatherbacks, juvenile olive ridleys, and loggerheads), measure to one side of the median keel, not on top of it.

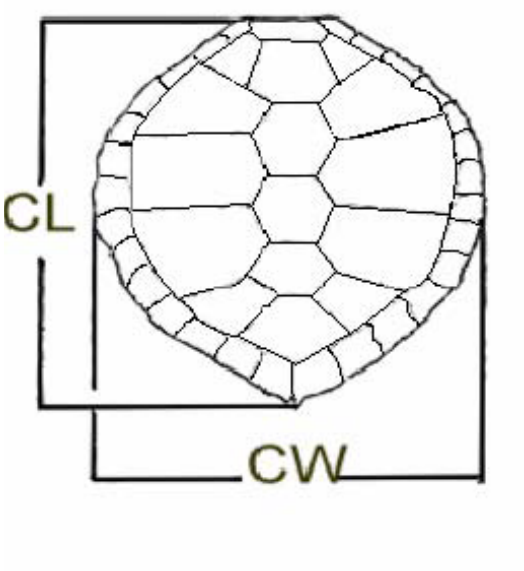
Carapace Width (curved): Record the maximum distance between the lateral edges of the carapace, measure over the curvature of the shell.

Plastron Length (straight): Record the maximum straight-line distance from the anterior margin (front tip of the plastron) of the intergular scute to the posterior margin (rear tip of the plastron) of the post-anal scute. Use the 2-m calipers for this data element (DO NOT USE the tape measure).

Tail Length: Measure and record the distance between the rear most point of the plastron and the tip of the tail. Use a tape measure for this data element.

Carapace Length (straight): Measure and record the distance between the center of the nuchal scute and the rear edge of the carapace. If there is a notch between the two posterior marginal scutes, measure the distance to the rear most point of the scutes. Use the 2-m calipers for this data element.

Carapace Width (straight): Measure and record the maximum distance between the lateral edges of the carapace. Use the 2-m calipers for this data element. Sketch the dorsal and ventral views to illustrate lesions or injuries.



Points to measure for sea turtle carapace lengths.
CL = Carapace Length
CW = Carapace Width

Light Device

Complete these elements only if devices were used on this set, and the device type has been indicated on the Gear Configuration form.

Color Code: Record the code that best indicates the color of the light emitted by the device.
Note: Code 8 (Mixed) is not a valid choice for this element.

Proximity Code: Select the code that shows how far away the next light device is from the branch line the turtle was on.

Comments Block

Comments: Describe the entire event from the time the turtle was sighted until it was released or until you determined that it was dead. Make sure to include details on how the turtle was brought on board the boat if it was landed and how it was cared for once on deck. Describe dehooking procedures if the animal was alive and you removed or attempted to remove the gear. Describe resuscitation techniques used. Describe any problems encountered with any procedures and any assistance that you required.

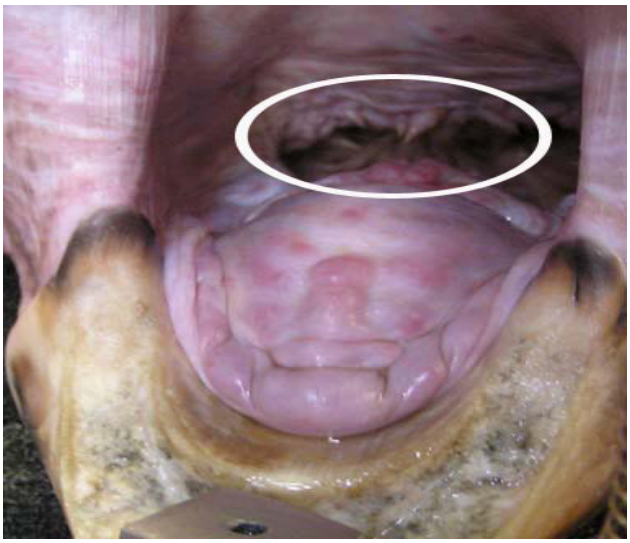
Injuries Description: Describe any injuries caused by the turtle being hooked or entangled or further injuries caused by trying to remove the hook. Describe whether or not the line/wire leader left any marks on any soft parts of the turtle. Note whether or not there was any blood at the point of hooking or entanglement. Be sure to include any injuries on your sketch form as well.
For turtles that have bitten a hook be sure to describe the location as precisely as possible, ie., espohagus, glottis, etc.. Refer to the guide below to help describe hooking locations

Identifying Characteristics: List at least 5 identifying characteristics of the turtle captured.

Hooking/Entanglement Codes

01. Ingested - inside the esophagus, the entrance marked by the presence of papillae.

Espohagus



03. Front flipper- hooked or entangeld on either front flipper

04. Body/shell- hooked or entangled around the carapace or plastron, not including the other coded regions of the body.

06. Tail - hooked or entangled on the tail itself

07. Rear flipper - hooked or entangled on either rear flipper

10. Upper beak - portion of beak located inside of the mouth(hard keratinized rhampotheca- hardshell turtles only)

11. Lower beak - hard keratinized portion of beak (lower jaw) located inside of mouth

12. Side of mouth - area of jaws with soft tissue over bone that does not include the beak parts, or tongue/ glottis (the jaw joint/ hinge will be encompassed in this code)

13. Tongue/glottis - located on the floor of the mouth, extends to the entry of the esophagus

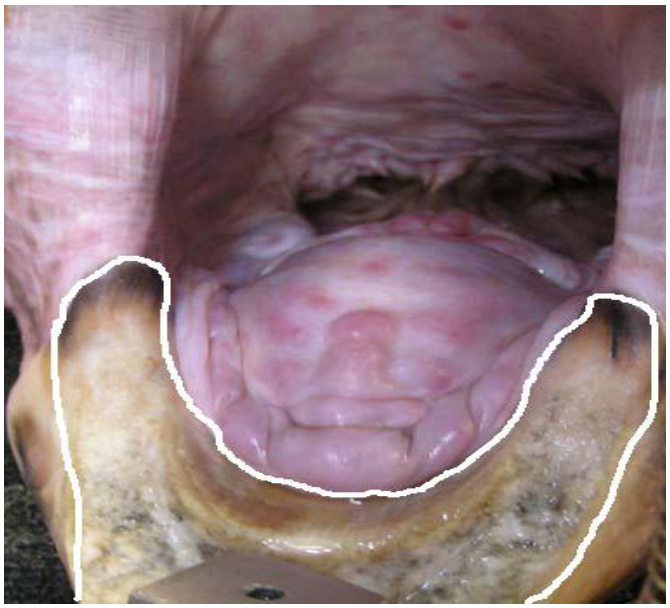
14. Head/Neck - externally hooked/entangled on the head or neck region.

15. Roof of mouth - soft tissue are extending from the upper beak to the esophagus

16. Mouth unknown - turtle was hooked in mouth, but exact location ot determined (usually occurs when turtles are not landed)

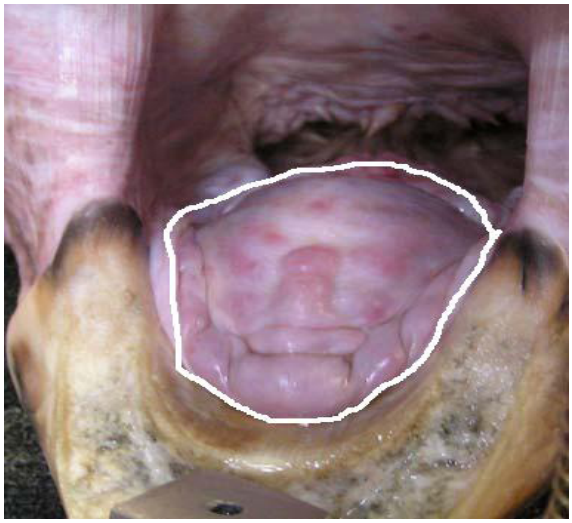
20. Other - use this code to describe a loction not otherwise coded.

10. Upper beak

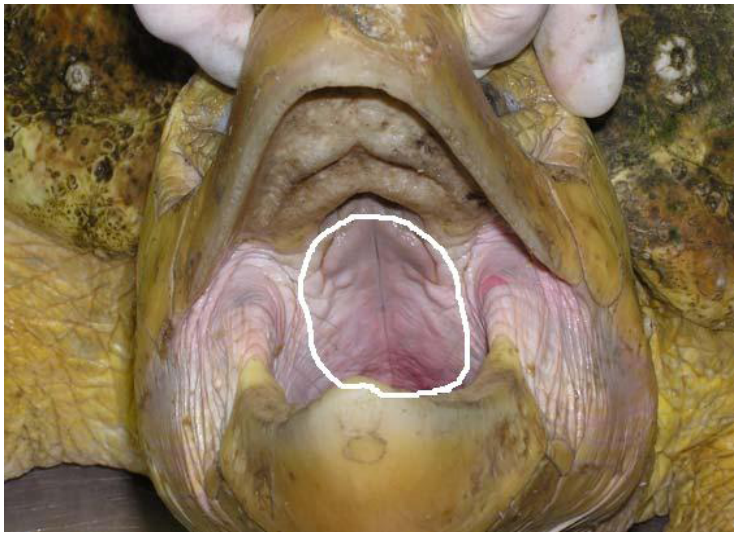


11. Lower beak

12. Side of mouth



13. Tongue/glottis



15. Roof of mouth

Instructions For Reporting Sea Turtle Interactions

All sea turtle interactions should be reported within 1 hour after the turtle interaction. The report should be phoned in by calling (808) 366-2221 using your issued satellite phone. When reporting sea turtle interactions, include the following information:

- Trip number
- Set number
- Date of the interaction
- Species
- Disposition
- Position of the interaction
- Whether the turtle was hooked or entangled
- Severity of the hooking
- Number of hooks per float
- Float line length
- Hook number
- Number of lightsticks used on the set
- Total number of swordfish retained during the entire trip (including that set)
- Carapace length

For reporting the severity of the hooking, use the hooking categories on the Sea Turtle Biological Data form. Please include descriptive details about the hooking such as how the hook was removed or injuries to the turtle.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Sea Turtle Biological Data Form

Species Code

504 Loggerhead Sea Turtle
502 Green Sea Turtle
506 Leatherback Sea Turtle
503 Hawksbill Sea Turtle
505 Olive Ridley Sea Turtle
500 Unid. Hard Shell Sea Turtle
501 Unidentified Sea Turtle

Photo? ☐ ✓
Specimen? ☐ ✓
Sketch? ☐ ✓
Tag? ☐ ✓
Comment? ☐ ✓ (Enter comments on back of this form.)

Catch Form Page No.

Catch Form Line No.

Capture

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

☐ Boarded w/ Dipnet
☐ Boarded w/o Dipnet
☐ Not Boarded

Tags Present? ☐ (Y Yes, N No, U Unk.)

Release

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute | Disposition Code

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

Tags Removed? ☐ ✓

Tags Applied? ☐ ✓

01 Previously dead
02 Relsd. unharmed
03 Relsd. injured
04 Died
05 Escaped
06 Treated as catch
07 Other/Unknown

Hooking/Entanglement

Hooked ? ☐ (Y Yes, N No, U Unknown)

Entangled ? ☐

Hook Location ☐☐

Entangle Location ☐☐

01 Ingested (in esophagus)
03 Front Flipper
04 Body/Shell
05 Unknown
06 Tail
07 Rear Flipper
20 Other
10 Upper beak
11 Lower beak
12 Side of mouth
13 Tongue/Glottis
14 Head/Neck
15 Roof of mouth
16 Mouth unknown

Gear Removal ☐☐

00 Unknown
02 Fell from gear while in water.
03 Fell from gear once out of water.
04 Fell from gear by force of roller.
05 Removal req. cutting gear/animal
06 Removal with no cutting.
12 Dehooker
99 Other

Remaining Gear ☐ (X None, H Hook, L Line, B Both Hook and Line)

Describe hook or line and length left on animal:

Morphology

Skin Covered Carapace? ☐
(N implies carapace is covered w/ scutes.)

Overlapping Scutes? ☐

Inframarginal scutes with pores? ☐

One pair of prefrontal scales? ☐
(N implies more than one pair.)

(Y Yes, N No, U Unknown)

Carapace Scute Counts

(Enter the no. of scutes in the boxes.)

No. of Left Lateral Scutes ☐

No. of Right Lateral Scutes ☐

No. of Vertebral Scutes ☐

No. of Inframarginal Scutes ☐

Dorsal Coloration (0 _)

01 Orange/Red
02 Grayish
03 Other, give color below

Other dorsal color:

Measurements

Round to the nearest half cm.

Carapace Length (curved) _ _ _ . _ cm

Carapace Width (curved) _ _ _ . _ cm

Plastron Length (straight) _ _ _ . _ cm

Tail Length _ _ _ . _ cm

Carapace Length (straight) _ _ _ . _ cm

Carapace Width (straight) _ _ _ . _ cm

Light Device

Complete only if light devices were used and the light device type has been indicated on the gear configuration form.

Color Code ☐☐

01 Blue
02 Green
03 Black
04 Pink
05 White
06 Yellow
07 Magenta
08 Mixed
09 Other
10 Clear
11 Red
12 Orange
13 Silver/Metal

Proximity Code (0 _)

00 On this branch line
01 Light is 1 branch line away
02 Light is 2 branch lines away
03 Light is 3 branch lines away
04 None in vicinity

form v. TR.10.01

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form

Trip No.

Page No.

Catch Form Page No.

Catch Form Line No.

Sea Turtle Biological Data Form Comments

Comments:

Injuries Description:

Identifying Characteristics:

Chapter 11 Seabird Biological Data Form

Introduction

The Seabird Biological Data form is used for recording data from seabirds incidentally caught during longline fishing operations. These data will be used to determine the number, species, and condition of seabirds interacting with the longline fishery in the Central Pacific. These data are critical to the development of conservation and recovery strategies.

Remember:
Specimen collection and life history work are prioritized so if an activity must be curtailed, the most important data and specimens have the highest collection priority.

The priorities of data and sample collection are as follows:

1. Record sea turtle identifying characteristics, morphometric measurements, and tag data. Retain dead sea turtles after processing.

2. Record marine mammal interactions and collect samples.

3. Record seabird identifying characteristics and tag data. Retain all dead seabirds if they have a band (leave leg bands in place on bird) or if it is a dead short-tailed albatross. If it is a dead bird without bands refer to current collection protocols in your Circular Updates.

4. Collect and record fish measurements.

General Instructions

Complete a Seabird Biological Data form for every seabird observed caught (including entangled individuals) and brought aboard. If a seabird is observed caught, but is not landed, complete as much of the form as possible. For unlanded seabirds you should complete at a minimum the following data elements: (1) header information on the form; (2) capture information block; (3) release information block. If you are not sure of what to record in any element, leave the data field blank and describe the situation with notes. **Take photographs of all seabirds that are caught.**

Data Elements

Observer ID: In the upper left hand corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip No.: The unique 6-digit number assigned by the Operations Coordinator. In the first two blocks, record LL for longline. After the second block, enter the 4-digit sequential number.

Set No.: Record the set number from the Catch Event Log form.

Species Code: Record in the code box the 3-letter code from the Species Code List which corresponds to the species of seabird.

Check Boxes: Place a check mark or X in the boxes for each type of additional documentation or information (**Photo? Specimen? Sketch? Tag?**) that was collected from this species.

Catch Form Page No: Record the page number from the appropriate Catch Event Log form.

Catch Form Line No: Record the line number from the Catch Event Log form that contains information on the capture of this particular seabird.

Capture Block

Date/Time: Record the date the bird was landed, using the DDMMMYYYY format (Ex: 19 NOV 2007); record the time the bird was landed, using the 24-hour format.

Latitude: Record the degrees and minutes of latitude of the vessel at the time of the animal was landed. Record **N/S** in the last blank to indicate which hemisphere.

Longitude: Record the degrees and minutes of longitude of the vessel at the time the animal was landed. Record **E/W** in the last blank to indicate which hemisphere.

Landed: Place a check mark or X in the box to indicate whether or not the bird was landed. Landed means the seabird was brought onboard the vessel. Leaving this box blank means that the bird was not brought onboard the vessel. Describe the landing of the animal in the Comments section.

Tags Present? Enter Y, N, or U, as appropriate, in this box. Write tag number(s) in Comments section, and fill out a Tag Event Log form.

Release Block

Date/Time: Record the date the bird was released, using the DDMMMYYYY format (Ex: 19 NOV 2007); record the time the bird was released, using the 24-hour format.

Latitude: Record the position of release in degrees and minutes of latitude of the vessel at the time the animal was released. Record N or S in the last blank to indicate which hemisphere.

Longitude: Record the position of release degrees and minutes of longitude of the vessel at the time the animal was released. Record E or W in the last blank to indicate which hemisphere.

Note: Sometimes an animal may be observed caught and then quickly released from the gear during the hauling operations. In such cases, the position of capture and position of release can be the same. Make sure that the time of capture and time of release are different.

Disposition Code:
Record the code corresponding to the fate of the bird. In the Comments section, record specific notes about any injury to the bird. If the initial condition of the bird changes, then the final condition should be recorded. Record detailed notes of the change.

Previously Dead [01]: The bird was already dead when it was captured/taken. This does not include seabirds that appear to have died as a result of the fishing operations.

Note: A previously-dead seabird may have rotten tissue around the eyes and vents, and it may be bloated and foul smelling. It also may have sloughing skin and feathers.

Released Unharmed [02]: You observed the bird released to the sea alive and uninjured. This would apply to entangled seabirds that escape from the gear before landing.

Released Injured [03]: The bird was released injured as a result of fishing operations, or by vessel personnel. "Injured" is an animal removed from the gear with obvious physical injury or with gear attached. A seabird that is hooked is considered injured. A seabird that was entangled and landed should be considered injured.

Died [04]: The bird died due to injuries incurred during fishing operations.

Escaped [05]: You observed the bird leaving the gear or deck unaided after capture or entanglement, with no apparent injuries.

Treated as Catch [06]: The bird was not previously dead and was sacrificed for market, table, or other use.

Other/Unknown [07]: The final fate of the bird involved in the set is unknown or its condition after leaving the gear or deck was unobserved.

Hooking/Entanglement Block

Hooked? Entangled? Answer Y, N, or U for each element. Each box should be filled in independently of each other. A single bird will have two Y answers if it was both hooked and entangled.

Hook Location: Select the code that indicates which part of the bird was hooked. Photograph the hooked area if possible, and describe in the Comments section on the back of the form.

Entangle Location: Select the code that indicates which part of the bird was entangled. Photograph the entangled area if possible, and describe in the Comments section on the back of the form.

How Gear Removed: Choose the code that best indicates how the animal and gear were separated from each other the longline gear.

Remaining Gear: Select the letter code indicating what type of fishing gear, if any, was not removed from the bird. In the box below, describe what the type and amount (length) of gear was left on the bird. If the bird is dead, photograph the remaining gear attached to the bird before wrapping it up for storage.

Morphology Block

Bill Color, **Mantle Color**, and **Head Color:** Enter the appropriate code for each of these items.

Check Box: If the tip of the bill is a different color than the rest of the bill, write an X or check mark in the box.

Light Device Block

Complete these elements only if light devices were used on this set, and the device type has been indicated on the gear configuration form.

Color: Record the code that best indicates the color of the light emitted by the device. Code 08 **(**Mixed) is not a valid choice for this element.

Proximity: Select the code that shows how far away the light device is from the branchline the bird was on.

Comments Block

Comments: Describe the entire event from the time the bird was sighted until it was released or until you determined that it was dead. Make sure to include details on how the bird was brought on board the boat if it was landed and how it was cared for once on deck. Describe any problems encountered with any procedures and any assistance that you required.

Injuries Description: Describe any injuries caused by the bird being hooked or entangled or further injuries caused by trying to remove the hook. Describe whether or not the line/wire leader left any marks on the bird. Note whether or not there was any blood at the point of hooking or entanglement.

Identifying Characteristics: List at least 3 identifying characteristics of the bird captured.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Seabird Biological Data Form

Trip No.

Set No.

Species Code

Most common species:

682 Laysan Albatross
681 Black-Footed Albatross

Photo? ☐ ✓
Specimen? ☐ ✓
Sketch? ☐ ✓
Tag? ☐ ✓
Comment? ☐ ✓ (Enter comments on back of this form.)

Catch Form Page No.

Catch Form Line No.

Capture

Date/Time: Day | Month | Year (2 0) | Hour | Minute

Latitude: Deg. | Decimal Min. | N/S

Landed ? ☐ ✓

Longitude: Deg. | Decimal Min. | E/W

Tags Present?

Y Yes
N No
U Unk.

Release

Date/Time: Day | Month | Year (2 0) | Hour | Minute | Disposition (0)

Latitude: Deg. | Decimal Min. | N/S

Longitude: Deg. | Decimal Min. | E/W

01 Previously dead
02 Relsd. unharmed
03 Relsd. injured
04 Died
05 Escaped
06 Treated as catch
07 Other/Unknown

Hooking/Entanglement

Hooked ?

Y Yes
N No
U Unknown

Entangled ?

Hook Location (0)

Entangle Location (0)

01 Ingested (in esophagus)
02 Head/Beak
03 Wing
04 Body
05 Unknown
06 Tail
07 Leg/Foot

How Gear Removed

00 Unknown
02 Fell from gear, while in water
03 Fell from gear, once out of water
04 Fell from gear, by force of roller
05 Removal req. cutting gear/animal
06 Removal with no cutting
99 Other
12 Dehooker

Remaining Gear

X None
H Hook
L Line
B Both Hook and Line

Describe hook or line and length left on animal:

Morphology

Bill Color (0)

01 Dark gray-black
02 Buff-cream/pink-gray
03 Bright pink

Mantle Color (0)

01 Dark gray-black
02 Solid brown
03 White/light back

Head Color (0)

01 Dark gray
02 White with dark lores
03 White

Tip of bill is a different color from the rest of the bill. ☐ ✓

Light Device

Complete only if light devices were used and the light device type has been indicated on the gear configuration form.

Color

01 Blue
02 Green
03 Black
04 Pink
05 White
06 Yellow
07 Magenta
08 Mixed
09 Other
10 Clear
11 Red
12 Orange
13 Silver/Metal

Proximity (0)

00 On this branch line
01 Light is 1 branch line away
02 Light is 2 branch lines away
03 Light is 3 branch lines away
04 None in vicinity

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form

Trip No.

Page No.

Catch Form Page No.

Catch Form Line No.

Seabird Biological Data Form Comments

Comments:

Injuries Description:

Identifying Characteristics:

Chapter 12 Marine Mammal Biological Data Form

Introduction
The Marine Mammal Biological Data Form is used to record the biological data from any cetaceans (whales & dolphins) and pinnipeds (seals) incidentally caught during fishing operations. The information obtained is used to develop baseline data on marine mammal species, for which little information is otherwise available. These data together with mortality and population abundance data can be used to ascertain whether changes in population abundance are due to fishing activities in the Pacific. The data can also be used to estimate age at sexual maturity, birth rates, feeding habits, life span, and sex ratios.

General Instructions
Complete a Marine Mammal Biological Data Form for every marine mammal interaction (hooked or entangled individuals). If a marine mammal is observed caught, but it is not landed, complete as much of the form as possible. A sketch form is required to accompany all Biological Data Forms.

This marine mammal biological data is designed for capturing as much pertinent data as possible in the fields, but comments that augment requested information are required and very useful.

Sketch the features you saw and used to identify the animal on the Sketch form.

Data Elements

Observer ID - In the upper left corner of the form, fill in the spaces with the Observer ID number assigned to you during training.

Trip Number - The unique six-digit number assigned to you by the Operations Coordinator. In the first two blocks, record LL for longline. After the second block, enter the four digit sequential number.

Set Number - Record the set number from the Catch Event Log, if applicable.

Associated Form Code - Record the appropriate two letter form code from the bottom right corner of the form. For example, the Catch Log form code is CL.

Associated Form Page Number - Record the page number from the associated form.

Associated Form Line Number - Record the line number from the associated form that contains information on the interaction or capture of this particular marine mammal.

Capture Information Block

Date of Capture - The date the marine mammal came up. Use the standard date format (e.g. 24 JUL 2009).

Time of Capture - Record the time the marine mammal came up. Use the 24-hour format.

Position of Capture – If the position of capture is not able to be recorded when the interaction occurs, please comment when the coordinates were recorded

Latitude - Record the degrees and minutes of latitude of the vessel at the time the interaction occurred. Record N/S in the last blank.

Longitude - Record the degrees and minutes of longitude of the vessel at the time the interaction occurred. Record E/W in the last blank.

Landed - Place a checkmark or X in the box to indicate that the marine mammal was landed. Landed means the animal was brought on board the vessel. Leave blank if the animal was not landed. Describe the landing of the animal in the Comments section.

Species Code - Record the appropriate two letter code from the species code list of the marine mammal captured. If the species is not listed on the form, use the species code list in the manual.

Tags Present - Record a Y, N or U to indicate whether tags were present on the marine mammal at the time of capture.

Release Condition - Record the code corresponding to the fate of the marine mammal. In the Injuries Description section on the back, record specific notes about any damage to the marine mammal. Describe the behavior of the animal when it was released. If part or the whole animal is retained as a specimen, record what the condition would have been had the crew released it.

Note: If the initial condition of the marine mammal changes, then the final condition should be recorded and record complete notes of the change.

* Sometimes an animal may be observed caught and then quickly released from the gear during hauling operations. In such cases, the positions of Capture and Release can be the same. Just make sure the times of Capture and Release are different if noted in the comments.

Release Code List

Injured [03] - The marine mammal was injured as a result of fishing operations, or by vessel personnel. "Injured" applies to animals removed from the gear with physical injury or with gear attached. Marine mammals that are hooked and/or entangled are at least considered injured.

Dead [04] - The marine mammal died due to injuries incurred during fishing operations.

Unknown [07] - The final fate of the marine mammal was not observed. Explain in detail in the comments section why this was not observed.

Photo, Specimen and Sketch check boxes - Place a check mark or X in the box to indicate which additional log forms contains data associated with this marine mammal. If you mark a log form box, make sure to complete the information on the indicated log. If you catch a marine mammal at the very minimum you should have a sketch and as many comments as possible. Sketch the features you saw and used to identify this animal on the Sketch Log. Also, try and sketch how any gear was attached to the animal. This can be very helpful in later injury determinations.

Hooking / Entanglement Block

Hook Type Code - Choose the appropriate code for the hook type involved in the interaction if known. For entanglements, use the nearest, or predominate hook type (whichever is most appropriate).

Hook Size Code - Record the appropriate code for the hook size involved in the interaction if known. For entanglements, use the nearest, or predominate hook type (whichever is most appropriate).

Hooked/Entangled - Answer each question with a Y and/or N. A marine mammal can be both hooked and entangled.

Hook/Entanglement Location - Identify how and where the gear is attached to the animal and check all location boxes that apply. If you answer U for both Hook and Entangled then do not check any location boxes. Photograph the hook and/or entangled area if possible, and describe the details in the Comments section. If you check Other, describe the location on the back of the form.

Gear Block

Gear Attached After Release - Check all the boxes that apply among the choices. If you check branch line, determine the number of attached branch lines and estimate the total length (in feet or meters) of material attached in the comments. If you check main line or float line, estimate the total length of main line or float line (in feet or meters) material attached in the comments. Describe the configuration of how gear was attached in the comments (e.g. main line wrapped around tail 3-4 times then trailing for an additional 3 meters). Additionally list all the codes checked in the box at the bottom of this section. Leave this blank for retained animals.

Measurements Block

Total Length - If the marine mammal is landed, use your calipers to measure the total length of the animal in cm. For cetaceans, this is done by measuring the distance from the tip of the snout to the deepest part of the notch in the flluke (this is considered fork length in fish).

Approximate Length - If measurement cannot be obtained record the approximate total length of the marine mammal in either feet or meters and record the code of the measurement unit used in the appropriate box.

Capture Behavior Block

If the animal is alive, check the appropriate boxes that describe the behavior of the animal during capture. Describe significant events such as changes in behavior in as much detail as possible.

Form Comments

Comments - Describe in as much detail as possible how you handle and release the animal, all tag information; tag type, number, address, color, and location on the animal. Also record any other facts that you think are important. Comments can always be deleted later. Do not omit any information you think may be unnecessary.

Gear Comments - Describe in detail any boxes you checked on the front of the form. Also, describe how and where any gear was attached to the animal when it was released.

Injuries Description - Describe where exactly the hook was located on the animal if the animal was hooked. For example, "…I could just see the eye of the hook protruding at the corner of the right side of the mouth. I could see the welded ring of the tuna hook, so I know it was not one of the circle hooks the boat was using also." Describe where and how any line was entangling the animal when it was captured. How many wraps of line around what part of the animal? Describe any injuries that were sustained during the handling and release of the animal. Also, note any evidence of bleeding from the animal.

Identifying Characteristics - List all the diagnostic characteristics you used to identify the animal in this section.

Cetacean Skin Biopsy Collection Protocol

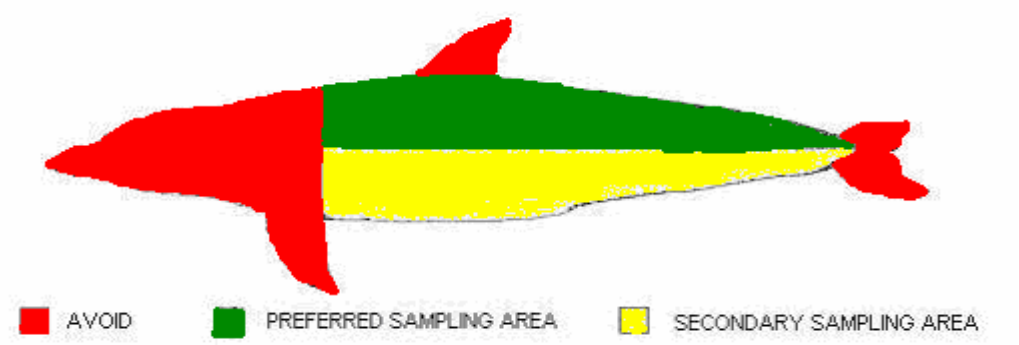
Equipment for your sampling kit are:
1 - stainless steel coring tips (to be mounted on the pole)
2 - plastic vials, some containing a preservative solution.
3 - sample labels
4 - strips of Parafilm®
5 - Sharpie® permanent marker
6 - pencil

Preservative - The preservative in the vials may contain dimethyl sulfoxide (DMSO). If so, avoid getting DMSO on your skin as it is readily absorbed across the skin membrane.

Methods - When an entangled or hooked marine mammal comes up, work with the crew of the vessel to safely get the animal close enough to obtain a biopsy sample. If the animal is agitated and vigorously swimming around, it may be difficult to get the animal within range for sample collection. *If there is a significant risk of injury to the crew, the animal, or yourself, do not attempt to collect the sample.* This is especially true in the case of larger whales. **Use your best judgement and remember, while each sample is valuable to researchers, SAFETY COMES FIRST ALWAYS! Wear gloves to prevent transmission of disease, and infection.**

Use your best judgement as to when during the disentanglement/dehooking process to take your sample. For example, you may have ample opportunity to gather a sample from a dead or seriously entangled animal. However, an animal that is just hooked may be very lively, and your opportunities will be limited. You should keep your sampling equipment readily available to you. Make sure that your sampling pole is not tied down during fishing operations and can be retrieved at a moment's notice. Keep your Marine Mammal Sampling Kit on deck with you, preferably in your bucket.

Sample Collection - Attach the stainless steel coring tip to your sampling pole. Thrust the coring tip into the dorsal surface of the animal *away from the blow hole* to collect a skin sample. If the marine mammal is dead, it is okay to use a gaff to maneuver the animal into position to get the sample. If the animal is very large, you can take the sample from the back, side, belly, or tail stock. Skin samples for genetic analyses can be collected from anywhere on the body of the cetacean. *Avoid trying to sample from the dorsal fin, pectoral flippers, or flukes.* These regions are hard and it is difficult to cut the skin. The following diagram illustrates the best areas to collect your sample from and what areas to avoid.



Once you have collected the tissue sample, unscrew the tip from the pole, use the forceps and toothpicks to remove the sample, and place the sample in the vial containing the preservative/ fixative solution.

Sample preservation - If a freezer is available, place the sample in an empty vial and proceed with steps 1, 2, and 4 below. If a freezer is not available, or the freezer on board fails, put the collected sample in one of the vials containing preservative/fixative and follow steps 1 through 4 below.

Labeling the sample:

1 - On the sample labels (i.e., small pieces of bond paper), use a **pencil** to record the specimen number, species, and date collected. Insert the label into the vial with the sample.

2 - Label each vial (cap and side of the vial) with the specimen number and species name using the enclosed Sharpie® permanent marker.

3 - Tighten the cap securely, and wrap a strip of Parafilm® around the cap and the top of the vial. Stretch the Parafilm® as you wrap. This will prevent leaking of the sample while in transport.

4 - Complete a Marine Mammal Biological Data form with your specimen number, species identification (detail characteristics used to make the ID), date collected, and position information. A sketch and photo showing the entanglement and any obvious wounds would be very useful.

Guidelines for Disentangling Cetaceans from Longline Fishing Gear

Caution: These instructions are provided to give guidance to observers encountering entangled marine mammals at sea, far from support or aid of outside personnel. Marine mammal disentanglement is a dangerous business and should be undertaken only with the utmost regard to personal safety and that of the crew. If it can't be done safely, don't do it!

Should an incident become difficult or dangerous to yourself or other vessel crew after initial attempts, DO NOT attempt any further disentanglement efforts, especially when dealing with active, struggling animals. As quickly as you can; document the incident as fully as you are able, collect a skin biopsy, take photos, and cut as much of the gear off the animal as possible. Even animals which appear dead or nearly so can suddenly sound (dive) or attempt to swim off, putting great stress on any entangling lines or gear. Even if you were unable to remove all of the fishing gear from the animal, the information and or samples you collect will do more good for the species than risking life or limb to save the individual animal.

NEVER ENTER THE WATER IN AN ATTEMPT TO DISENTANGLE THE ANIMAL!!!

Nine Steps to Take When Disentangling Cetaceans From Longline Gear

1 - Ask the crew to assist you by standing by with two gaff poles.

2 - Proceed cautiously and smoothly. Have the captain stop the vessel within close range and gently bring the animal alongside the vessel.

3 - If there is a tangle, gaff the other side of the mainline and attach it to the vessel or float. This is to isolate the vessel and the marine mammal from any tension on the remaining gear in the water. This may be a good time to take a sample. If possible, take a photo of the animal showing the entangling gear.

4 - *Do not attempt to bring a live marine mammal on board the vessel*. You may cause serious injury to the animal.

5 - Work the tangle off the marine mammal as smoothly and quickly as possible. If the animal is alive, it is important to start unwrapping or cutting the anterior (towards the head) lines first. If the vessel has a line cutting device aboard (e.g., Arceneaux line cutter or NOAA/LaForce line cutter), use it to cut the lines. **AVOID** becoming entangled in bundles or loops of line attached to the live animal. The animal may suddenly dive, and cause you **SERIOUS INJURY OR DEATH** by snagging clothing, a hand, a finger, or other limb.

6 - Avoid abrupt actions that may panic the animal.

7- When a hook is involved, if possible cut off the barb with long-handled bolt cutters and remove the hook. This may be impossible to do safely on live animals in the water.

8 - If hook removal is impossible, cut the line as close to the eye of the hook as possible.

9 - Remove as much line from the animal as you can. If you can't remove all the line, make sure to describe on the Marine Mammal Biological Data form what, how much, and where the remaining line is on the animal. If possible, take several photographs showing the entangled area and the remaining gear.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program
Marine Mammal Biological Data Form

Trip No.

Set No.

Capture

Date/Time: Day | Month | Year (2 0 _ _) | Hour | Minute

Latitude: Deg. | Decimal Min. (. _ _) | N/S

Longitude: Deg. | Decimal Min. (. _ _) | E/W

Species Code

742	False Killer Whale
746	Risso's Dolphin
743	Short-Finned Pilot Whale
731	Bottlenose Dolphin
700	Unidentified Cetacean

Associated Form Code

Associated Form Page No.

Associated Form Line No.

Landed? ☐ ✓

Tags Present? ☐

Y= Yes
N= No
U= Unknown

Release Condition

03	Injured
04	Dead
07	Unknown

Photo? ☐ ✓

Specimen? ☐ ✓

Sketch? ☐ ✓

Hooking/Entanglement

Hook Type

01	Tuna	05	Circle
02	J-Hook	06	Other
03	Offset Tuna	07	Offset Circle
04	Offset J-hook		

Hook Size

Hooked? ☐ Y N

Entangled? ☐ Y N

Location (check all that apply)		Code	Location (check all that apply)	
Mouth	☐	MO	Mouth	☐
Head	☐	HD	Head	☐
Body	☐	BO	Body	☐
Pectoral Fin	☐	PF	Pectoral Fin	☐
Dorsal Fin	☐	DF	Dorsal Fin	☐
Fluke	☐	FK	Fluke	☐
Internal/Ingested	☐	IN	Internal/Ingested	☐
Unknown	☐	UK	Unknown	☐
Other (describe on back)	☐	OT	Other (describe on back)	☐

Gear

Gear Attached After Release

Code			
NO	None	☐	
HK	Hook	☐	
WL	Wire leader	☐	If ✓'d, provide length.
WT	Weight	☐	If ✓'d, provide size & numbers.
BL	Branch line	☐	If ✓'d, provide numbers & lengths.
FO	Float line	☐	If ✓'d, provide numbers & lengths.
FT	Floats	☐	If ✓'d, provide numbers.
ML	Main line	☐	If ✓'d, provide length.
OT	Other	☐	If ✓'d, provide description.

Provide requested details about anything ✓'d above on reverse side under Gear Comments.

Measurements

Total Length ☐☐☐ cm

OR

Approximate Length ☐☐

☐ F= feet M= meters

Capture Behavior

		Code
☐	**Struggling?**	SR
☐	**Calm?**	CA
☐	**Vocalizing?**	VO

115

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Marine Mammal Biological Data Form Comments

Comments:

Gear Comments: (Please describe in detail anything ✓ 'd on front, & how/where remaining gear was attached upon release)

Injuries Description: (Where exactly is hook? Where/how are lines constricting? Additional injuries sustained during handling/release? Bleeding?

Identifying Characteristics:

Chapter 13 Specimen Log

Introduction

The Specimen Log is a record of all species and samples collected by an observer during a cruise. Fill out as many forms as needed. Refer to current Circular Updates to see required specimens other than protected species. The header of the form contains the Observer ID number, Trip number, and Trip Specimen Log page number. Photograph all sampled animals.

Data Elements

Date - Enter the date the specimen was collected. This is usually the same as the set haul back date. Use the DD MMM YYYY format.

This Page Number - Use the page number that appears at the top of this form, starting with 01 for Specimen Log form 1, 02 for Specimen Log form 2, etc.

This Line Number - The line number is pre-filled. Use a new line for every new specimen type that is collected. For example, if you collect a whole carcass and DNA biopsies from the same animal, one line would contain information with the whole animal and the next line would contain the information with the biopsies as the specimen type.

Set Number - Enter a 2-digit number indicating the set that the specimen was collected from. If a specimen was collected while the vessel was not engaged in fishing operations, leave blank and describe the situation with notes.

Association (Form Type, Page Number, Line Number) - Form Type is pre-filled with the code CL for Catch Log that contains the data on the animal from which the specimen was collected. Add the page and line number that corresponds to the sampled animal.

Specimen Type Code - Refer to the code chart on the left margin of the form. Enter the single-letter code (W, O, G, R, F, D, or Z) that indicates the type of specimen that was collected. Each specimen type should be recorded on it's own line, even if they are collected from the same animal.

Specimen Type Name - The full name of this specimen type. For example, for Specimen Type Code D , write *DNA plug* in this box. Do not write the species name of the specimen you collected. Each specimen type should be recorded on it's own line, even if they are collected from the same animal.

Species Name or Code and Comments - Include either the Species English common name or code of the organism from which the sample(s) were collected (e.g., CC or loggerhead sea turtle, *Caretta caretta*), and general comments about this specimen. Comments may be continued on the back of the form if necessary.

Collection Purpose - Explain the reason the specimen was collected. The two most common reasons are research request and ID confirmation. If there is an unusual reason for collecting the specimen, explain with notes in the Comments section of the form.

Specimen Delivered To... - Observers do not fill this field in.

Specimen Numbering System

Each sample or specimen collected by an observer will have a unique 12 character specimen ID number assigned to it. The specimen ID number is composed (in order) of the Trip Number, Set Number, Catch Log Form Page Number, and Catch Log Form Line Number, *combined*. Label each sample and record the information on the Specimen Log form. Use leading zeros! Always double check each specimen label with the Specimen Log to ensure they match.

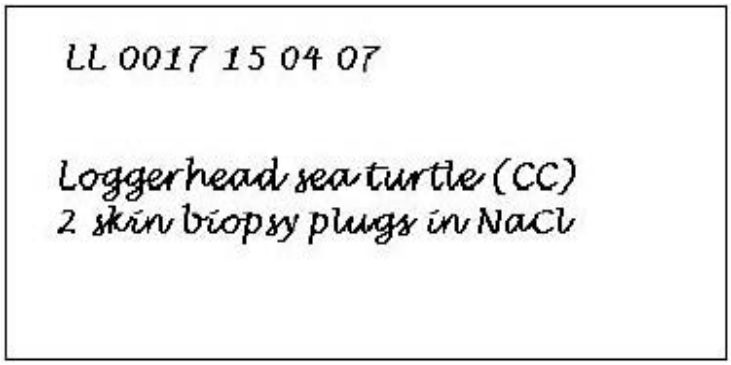
When filling out a specimen tag, always include the following:

- Specimen number
- Species common English name
- Species code
- In what type of fixative/preservative the sample was stored (Frozen, ethanol, etc.)

Specimens collected in vials must include separate sample labels INSIDE as well as labeling outside the vial. The labels inserted in the vials must be written in pencil because ink and marker are soluble in the preservatives we use and will not be permanent! Make sure that ALL specimens are double labeled to avoid situations where the specimen is unidentified and has to be discarded!

Example Specimen Tags

1. Loggerhead sea turtle on Trip LL0017. Set 15, Catch Event Log page 04, line 07.
The specimen number for Example 1 is LL0017 15 04 07



2. Shortfin mako shark on Trip LL7745. Set 03, Catch Event Log page 02, line 13.
The specimen number for Example 2 is LL7745 03 02 13

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Specimen Log Page No.

Specimen Log

Date dd/mmm/yyyy	This Page No.	This Line No.	Set Number	Association: Form Type	Association: Page No.	Association: Line No.	Specimen Type Code	Specimen Type Name	Species Name or Code and Comments	Collection Purpose	Specimen Delivered To...
		1		CL							
		2		CL							
		3		CL							
		4		CL							
		5		CL							
		6		CL							
		7		CL							
		8		CL							
		9		CL							
		10		CL							
		11		CL							
		12		CL							
		13		CL							
		14		CL							
		15		CL							
		16		CL							
		17		CL							
		18		CL							
		19		CL							
		20		CL							

Specimen Type Code and Name

W Whole Animal
O Otolith
G Gonad
R Ray
F Full Stomach
D DNA plug
Z Other

form v. SP.08.05

Specimen Log Comments

Line	Comments Precede each comment with the appropriate line number. Use as many lines as needed.

Chapter 14 Tag Event Log

The Tag Event form is a record of data on every tag recovered or deployed during a trip for all species. The recovery of tagged animals is rare; thus, the information from a recovery is very important to researchers and resource managers in several agencies.

Fill out the header information with the appropriate data. *Fill out a separate form for each tag*.

Tag Event Block

Species Code - Enter the tagged species' 2-letter or 3-digit species code from the Species Code List (Chapter 20).

Tag Event Type - Select AP for Tag Applied, RC for Tag Recaptured, or RM for Tag Removed*.

*Describe the reason for removal in the Comments section of the form. Note: Only remove tags from animals if they are in danger of falling off or are unreadable.

1 - If a sea turtle is captured and it already has flipper tags on the front flippers, leave them in place. *Fill out a Tag Event form for each tag recovered, and another one for each of the tags that you place on the flippers.*

2 - If a banded, dead albatross is encountered and it is salvaged (brought on board and saved) during longline fishing operations, leave the bands in place on the bird's legs.

Tag Number - Fill in the boxes with the ID numbers/code on the tag. *Make sure the sequence matches what is on the tag*. Include all zeros! Different tags may have different mixes of letters and numbers; for example, E-770 is not the same as 770-E. Include all zeros!

Tag Type - Select the code from the reference table that indicates the type of tag encountered (01 Spaghetti, 02 Archival, 03 Leg band, 04 Flipper, 05 PSAT). If you are unsure of the type of tag, draw a picture and take a photograph of the tag against a white or neutral-colored background.

Tag Location - Select the code for where the tag was attached to the animal's body.

Tag Material - Enter the code for the material the tag is constructed of: plastic (01) or metal (02). Metal (Inconel) is commonly used for sea turtle flipper tags. Some tags routinely placed on fish or sharks are made of wire with a plastic sheath; consider these tags as made of plastic.

Tag Color - Select the code for the color of the tag. If the tag looks faded, record the color of the tag as it appears *now*, not what you think it may have been. Many tagging programs maintain a set of originals and a set that has been exposed to the environment. A tag that was originally red can fade to a pinkish color, but not be the same color "pink" as a tag that was originally pink.

Comments - Describe any details not covered by the other data fields. Tag condition, the tag site, condition of the animal, or anything else related could be very useful. If another tag is applied to this animal, list that tag number and location here.

Tag Contact Information - Write any address, phone number, or other contact information here. If the tag is lost or returned to sea on an animal that is still alive, the tag contact information is vital. If there is no contact information present on the tag, it would be a good idea to note that in this section also.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Set No.

Catch Form Page No.

Catch Form Line No.

Date/Time Day Month Year 2 0

Tag Event

Comments:

Species Code

Tag Event Type

AP Tag Applied
RC Tag Recaptured
RM Tag Removed

Tag Number

Tag Type 0

01 Spaghetti
02 Archival
03 Leg band
04 Flipper
05 PSAT

Tag Location 0

Turtles:
01 Front Left Flipper
02 Front Right Flipper
03 Rear Left Flipper
04 Rear Right Flipper
Birds:
05 Left Leg
06 Right Leg
Fish:
07 Left dorsum
08 Right dorsum
09 Left belly
10 Right belly
11 Other

Tag Material 0

01 Plastic
02 Metal

Tag Color

01 Blue
02 Green
03 Black
04 Pink
05 White
06 Yellow
07 Magenta
08 Mixed
09 Other
10 Clear
11 Red
12 Orange
13 Silver/Metal

Tag Contact Information:

123

form v. TG.07.03

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form

Trip No.
Set No.
Catch Form Page No.
Catch Form Line No.

Tag Event Comments

Comments (cont. from the front of this form)	Tag Contact Information (cont. from the front of this form)

Chapter 15 Photographs and Photo Log

Photographs

Cameras are to be used for pictures of sea turtles, birds, fish, and marine mammals. Compose photographs so that the vessel identity and crew remain anonymous. Photograph all incidentally-caught sea turtles, birds, and marine mammals, as well as all unidentified items (i.e., animals, injuries, gear, etc.). Photograph specimens on deck or at close range when they are out of the water, avoiding direct mid-day sun. Photograph the *left side* of fishes. When taking a photograph with the sun behind you, make sure to frame it so that shadows don't fall across the subject. When using flash or at night, patting the specimen dry first may improve picture quality, as water can create additional shine that can reduce the photo's quality.

For sea turtles, it is useful to place a label near the subject to help identify it. Include the specimen number and species name in large block letters on a piece of paper; if this is impossible then immediately preceding that photograph compose a picture that contains the appropriate label only. Place the specimen and a meter stick or other object for scale against a plain contrasting background. Orient the camera perpendicular to the specimen to obtain a full side-view and fill the viewfinder with specimen, then take the picture. Use "Macro" setting to capture a close-up of specific ID characteristics (finlets, lateral lines, etc.). If the animal is too large to fit in one frame, take a shot of the head with the front of the body, and another of the rear half of the body.

For fast moving species like bow-riding mammals, photograph with the high-speed setting, and take video clips when needed. As a guideline, 20 seconds should be adequate video footage to identify members of a pod, but use your discretion, keeping in mind memory space. Do not delete photos, but should memory space become an issue, you may review your photos and delete poorly developed shots (such as flash whiteouts, and overly dark shots). Your camera is issued with a travel charger, and you should charge your battery nightly.

Digital Cameras

The care and maintenance of these cameras are your responsibility. Always keep the camera in the provided housing to protect it from the elements. An underwater camera housing should be rinsed with fresh water nightly and soaked (with the camera inside, which will provide weight so it will be submerged and not float) for 10-15 minutes at the completion of each trip. This is very important for the maintenance of the metal parts of the housing; they can rust quickly! Bring the camera in on your first day of debriefing; it's part of your data.

If you use the *single-use film camera* included in your camera bag to take pictures, please enter **AC** (for analog camera) in the Photo Caption/Short Description block *after* the description of the photo. This will help identify which lines go with what photos, especially if both the digital and single-use film cameras were used to take pictures on the same trip. Please enter **PR** (for personal camera) for pictures taken with a personal digital camera.

The Basics
Remove the battery from the camera and charge it! The light is red when charging, green when fully charged. Turn the camera on and make sure the shooting mode dial is set to the action setting, which looks like the running man symbol. The resolution should be set at M2, Superfine. Do this by pressing function button, arrow down to the bottom icon then press arrow right to M2, hit set button and arrow right again to Superfine icon (far left), and press set again.
Aim the camera, use zoom if needed, and lightly press the shutter button halfway to focus. Press the button all the way down. There will be a delay; do not move the camera until you see the picture on the display.

Continuous Shooting
Ideal for protected species sightings. Hit function, scroll down with the arrow button to the empty box, hit the set button. Scroll right using the arrow button to the "Multiple Box" icon without the H. Hit set. This provides 1.5 shots per second, whereas the Multiple Box icon with H shoots 2.0 shots per second. Press shutter button halfway to lock focus, then press completely down. Shooting will stop when shutter button is displayed.

Movie Mode
Ideal for marine mammal sightings. Change shooting mode dial to "Movie Camera" icon. Lower right hand corner displays the maximum recording time in seconds that are available on the memory card. Press shutter button all the way down once and a red circle appears in the upper right-hand corner. To end, press the shutter button once again. Videos get recorded on separate lines from photos (even of the same subject). *Keep in mind this option can use a lot of memory if you take several videos.*

The following subject views are helpful in identifying animals:

1. Left side view (showing dorsal fin if fish, shark, or marine mammal)
2. Dorsal view
3. Ventral view
4. Top of head, close-up (Macro setting)
5. Bottom of head, close-up (Macro setting)
6. Tail flukes, top and bottom
7. Any ID characteristics, close-up (Macro setting)

Avoid any oblique angled shots or direct head-on views. They may make interesting photos, but they are usually useless for identification purposes.

Insert an Object in the Photo Frame to Provide Scale
Use a yard/meter stick, tool (deck knife, ice shovel, butcher saw, etc.), measuring tape, or pencil/pen/coin for close-up shots. Line, lumber, or deck hoses are poor choices for providing scale because it is often hard to determine their dimensions from the picture. Check the photos box on the Catch Event Log form and make sure to record the subject on the Photo Log form.

In order to verify the identification of fish, *please take a photograph of each new species seen*. When possible, photograph juvenile (< 75 cm) tunas in addition to large adults.

Problematic Species to Identify
Please try to photograph the following species if you think you have encountered them. They may be rarely encountered in this fishery or are difficult to identify in the field.

Sharks: Common thresher, pelagic thresher, longfin mako, blacktip, cookie cutter, salmon, Galapagos, sandbar, silky, sand tiger (any species), megamouth, white, tiger, and hammerhead.

Rays: Mobula, manta, and any ray with a white ventral side.

Billfish: Black marlin, and any unidentified billfish.

Bony Fish: Scabbardfish, king-of-salmon, pompano dolphinfish, cutlassfish, shortnose lancetfish, ribbonfish, hammerjaw, bluefin tuna, longfin escolar, Roudi's escolar, and any unidentified fish or rare fish.

Special notes for photographing billfish (or other large or long fish)*: Take a photo of the head, from one side, showing the dorsal fin held erect. Take a photo of the caudal peduncle (tail stock) from one side, showing the insertion points of the second dorsal and second anal fins. Often, billfish are too large to fit in a single frame of a photo. Try to photograph the entire body of the fish by taking one shot of the front half and a second of the rear half of the body.*

Note: Personal photos are allowed if they do not identify the vessel or crew. Scientific pictures take priority over personal photos. Copies of personal photos will be made available upon request. You will have to supply your own CDs.

Data Elements

The Photo Log is a record of photos taken by an observer during the cruise. It is used to match the photos to the data during debriefing. All photos will be reviewed by the observers and debriefers together. A separate Photo Log form should be filled out for each trip. *One line should contain all the photos of a single subject.* State the number of pictures in the description.

Important: Fill out the Photo Log after each subject photographed. This can help avoid very time consuming corrections during debriefing. Videos and photos of the same subject get recorded on separate lines.

Enter the appropriate page header information (**Observer ID**, **Trip No.**, **This Photo Page No.**).

Date - Enter the date the photo was taken, DD MMM YYYY.

Set No. - Enter a 2-digit number indicating the set that the subject was captured on (e.g., 01 for Set 1).

Association (Form Type, Page No., Line No.):

Form Type - Enter the 2-letter code from the Form Types list on the left edge of the form; **Page No. and Line No. -** Enter the page and line number of the form that refers to the subject of the photo.

Camera Number - Enter your 4-digit longline trip number minus the LL. The camera number will always be the trip number, even for videos, disposable, and personal cameras. Ex: For trip LL4275 the camera number is 4275. THE CAMERA NUMBER IS NOT THE GEAR BAG NUMBER!

Frame Number - Leave the frame number blank; this will be filled in during debriefing.

Photo Caption/Short Description - Write a few key words, specimen ID number, or short sentence that briefly describes the photos (e.g., Roudi's escolar; Laysan albatross - bill-hooked; dolphinfish - CC damage); also note in parentheses how many photos were taken of the subject.

Long Description - On the back of the form is more space for each line if it is needed. Write the line number you are continuing in the left Line column, then continue as needed in the space provided.

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

This Photo Page No.

Photo Log

Form Types:

TS	Trip Spec
SH	Set/Haul
CL	Catch
PS	Prot.Sp.
BM	Bird Mitg
GC	Gear Cfg
TR	Turtle
SB	Bird
MM	Mammal

Page No.	Line No.	Date dd/mon/yyyy	Set No.	Association: Form Type	Association: Page No.	Association: Line No.	Camera No.	Frame No.	Photo Caption/Short Description (If an additional long description is required for a photo, use back of this form)

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form Trip No.

Page No.

Photo Descriptions

Line	(Precede each description with the appropriate line number. Use as many lines as needed.) **Long Description**

form v. PH.07.12.Back

Chapter 16 Sketch Form/Identification Forms

The Sketch Form is provided as a place for observers to draw sketches of animals for ID purposes, protected species interactions, gear configurations, and enforcement issues. *This form should not be confused with the Identification Forms.*

You need to complete a Sketch Form for **every** protected species that is hooked and/or entangled. Sea turtle, marine mammal, and Short-tailed albatross sighted must also be sketched on this form. Try to make your sketch before looking at species identification manuals. This may influence your memory of what you actually observed. Simply draw the characteristics you observe. Try to illustrate at least 5 ID characteristics. Be sure to include any attached gear, and draw scenes when appropriate e.g.: dolphins bow riding near the boat. **DO NOT trace animals from your species identification manuals; sketch what you observed!**

Sketch Form

Complete the boxes for **Observer ID, Trip No**., and **Date**.

Association Form Code: Use the 2-letter code for the associated form that the sketch pertains to.

Page Number and Line Number: Fill in the page number and line number of the form that contains the information the sketch pertains to.

Sketch Caption/Short Description: Write a short sentence or key words describing the subject of the sketch. Once scanned, this will be used as the title of the image. For example: yellowfin tuna - CC damage; MARPOL violation; false killer whale LL interaction, etc.

Long Description: Use this area to describe characteristics that you are trying to portray in your sketch. The description of the event does not go here; that needs to be completed on the back of your (sea turtle, seabird, or marine mammal) Biological Data form. The Long Description block continues on the back of the Sketch Form. Include remaining gear and damage to the animal in your description as well as in the sketch.

Identification Forms

The Identification Forms are provided to assist identification with detailed drawings for first time encounters of fish. The forms include: Miscellaneous Fish, Sharks, Billfish, and Tuna. These forms are to be filled out for the purposes of identification, and should be used to support details of species that are photographed. Each first time sighting of a fish species should be recorded on one of these forms. Once each species of billfish and tuna is completed, the forms will no longer be needed; however, you should always keep some Shark and Miscellaneous Fish forms on hand. Answer the pertinent form questions, and sketch the animal based on the animal you observed, not what is in an ID guide. The animal you see may have some unusual characteristic for it's species. Any fish sketched on these forms should also be photographed.

Observer ID

Date/Time Day Month Year 2 0

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

Trip No.

Assn. Form Code

Page No.

Line No.

Sketch

Sketch Caption/Short Description:

Long Description:

Observer ID

DOC/NOAA Fisheries
Pacific Islands Region
Longline Observer Program

From front of this form

Trip No.

Assn. Form Code

Page No.

Line No.

Sketch Description

Long Description (cont. from the front of this form)

form v. SK.07.03.Back

IDENTIFICATION FORM
Miscellaneous Fish

Observer # _____ Date _____

Trip # _____ Set # _____

Species common name _____ Species code _____

Describe the following characteristics:

Color(body & fins) and patterns:
Body Shape:
Dorsal fin & tail

Pelvic fins present? _____ Anal fins present? _____

Adipose fin present? _____ Photos taken? _____

Finlets present? _____ Number of finlets (dorsal/anal) ____/____

Sketch this fish. Indicate colors, patterns and ID characteristics. Draw the fish you see.

v.10.01

Chapter 17 Satellite Phones and Radio Reporting Instructions

Introduction

Satellite Phones (sat phones) are issued to all observers. These phones are to be used for **EMERGENCIES** or for **Work Related Duties Only.** Cases of unauthorized use (personal &/or frivolous) of Sat Phones will be investigated by the observer program and corrective and/or punitive measures may be taken. It is forbidden to remove the installed Sat phone SIM card and replace with a personal SIM card. Sat phones are the property of the United States Government and provided for WORK RELATED DUTIES ONLY or for emergencies. Sat phones may be used by observers to contact family and close relationships during emergencies.

Use the vessel's Single Sideband Radio (SSB) in the event of Sat Phone failure and follow SSB reporting protocols.

Using the Single Side Band Radio to Communicate

The two most likely scenarios that would require the use of the SSB are: (1) Emergencies and (2) Communicating important data via a Radio Report in the even that your Sat Phone has failed. You may communicate with an observer on another vessel but keep in mind that others can listen to your conversation. Keep your discussions clean, do not discuss vessel positions, catch or the activities of your vessel.

Emergency Radio Distress Procedures

If it becomes necessary to use the SSB for an emergency, adhere to the following procedures: (1) if the SSB has a small red button that automatically switches the radio to the emergency broadcasting frequency and transmits an alarm signal: use it. (2) if the SSB does not have an automatic emergency switch you must manually switch the frequency to 2182 MHz or 4125 MHz or to Channel 16 on VHF radios. A radio distress signal may be sent by depressing the key button on the microphone and following the steps below.

1. Say "May-Day" 3 times
2. Say "This is the (vessel name 3 times) (and radio call sign)"
3. Say the location of vessel. (lat/long coordinates, if possible).
4. Say Nature of distress. (fire, taking on water, etc)
5. Say number of persons on board. (state the number of injured and types of injuries if any)
6. State condition of the vessel (if other than stated in 4.)
7. Describe the vessel. (include vessel type, length and color)
8. Describe what lifesaving equipment you have on board (if requested by USCG)

Weather Monitoring

In the operation area around Hawaii, the National Weather Radio makes severe weather bulletins on the following stations:

Location	Frequency
Kaui	162.400Mhz
Oahu/Southpoint	162.550Mhz

Preparing the Radio Report for Transmission

The PIRO Observer Program maintains a Single Side Band radio base station in Honolulu, HI. The base station call letters are KWL 48. Two channels are monitored daily Monday through Friday, except holidays. The following schedule is for Hawaii Standard Time:

Channel Frequency	Time Schedule
Channel 8A (8,294.0 MHz)	**0800 to 0900 hours**
Channel 12A (12,353.0 MHz)	**0900 to 1630 hours**

To initiate a call using the ships SSB ask permission of the captain. Some vessel operators may prefer to call in for the observer. This is acceptable but you should be standing by to ensure its accuracy and in case there are questions or messages.

(1)To hail the Honolulu Port Field Station, speak clearly:

K-W-L 48, K-W-L 48, K-W-L 48, Honolulu, this is (vessel name, vessel name, vessel name) - (vessel call sign, ie: WCX 777)

If there is a lot of static on the channel, you may need to say "Kilo-Whiskey-Lima" instead of the letters "KWL" when hailing the Observer Program in Honolulu.
Be sure to allow at least one minute between attempts and be careful not to "step on" (talk over) other users on the frequency. Federal Communication Commision monitoring stations listen for infractions and issue citations for abuses which include: monopolizing airwaves, profanity and broadcasting copyrighted material to name a few. Using standard procedure words, such as "over", "roger", and "out" is good operating practice.

After hailing, be alert to hear: (name of the vessel spoken three times) and the call sign followed by: "This is K-W-L 48, K-W-L 48, K-W-L 48, Honolulu". After this contact is established, identify yourself (your first name is sufficient) and ask if the base station is ready to receive your data.

DO NOT GIVE OUT CATCH INFORMATION OR SAY THE POSITION OF THE VESSEL WHEN MAKING A RADIO REPORT TO THE HONOLULU PORT FIELD STATION OR WHEN TALKING TO ANYONE ELSE ON THE RADIO.

(2) Transmit each line of your report individually and wait for the base station to confirm by repeating it back to you. If there are mistakes, clarify them or re-read the line. After all data is transmitted, you may ask any questions about your duties or if there are any messages for you.

If you cannot get through after 3 attempts, try at a later time or on another frequency. Even if you are unable to establish a confirmed contact, broadcast your radio report, line by line anyway. Occasionally we are able to hear observers even if they are unable to hear us. If another boat can hear you, attempt a relay.

Note: If for any reason it is not possible to contact the Hawaii Observer Program directly and you have URGENT information to report (and your sat phone is not working), the observer should request that the radio report be relayed through a nearby fishing vessel (or via another observer) or by fax when feasible. Remember, any instance of intimidation, harassment or interference is to be reported to the captain as soon as possible and documented in your Documentation Notebook.

The Radio Reporting Worksheet

There are 5 boxes on the radio report worksheet, plus one optional box for your name. Fill them out before you begin to make your Radio Report. It may be beneficial to ensure privacy by writing them on a separate piece of paper (omitting headers) and then take it to the wheelhouse before your transmission.

Observer Name	
Trip Number	
Personal Status Code	
Specimen Code	
Animal Code	
ETA Code	

(optional)

(line 1)

(line 2)

(line 3)

(line 4)

(line 5)

Observer Name:

Put your first name in this field, especially if you are to relay information through other vessels. Your last name is optional.

Trip Number (line 1):

Put your longline trip number here. (example: LL3345)

Personal Status Code (line 2):

The following definitions describe the five personal status codes.

Code 0: I'm Okay - Work Okay

The situation aboard the vessel is acceptable. I am being treated with appropriate courtesy, according to my understanding of the position.

Code 1: I'm okay - Work Rough But Workable

The situation aboard the vessel has deteriorated somewhat. I am meeting resistance to my duties. I am, however, confident that I can complete my assignment.

Code 2: I'm Okay - Work Not Okay But Workable
The situation aboard the vessel is poor, some of my duties have been compromised. Because of difficulties obtaining specimens or positions, or use of the radio, there may be need for enforcement to review my trip upon my return. I have some doubts that this assignment can be successfully completed.

Code 3: I May Not Be Okay - Work Not Okay
The situation aboard the vessel is unbearable. I feel that to continue my duties would be a personal risk. I request that an enforcement agent be available for debriefing as soon as possible upon my return. I am being threatened and/or harassed.
****Incidents of sexual harassment warrant a Code 3 *****
In this instance, the agency will take steps to have a NOAA enforcement agent present when the vessel returns to port to investigate the situation.

Code 4: I'm Not Okay - Work Not OK - Situation Severe
I have suffered an assault, PLEASE make every effort to remove me from this vessel at the earliest possible time. Notify all appropriate authorities so that they can assist me. NOTE: In this instance, the agency will take steps to involve NOAA enforcement personnel, the Federal Bureau of Investigation, and the United States Coast Guard. An evacuation will be arranged or the vessel will be asked to return to port.

Specimen Code (line 3):

To report specimens you are returning to port use the following codes:

N = None	**P = Photos**
W = Whole animal	**V = Videos**
D = Skin Plug (for mtDNA analysis)	**S = Sketch**
B = Skin Plug and Whole Animal`	**O = Other animal parts**

Animal Code (line 4):

Never use the common name of any species that have been caught or entangled during a cruise when talking on the SSB (to Honolulu or other observers).
Use the species code that you would use on your Catch Event Log or:

H= Turtle	X= Swordfish
C= Whale	K= Shark
T= Dolphin	B= Tuna
A= Bird	U= Other

Estimated Time of Arrival (ETA) Code (line 5):

Use this code to inform us approximately how soon you will be back in port. We will still be expecting a call from your cell phone before your boat docks.

0= Unknown	**5**= Three- Four days
1= Within 12 Hours	**6**= Four- Five days
2= 12-24 hours	**7**= Six- Seven days
3= 24-48 hours	**8**= One to Two weeks
4= Two- Three days	9= more than Two weeks

Using the Satellite Phone to Communicate

Usage

You must call the observer program from the gear shack (using your sat phone) and give your Sat Phone number, the name of your vessel, and the date of your departure. Phone Dan Luers at (808) 944-2250. Do not call anyone's personal cell phone, use their work phone number.

Dialing

To unlock the phone for use, the PIN is 1111
To dial out, dial: 00 + 1 + area code + phone number

Retrieving Messages

Check the phone daily for messages by looking in the display for a mail envelope icon. To aid in message recovery, turn your Sat Phone on, dial 1-2-3-4-5 and hit send. It can take 15 minutes or more for a message to show up on your phone. Another way to retrieve text messages is to attempt to call your sat phone voicemail. Once the phone links up with the satellites, any waiting text messages should be transmitted to your phone within 15 minutes.

To view a text message, simply press OK when you see the envelope icon. For voicemail, refer to the phone manual to retrieve but be aware that we have had limited success in sending/receiving voicemails and therefore prefer text.

Situations to use your Satellite Phone and who to call:

(1) In the event of an emergency CALL THE UNITED STATES COAST GUARD (USCG) SEARCH AND RESCUE FIRST!! at 808-535-3333. Most phones have the USCG programmed into memory; to dial USCG turn the phone on and hold down #1 on the keypad. After speaking with USCG please call your Port Coordinator & Kevin Busscher (808-944-2215)

(2) Before leaving the gear shack, contact Dan Luers with your trip information using only your sat phone. This is a requirement.

(3) If you have health issues that are not serious, call Josee Vincent at 808-282-5318 or one of the Port Coordinators. If you have an emergency situation DO NOT CALL your employer or the Observer Program. Call the CG SEARCH AND RESCUE first. Follow to the letter any and all instructions you are given by the CG then call your employer.

(4) In the case of a Sea Turtle, Marine Mammal, or Short-Tailed Albatross interaction, use your sat phone to call the Turtle Line at 808-366-2221 after referring to current protocols at the end of the Sea Turtle chapter. If you do not get an answer on the Turtle Line call Jamie Marchetti's office line at 944-2276. Leave messages if there is no answer, but call back daily until you are able to talk with someone directly. This is very important for the above listed protected species.

(5) For general questions call Dan Luers or Kevin Busscher. For enforcement issues, call Nick Wagner. For protected species issues call Jamie Marchetti.

(6) Do not make personal calls such as to your friends or family except in the case of emergencies. These calls should be logged in your documentation notebook. If you have questions about your duties or collection protocols, look it up in your manual first. If you are still unsure about what to do, then call the Observer Program. Do not call us to report a bird interaction or any animal sighting (unless it is a Short-Tailed Albatross). Do not call us for news or sports updates.

(7) Vessel masters may use your sat phone only to contact NMFS on official business, or for reporting emergencies.

If your call is after office hours, or on weekends, leave a message. Be sure to check your sat phone for messages in response. The office will likely respond via text but may use voicemail.

REFERENCE SECTION:

Standard Phonetic Alphabet:

A	**ALPHA**	**N**	**NOVEMBER**
B	**BRAVO**	**O**	**OSCAR**
C	**CHARLIE**	**P**	**PAPA**
D	**DELTA**	**Q**	**QUEBEC**
E	**ECHO**	**R**	**ROMEO**
F	**FOXTROT**	**S**	**SIERRA**
G	**GOLF**	**T**	**TANGO**
H	**HOTEL**	**U**	**UNIFORM**
I	**INDIA**	**V**	**VICTOR**
J	**JULIETTE**	**W**	**WHISKEY**
K	**KILO**	**X**	**X-RAY**
L	**LIMA**	**Y**	**YANKEE**
M	**MIKE**	**Z**	**ZULU**

OFFICE PHONE NUMBERS:

USCG Search & Rescue (808) 535-3333 or Speed Dial #1 (PRESS and hold 1)
Kevin Busscher (808) 944-2215 Cell (808) 542-3032
Joe Arceneaux (808) 944-2216 Cell (808) 366-2233
John Kelly (808) 944-2202 Cell (808) 222-3585 Home (808) 230-2027
Eric Forney (808) 944-2254
Lesley Jantz (808) 944-2253
Jeremy Willson (808) 944-2237
Michael Marsik (808) 944-2251
Nicholas Wagner (808) 944-2255
Jamie Marchetti (808) 944-2276
Dan Luers (808) 944-2250
Rich Kupfer (808) 944-2232
Dawn Golden (808) 944-2252
Cheree Smith (808) 944-2103
John Peschon (808) 944-2104

OBSERVER INFORMATION CALL- IN HOTLINE: for updates on Shallow-set fishery. Call in as instructed (via the Hotline or circulars) to hear the cumulative turtle take count or to receive other fishery news and updates. (808) 944-2111

TURTLE REPORTING LINE: to report Sea Turtle interactions, Marine Mammal interactions, or Short-Tailed Albatross sightings/interactions. (808) 366-2221

CHAPTER 18 SAFETY

Safety Policies

SAFETY and **INTEGRITY** continue to be the essential watchwords for observer conduct and performance. It is not uncommon for crewmembers to view observers as examples for stewardship and conduct.

Safety always comes first. If you are unable to collect data due to safety concerns, document the particular details of the situation as fully as you can. The report should include a description of the problem, the attempted solutions, and the final resolution.

You may encounter a "near miss" (i.e., an accident that almost happened) or a specific safety concern during your cruise assignment. Documentation of near misses is very important. Make sure to notify the debriefer and describe any incidents, including near misses, during the post-cruise debriefing process. Thorough documentation of the incident (what, where, when, and any fixes) can provide valuable information for improving safety training and protection for observers.

Observers working in the Hawaii or American Samoa based longline fisheries are **required** to wear a **PFD and boots** or other close-toed protective footwear whenever on deck during fishing operations.

Observers working in the Hawaii or American Samoa-based longline fisheries are strongly encouraged to wear the following during fishing operations:

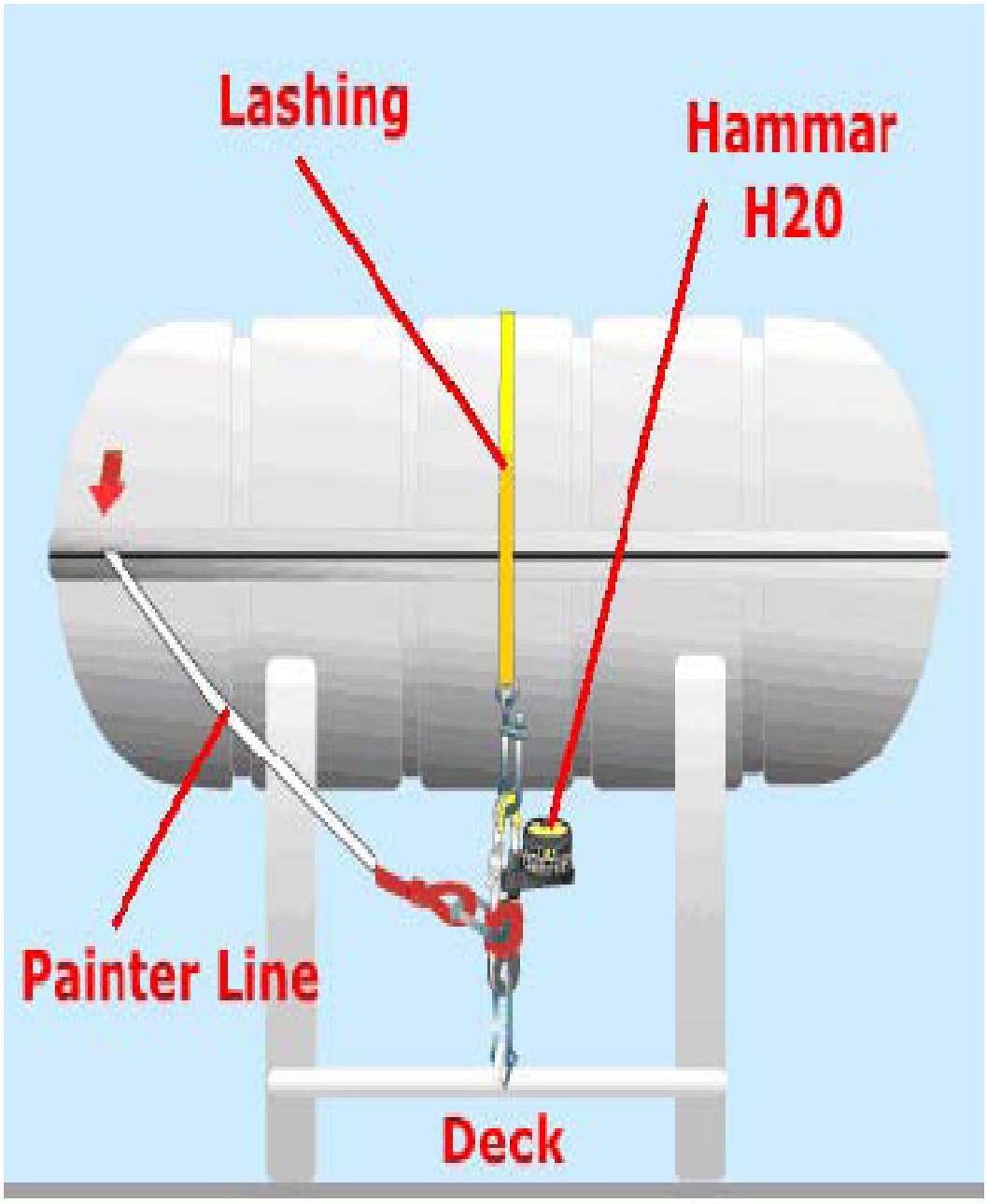
► a hard hat

► protective eye-wear

► a lifeline/harness to attach yourself to the vessel in rough weather if you decide to stay on deck. Remember! Safety First!

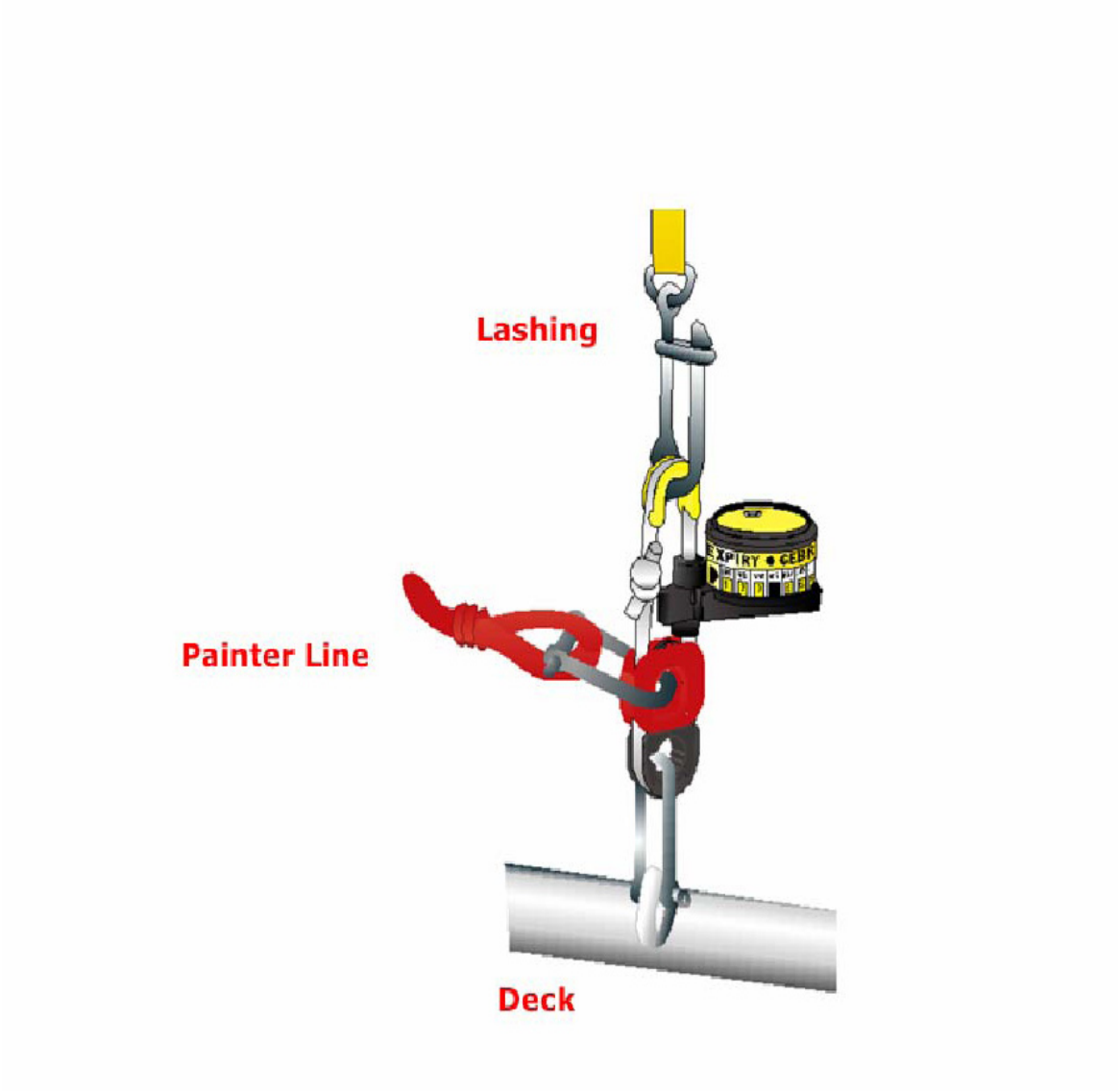
Diagram of Liferaft Setup

The liferaft should be in a cradle that is mounted to the deck. It should be in an area that is high on deck and not obstructed so it can float away freely if the vessel sinks. It should not have any other gear on top of it or be tied down with anything other than the lashing that is attached to the hydrostatic release.



Hydrostatic Release Setup

The hydrostatic release needs to be hooked up properly for it to work in an emergency. Make sure that it is in the proper orientation to function properly in the event of an emergency and that it is not out of date.



Quick Reference Safety Equipment and Survival Procedures

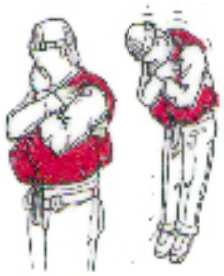
DRESS FOR SURVIVAL

Extra clothing will prolong your survival time by reducing loss of body heat and trapping air that will help keep you afloat. Put on plenty of warm clothing, including a watch cap. Wool or polypropylene clothing is best.

ENTERING THE WATER WITH A PFD

If you are wearing a PFD:

- ✓ Fasten PFD securely. Cross your arms over your chest to help hold it down.
- ✓ Block off your nose and mouth with one hand.
- ✓ Protect your head.
- ✓ Keep your feet together in case you land on something.
- ✓ Check the area below before you enter.
- ✓ Enter feet first.



IN THE WATER WITH A PFD

- ✓ Use the **HELP** (**Heat Escape Lessening Posture**) technique.

- ✓ Huddle together as a group to decrease heat loss and increase visibility.
- ✓ Don't swim! Swimming causes rapid heat loss in cold water.
- ✓ Use a whistle to attract attention.

ABANDON SHIP!

- ✓ Give a proper MAYDAY: vessel name, position, nature of distress.
- ✓ The Captain gives the order to abandon ship.
- ✓ Stay clear of rigging.
- ✓ Throw buoyant objects over the side, if possible, to increase visibility.

IMMERSION SUITS

Immersion suits are your best protection against the cold and the harsh conditions of the water. Take care of it! Don't wait for an emergency! Regularly air it out and lubricate the zipper. Drill with the suit on so you know how it works.

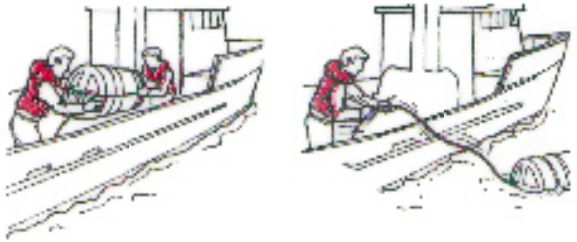
ENTERING THE WATER:

- ✓ Fully zip suit and ensure all closures are snug.
- ✓ Enter water feet first, as slowly as possible: feet together, protect your head.
- ✓ Inflate external flotation bladder after entering the water.

RAFT STOWAGE

- ✓ Stow raft in a readily accessible location where it will float free.
- ✓ Secure raft canister to cradle or bed with a properly installed hydrostatic release.
- ✓ Secure painter firmly to vessel, with a weak link incorporated into the line.
- ✓ Install liferaft canister carefully, ensuring it is not punctured and watertight gaskets are intact.

RAFT LAUNCHING



- ✓ Ensure launching area in water is free of debris.
- ✓ 2 crewmen should grab the canister at the ends and toss it into the water on the lee side of the vessel. Do not cut bands.
- ✓ After launching, pull painter until raft inflates. (The painter may be as long as 250 feet.)
- ✓ Wait for full inflation - with the canopy erected - before boarding.
- ✓ Ensure raft is tied to vessel.
- ✓ Keep the raft tied to vessel as long as it is safe; the vessel is easier for rescuers to see.

HOW TO RIGHT A CAPSIZED RAFT

Grab the righting strap and pull. When it begins to right, spring backward and to the side.

Developed under Contract DTCG23-95-D-HMS026

Quick Reference Safety Equipment and Survival Procedures

USCG

7 STEPS OF SURVIVAL

1. **RECOGNITION** - Realize that a life-threatening emergency exists.
2. **INVENTORY** - Examine the pros and cons of your situation and resources: equipment, physical and mental condition of crew, skills, weather and location.
3. **SHELTER** - Your boat is the best shelter. Stay with it as long as it stays afloat.
4. **SIGNALS** - Your radio is your best signalling device, but make sure you have other means of alerting others to your position.
5. **WATER** - Fresh water is vital to survival. Don't get dehydrated.
6. **FOOD** - Have high energy food in your raft's survival pack. If you have no water, do not eat.
7. **PLAY** - Keep a positive mental attitude. Keep focused on improving your situation.

STATION BILL

A Station Bill makes the emergency signals and emergency assignments clear to all crewmembers. Make sure all crew members know where to go, what to do and what to bring in an emergency.

☐ STATION BILL ☐

Fire & Emergency Signal (----------)
Man Overboard Signal (---------- ---------- ----------)
Abandon Ship (– -- -- -- – – -- ----------)

Position	Fire Station/Bring	Flooding Station/Bring	Abandon Ship Station/Bring	Man Overboard Station/Bring
Captain				
Engineer				
Crew 1				
Cook				

DRILLS

- Monthly drills are required by the Coast Guard.
- Drills should be conducted by a certified instructor.
- Drills should be realistic, interesting, hands-on and safe!
- Drills should be progressive - start simply and build in complexity over time.
- All hands should participate in drills and review.

EPIRB

Emergency Position Indicating Radio Beacon

- Category I - automatic
- Category II - manual

USES:
- Alerts Coast Guard of your distress
- Indicates your location

REMEMBER:
- ✓ Keep secure in bracket
- ✓ Test monthly
- ✓ Keep registration current
- ✓ Don't switch "off"
- ✓ Train crew in use
- ✓ Attach lanyard to raft or yourself, not vessel
- ✓ Replace expired batteries and HRUs

TO USE:

Remove from bracket.
Make sure strobe is flashing.
Let float in water secured to you or your liferaft.
Leave on until rescued.

DISTRESS SIGNALS

Do not use your signals unless you have good reason to believe that rescue is in sight or within the estimated visibility range.

Signalling by night: Distress signals can be seen only for a few miles in good visibility. Know how long each one works.

pistol and flares

hand-held flares 1-2 minutes

strobe light 8 hours

flashlight

Signalling by day: A hand flare or a rocket parachute signal can be seen at a greater range than the smoke in a stiff breeze. You can also use parachute rockets and dye markers.

hand-held flares 1-2 minutes

signalling mirror sunrise to sunset

orange smoke 2-4 minutes

CAUTION: Flares and smoke signals can cause burns and set off fires. To prevent injury, hold flares over the lee side of your boat or raft or put in the water if it is a floating device.

FLOODING CONTROL

- ✓ Secure hatches when underway.
- ✓ Be aware of all potential escape routes and know how to get out in the dark.
- ✓ Have soft wood plugs near every through hull fitting in case of leakage.
- ✓ Carry a "Damage Control Kit" with a variety of wedges, patches, waterproof epoxy and waterproof flashlight.
- ✓ Maintain watertight integrity at all times.
- ✓ Regularly clean bilge strainers and test bilge alarms.
- ✓ Keep at least 1 battery above the bilge line to power your radio in an emergency.
- ✓ Know the capacities of your compartments and have a means to pump any that flood.
- ✓ Know the effect on the vessel's stability if a compartment is flooded.

This information provided by the U.S. Coast Guard and the Commercial Fishing Industry Vessel Advisory Committee

QUICK REFERENCE

Abbreviated Guide To Navigation Rules Of the Road

Based on the *Navigation Rules International – Inland* (Commandant Instruction M16672.2D, 1999)

DEFINITIONS *(From Rule 3)*

Vessel Engaged in Fishing – Any vessel fishing with nets, lines, trawls or other fishing apparatus that restricts maneuverability, and excluding vessels fishing with trolling lines or other fishing apparatus that does not restrict maneuverability

Vessel Not Under Command – A vessel unable to keep out of the way of other vessels because an exceptional circumstance is hindering its maneuverability (steering failure, engine breakdown, etc.)

Vessel Restricted In Its Ability To Maneuver – A vessel unable to keep out of the way of other vessels because the nature of its work is hindering its ability to maneuver (buoy tender picking up a buoy, vessel transferring persons, provisions or cargo while underway, etc.)

Underway – A vessel not at anchor, aground or made fast to the shore

Give-Way Vessel – A vessel that must change course or speed to avoid a collision with a stand-on vessel

Stand-On Vessel – A vessel that must maintain course and speed except to avoid collision with another vessel

LOOKOUT (From Rule 5)

Every vessel shall at all times maintain a proper lookout.

SAFE SPEED (From Rule 6)

All vessels must proceed at a safe speed at all times.

> You must go slow enough to prevent a collision no matter what the conditions.

DETERMINING RISK OF COLLISION (From Rule 7)

Every vessel must use all available means appropriate, including lookout (eyes and ears), radar and radio, to determine if a risk of collision exists.

> Steady bearing and decreasing range indicate a risk of collision.

ACTION TO AVOID COLLISION (From Rule 8)

Action to avoid collision should be taken well in advance of any potential meeting. Any course or speed change should be great enough to be obvious to any approaching vessel. Avoid a succession of small alterations of course.

NARROW CHANNELS (From Rule 9)

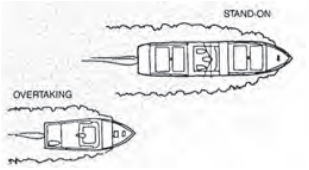
A vessel engaged in fishing shall not impede the passage of any vessel navigating in a narrow channel or fairway.

TRAFFIC SEPARATION SCHEMES (From Rule 10)

A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

OVERTAKING ANOTHER VESSEL

(From Rules 13 and 17)



A vessel that is being overtaken shall keep its course and speed.

RESPONSIBILITIES BETWEEN VESSELS

(From Rules 13, 18)

To determine which vessel must give-way in an approach situation, it is essential to know the hierarchy established by the Rules:

1st – Vessel not under command ***or*** vessel restricted in its ability to maneuver
3rd – Any vessel being overtaken
4th – Vessel engaged in fishing
5th – Vessel under sail
6th – Power-driven vessel

MEETING ANOTHER VESSEL HEAD-ON

(From Rules 14)

When two power-driven vessels meet on reciprocal (head-on) or nearly reciprocal courses so as to involve the risk of collision, both shall alter course to starboard so that they pass port-to-port (except as provided by Rules 9, 10 and 18)

CROSSING SITUATION (From Rules 15 and 17)

When two power-driven vessels are crossing so as to involve the risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and avoid crossing ahead of the other vessel.

ACTION BY THE GIVE-WAY VESSEL

(From Rule 16)

Every vessel n sight of another and required to give way to another vessel shall, so far as posssible, take early and substantial action to give way.

ACTION BY THE STAND-ON VESSEL

(From Rule 17)

When one of two vessels is required to give way, the other vessel (the stand-on vessel) shall maintain its course and speed.

QUICK REFERENCE

Abbreviated Guide To Navigation Rules Of the Road

Based on the *Navigation Rules International – Inland* (Commandant Instruction M16672.2D, 1999)

CONDUCT OF VESSELS IN RESTRICTED VISIBILITY *(From Rule 19)*

If you hear a fog signal forward of your beam, or if you detect by radar another vessel forward of your beam, take avoiding action in ample time. Unless you are overtaking, avoid if at all possible altering your course to port; whenever possible alter course to starboard. Also, adjust to a safe speed for prevailing circumstances and conditions of visibility. This includes, if necessary, taking all way off your vessel (see Rules 2, 8 and 19).

Sound Signals In Restricted Visibility

(From Rule 35 – apply to both International and Inland waters) Signal intervals are not more than 2 minutes unless otherwise noted

–	Power-driven making way
– –	Power-driven underway but stopped, making no way
– –	Vessel not under command, vessel restricted in ability to maneuver, vessel constrained by draft, sailing vessel, vessel engaged in fishing, or vessel engaged in towing or pushing
– – –	Vessel being towed or last vessel of tow, if manned
Rapid ringing of bell for 5 seconds every minute	Anchored
- – -	Anchored (optional signal)
Rapid ringing of bell for 5 seconds followed by sounding of gong every minute	Anchored over 100 meters
Three strokes of bell immediately before and after an "Anchored" bell signal	Aground
—	Pilot vessel engaged in pilotage duty

Note: Dash " – " is a 4 - 6 second or prolonged blast. Dot " - " is a 1 second or short blast.

Warning and Maneuvering Signals

(From Rule 34 – apply to International and Inland waters with differences noted.) Short blast signals are only sounded in sight of the other vessel, not in restricted visibility.

-	International: I am altering course to starboard Inland: I intend to leave you on my port side
–	International: I am altering course to port Inland: I intend to leave you on my starboard side
—	I am operating astern propulsion
——	Danger signal
–	Bend signal

This guide provides only an overview of navigation rules of the road. In no instance in this publication has a complete rule from *Navigation Rules International – Inland* been reprinted.

Rule numbers cited refer to the rules from which information was extracted. This guide is not intended as a substitute for the actual *Navigation Rules International – Inland (Commandant Instruction M16672.2D)*

This publication was created by the Commercial Fishing Vessel Industry Safety Advisory Committee with the cooperation of the U.S. Coast Guard, the Alaska Marine Safety Education Association, the North Pacific Fishing Vessel Owners Association Vessel Safety Program and Crawford Nautical School.

Chapter 19 Equipment List and Maintenance Tips

Bucket - Try to get a 6 or 7-gallon bucket; it allows more room for gear.
- Make sure the top fits securely.
- Store inside a covered area when not in use.
- Clearly print your name on specimen tags with a Sharpie® and attach it with a zip tie to the bucket handle. Doing so makes it easy for you and the Port Coordinator to find your bucket in the gear shack.
- It's a good idea to invest in bungee cords to secure the bucket.
- Put a towel, rag, or other absorbent material in the bottom to absorb residual moisture and condensation. This will also help prevent the bolt cutters and flipper tagging pliers from rusting so badly.

Foulweather Gear - Try it on *before* going to sea to ensure proper fit.
- Label or mark it so you can distinguish your gear from the crew's.
- Wash and scrub your foulweather gear after each trip.
- It is *not* recommended that you wear shorts underneath your foul weather gear (it can cause skin rash).

Boots - Label or mark them to distinguish from the crew's.
- To dry, store them near the engine room hatch after a haul.
- For comfort, invest in insoles.

Hard Hat - Protects head from mainline and other flying objects when line parts unexpectedly.

Hand counter/clickers - Recommend having four, keeping two as backups.
- Attach clickers to your rain gear. You'll know where they are at all times and they cannot decide to "jump overboard."
- If clickers are metal, treat them with WD-40 periodically.
- Test the clickers periodically to ensure that they advance properly, i.e., one number at a time.
- Keep them dry and away from saltwater; they rust easily.

Large plastic bags - Ideal for larger specimens such as swordfish rats, sharks, and albatross.

Small plastic bags - Great for smaller specimens and for storing gear, keeping it together and dry.

Rubber bands - Very versatile, great to use to secure specimens in large or small bags.

Labels - Good idea to keep them with the rubber bands and plastic bags and are most legible when written on with a Sharpie®. When a pencil is used, by time the specimen reaches the lab, pencil descriptions are faded and not clear to the end user.

Pencils - Recommend having four if possible, keeping two in clipboard, and two in bucket. You can always use a knife to sharpen, but small pencil sharpeners store easily in clipboard and work great and so do extra erasers. Keep mechanical pencils in mind. Make sure to use pencil on specimen labels that are placed inside solution. Marker and pen will dissolve and the label will be useless.

Zip Ties - Great to use to attach labels to specimen itself and to the bag the specimen is wrapped in.

Measuring Tape - Needed for curved carapace measurement on turtle and claspers on shark.

Flashlight - Useful for emergencies. If flashlight becomes moist from seawater, remove batteries, rinse with fresh water and dry.

Thermometer (infrared) - Can be fragile; handle with care and keep secure and dry in plastic bag inside bucket BUT be sure the trigger is not activated so the batteries do not run dry. For accurate readings, use a damp paper towel to clean the infrared lens.

Duct/Fiber Tape - Don't leave port without it! Works wonders in many ways, especially in safeguarding bunk from curious, hungry, roaches.

Gloves - Helps keep hands protected and warmer.

Vernier Calipers - Keep dry and away from salt spray, wash clean with fresh water.

Personal Marker Light - It's a good idea to attach it to your foulweather gear. If you should ever fall overboard, this light may save your life.

Binoculars - Handle with care; be careful not to drop them on the deck!
- Best to keep out of direct sunlight.
- Rinse salt spray off by placing lens under lightly running water, wipe dry.
- Recommend using strap at all times.

Thermarest - Great for bunks with no mattress and generally more hygienic than those with a mattress.

Turtle Biopsy and Tagging Kit - Inventory kit before each trip! You should find a biopsy corer device, alcohol swab, biopsy punch, forceps, marking pen, whirlpaks of NaCl, vials of NaCl, tags, and a tag applicator (do not remove tag applicator from protective baggy until use).
- To prevent rusting of materials, it's wise to check the kits for dampness; Tupperware® is not always watertight.

Turtle Biopsy Pole - Keep accessible, not secured on top of vessel.
- Before you leave the gear shack, make sure the plug screws onto the pole evenly.
- Great to use WD-40 or silicone grease on threaded end of pole and make sure biopsy plug screws on easily.
- All poles will have a plastic protective covering but if missing, wrap the threaded end with duct tape when not in use to protect it from rust.
- Do not leave the biopsy plug on the pole or store pole with the weight on the threaded end.

Turtle net - Keep accessible and out of direct sunlight if possible.

Marine Mammal Kit - Inventory kit before each trip! You should find a biopsy core device, preservative/fixative, marking pen, pencil, and gloves.

Shark Kit - Inventory kit before each trip! You should find scalpels and preservatives/fixatives [could be DMSO (dimethly sulfoxide), 95% EtOH (ethanol), or NaCl (salt)].

Clipboard - Great for keeping data sheets and field guides together and dry. Recommend lying clipboard face down when not in use, in bucket, or anywhere else out of strong winds to keep your data sheets from possibly flying away, or use a rubber band to secure data sheets onto clipboard. May be helpful to tape a list of common species codes in a way that it is waterproof; great for quick reference.

Sleeping Bag - Excellent to use as a buffer between you and the boat's mattress and thick enough for boats that blast the AC.

Poncho Liner - Lightweight cover and works well as a buffer too.

Bolt Cutters - As an alternative for using the dehooking device, bolt cutters may be used to cut the barb off a hook in a turtle that is landed (lube and place nose of cutters into protective baggie after use to prevent rusting).

Water Filter - Before first use, brush the filter surface. When storing the filter after use, remove hose from water source and pump and let dry. Remove filter cartridge from pump and shake out water; air
dry if possible.

Lobster Phyllosoma Kit - Until needed, keep in duffel bag inside boat.
- Place lobster larvae onto cardboard and label each specimen with a tag indicating date, locationcoordinates, trip number, and your name. Keep specimen in the freezer.

Life Jacket - *Wear at all times while working on deck!*
- Tag and label with name.
- Read instructions on new auto-inflate style! If it auto-inflates accidentally, the unit will only be able to be manually inflated by mouth until serviced.

Immersion Suit and EPIRB - Test EPIRB and GPIRB before each trip.
- Before each trip, check that the strobe light works, and wax the zipper if necessary.
- Examine antenna on EPIRB for cracks and test performance.
- Keep EPIRB with suit and store where it is easily accessible.
- Tag and label it with your name.

Reference Books - Best to store where they will remain dry and accessible. Waterproof placards can be kept in bucket or clipboard for easy access. If you keep them in your bucket, you MUST keep the non-waterproof books in the issued protective plastic bags! We have already lost countless books due to carelessness. Books are $40-$100 each and you are responsible for them!

Calipers - Keep in secure area and out of the way of crew.
- Do not store in gaff holders because the numbers will rub off.
- If bent by sun or water damage, wet calipers and place under hook box to straighten.
- Note: The meter stick (calipers) may need adjustment and calibration periodically. Calibrate by comparing with the fiber tape measure and tighten the locking screws on the stationary caliper jaw.

Marine First Aid Kit - Each observer will be assigned a first aid kit to be returned to contractor upon completion of contract. Whole kit may be taken out to sea or broken down, selecting certain items to be stored in zip lock bags. *Please keep a list in your kit of what has been taken and used so it may be replaced.*

Chapter 20 Species Code List

COMMON NAME	SCIENTIFIC NAME	CODE
	Fishes 100 – 305	
Alepisauridae-Lancetfish		
Lancetfish, Longnose	*Alepisaurus ferox*	121
Balistidae-Triggerfishes		
Triggerfish, Rough (Pelagic)	*Canthidermis maculata*	151
Triggerfish, Unidentified	Balistidae spp.	150
Bramidae-Pomfrets		
Pomfret, Sickle	*Teractichthys steindachneri*	185
Pomfret, Lustrous	*Eumegistus illustris*	186
Pomfret, Dagger	*Taractes rubescens*	187
Pomfret, Rough	*Taractes asper*	188
Pomfret, Brama	Brama spp.	189
Carangidae-Jacks		
Rainbow Runner	*Elagatis bipinnulatus*	177
Yellowtail	*Seriola lalandi*	178
Jack, Unspecified	Uraspis spp.	167
Jack, Cottonmouth	*Uraspis secunda*	168
Centrolophidae-Medusafishes		
Medusafish (formerly Driftfish)	Centrolophidae spp.	233
Coryphaenidae-Dolphinfishes		
Dolphinfish	*Coryphaena hippurus*	218
Dolphinfish, Pompano	*Coryphaena equiselis*	219
Echeneidae-Remoras		
Remora or Suckerfish	Echeneidae spp.	199
Gempylidae-Snake Mackerels		
Escolar, Longfin	*Scombrolabrax heterolepsis*	196
Escolar, Roudi	*Promethichthys prometheus*	197
Escolar	*Lepidocybium flavobrunneum*	191
Oilfish	*Ruvettus pretiosus*	192
Snake Mackerel	*Gempylus serpens*	193
Gemfish, Black	*Nesiarchus nasutus*	194
Snake Mackerel, Unidentified	Gempylidae spp.	190

Sphyraenidae-Barracudas

Barracuda, Great	*Sphyraena barracuda*	263

Tetrodontidae-Pufferfishes

Puffer, Pelagic(Oceanic)	Lagocephalus spp.	261
Puffer, unidentified	Tetraodontidae spp.	260

Trachipteridae-Ribbonfishes

Ribbonfish, Scalloped	*Zu cristatus*	147
Ribbonfish, Tapertail	*Trachipterus fukuzakii*	148
King-of-the-Salmon	*Trachipterus altivelis*	149

Trichiuridae-Cutlassfishes & Scabbardfishes

Razorback Scabbardfish	*Assurger anzac*	232
Scabbardfish, Unidentified	Assurger spp.	230

Xiphiidae-Swordfish

Swordfish	*Xiphias gladius*	301

Unidentified or Other Identified Fish

Fish, Unidentified	Osteichthyes	100
Fish, Other Identified	Osteichthyes	101

Sharks 400 – 441

Alopiidae-Thresher sharks

Shark, Bigeye Thresher	*Alopias superciliosus*	424
Shark, Common Thresher	*Alopias vulpinus*	425
Shark, Pelagic Thresher	*Alopias pelagicus*	426
Shark, Unidentified Thresher	Alopias spp.	420

Dalatiidae – Kitefin sharks

Shark, Cookie Cutter	*Isistius brasiliensis*	437

Carcharinidae-Requiem sharks

Shark, Blacktip	*Carcharhinus limbatus*	406
Shark, Blue	*Prionace glauca*	418
Shark, Galapagos	*Carcharhinus galapagensis*	407
Shark, Gray Reef	*Carcharhinus amblyrhynchos*	408
Shark, Oceanic Whitetip	*Carcharhinus longimanus*	419
Shark, Sandbar	*Carcharhinus plumbeus*	405
Shark, Silky	*Charcharinus falciformis*	413

Shark, Tiger	*Galeocerdo cuvier*	415

Lamnidae-Mackerel sharks

Shark, Great White	*Carcharodon carcharius*	431
Shark, Shortfin Mako	*Isurus oxyrhinchus*	432
Shark, Longfin Mako	*Isurus paucus*	433
Shark, Salmon	*Lamna ditropis*	434
Shark, Unidentified Mako	Isurus spp.	430

Megachasmidae-Megamouth shark

Shark, Megamouth	*Megachasma pelagios*	442

Odontaspididae-Sand tiger shark

Shark, Bigeye Sand Tiger	*Odontaspis noronhai*	439

Pseudocarcharinidae-Crocodile shark

Shark, Crocodile	*Pseudocarcharias kamoharai*	438

Rhinocodontidae-Whale shark

Shark, Whale	*Rhincodon typus*	441

Sphyrnidae-Hammerhead sharks

Shark, Scalloped Hammerhead	*Sphyrna lewin*i	422
Shark, Smooth Hammerhead	*Sphyrna zygaena*	423
Shark, Unidentified Hammerhead	Sphryna spp.	421

Squalidae-Dogfishes

Dogfishes, Deepwater	Squalidae spp.	436

Shark, Unidentified	Chondricthyes	400
Shark, Identified Other	Chondricthyes	401

Rays 450 – 459

Dasyatidae-Stingrays

Stingray, Pelagic	*Pteroplatytrygon violacea*	457

Mobulidae-Manta & Mobulas

Manta Ray, Giant	*Manta birostris*	455
Mobula	Mobula spp.	454

Ray, Unidentified	Order: Rajiformes	450

Sea Turtles 500 – 506

Chelonidae-Hard shelled sea turtles

Turtle, Green	*Chelonia mydas*	502
Turtle, Hawksbill	*Eretmochelys imbricata*	503
Turtle, Loggerhead	*Caretta caretta*	504
Turtle, Olive Ridley	*Lepidochelys olivacea*	505
Turtle, Unidentified Hard Shell	Chelonidae spp.	500
Turtle, Unidentified	Testudines (order)	501

Dermochelyidae-Leatherback sea turtles:

Turtle, Leatherback	*Dermochelys coriacea*	506

Birds 600 – 677

Diomedeidae-Albatrosses

Albatross, Black-footed	*Phoebastria nigripes*	681
Albatross, Laysan	*Phoebastria immutabilis*	682
Albatross, Short-tailed	*Phoebastria albatrus*	683
Albatross, Unidentified	Phoebastria spp.	680

Fregatidae-Frigate birds

Frigatebird, unidentified	Fregata spp.	610

Laridae-Gulls & Terns

Noddy, Black/Brown	Anous spp.	628
Noddy, Blue-Gray	Procelsterna spp.	624
Tern, unidentified	Sterninae spp.	620
Kittiwake, Black legged	*Larus tridactyla*	629
Gull, Unidentified	Laridae spp.	621

Hydrobatidae-Storm petrels

Storm Petrel, Unidentified	Hydrobatidae spp.	630

Phaethontidae-Tropicbirds

Tropicbird, Unidentified	Phaethon spp.	640

Procellariidae-Gadfly & Diving petrels

Petrel, Unidentified	Pterodroma spp.	674

Shearwater, Unidentified	Puffinus spp.	670

Stercorariidae-Skuas & Jaegers

Jaeger, Unidentified	Stercoraius spp.	650

Sulidae-Boobies & Gannets

Booby, Brown	*Sula leucogaster*	662
Booby, Masked	*Sula dactylatra*	663
Booby, Red-footed	*Sula sula*	664
Booby, Unidentified	*Sula* spp.	660
Bird, Unidentified	Aves	600
Bird, Other Identified	Aves	601

Cetaceans 700 – 759

Balaenopteridae - Rorquals

Whale, Blue	*Balaenoptera musculus*	756
Whale, Bryde's	*Balaenoptera edeni*	757
Whale, Fin	*Balaenoptera physalus*	754
Whale, Humpback	*Megaptera novaeangliae*	755
Whale, Minke	*Balaenoptera acutorostrata*	758
Whale, Sei	*Balaenoptera borealis*	759

Eschrichtiidae-Gray whale

Whale, Gray	*Eschrichtius robustus*	767

Physeteridae - Sperm whales

Whale, Sperm	*Physeter macrocephalus*	725
Whale, Unidentified Kogia	Kogia spp.	720

Ziphiidae - Beaked whales

Whale, Baird's Beaked	*Berardius bairdii*	712
Whale, Cuvier's Beaked	*Ziphius cavirostris*	713
Whale, Longman's Beaked	*Indopacetus pacificus*	715
Whale, Blainville's Beaked	*Mesoplodon densirostris*	716
Whale, Mesoplodont Beaked	Mesoplodon spp.	714
Whale, Unidentified Beaked	Ziphiidae spp.	710

Delphinidae - Dolphins

Globicephalinae (Blackfish)

Whale, False Killer	*Pseudorca crassidens*	742
Whale, Pygmy Killer	*Feresa attenuata*	745
Whale, Short-finned Pilot	*Globicephala macrorhynchus*	743
Dolphin, Risso's	*Grampus griseus*	746
Whale, Melon-headed	*Peponocephala electra*	744
Blackfish, Unidentified	Globicephalinae	740

Other dolphins

Dolphin, Bottlenose	*Tursiops truncatus*	731
Dolphin, Unidentified Common	Delphinus spp.	737
Dolphin, Fraser's	*Lagenodelphis hosei*	736
Dolphin, Rough-toothed	*Steno bredanensis*	733
Dolphin, Spinner	*Stenella longirostris*	732
Dolphin, Spotted	*Stenella attenuata*	734
Dolphin, Striped	*Stenella coeruleoalba*	735
Dolphin, Northern Right Whale	*Lissodelphis borealis*	761
Dolphin, Pacific Whitesided	*Lagenorhynchus obliquidens*	762
Whale, Killer (Orca)	*Orcinus orca*	747
Dolphin, Unidentified	Delphinidae	730

Phocoenidae-Porpoises

Porpoise, Unidentified	Phocoenidae	780

Other

Cetacean, Unidentified	Cetacea	700
Cetacean, Other Identified	any cetacean	701
Whale, Unidentified	Cetacea (lg. cetacean)	750

Pinnipeds 900-908

Phocidae- Seal and Sea Lions

Seal, Hawiian Monk	*Monachus schauinslandi*	902
Pinneped, Unidentified	Pinnipedia	900

Chapter 21 Appendices

The Appendices include the following:

Conversions and Formulas

Fahrenheit – Celsius Conversion Chart

List of Relevant Statutes Regarding Data Collection by NMFS

List of Acronyms

Observer Health and Safety Regulations, CFR Part 600.746

Conditions for At-Sea Observer Coverage in the Western Pacific Pelagics Fisheries, CFR Part 665.28

Rayed-Fish Parts Diagram

Conversions and Formulas

The following conversions and formulas may be useful during a cruise. If you are uncertain of any conversions, record the data in the units available near the appropriate data field. The units may then be converted once you arrive on shore at the end of the cruise. Refer to the instructions in the field manual to confirm the correct unit for the data element in question.

Length/Depth:

1 fathom = 6 feet = 1.82 meters

Example: 45 fm x (1.82 m/fm) = 81.9 m

Speed/Distance:

1 nautical mile = 1.1508 statute miles (mi) = 6086 ft
1 nautical mile per hour = 1 knot (kt)

Example: 12 kt x 1.1508 mi/kt = 13.8096 mph

Temperature:

To get degrees Fahrenheit,
Fahrenheit (F) = (C x 9/5) + 32
= (C x 1.8) + 32

Example: 17 C = ??? F

a. (17 x 1.8) + 32 = F
b. (30.6) + 32 = F
c. 62.6 = F
Solution: 17 C = 62.6 F

To get degrees Celsius,
Celsius (C) = (F - 32) x 5/9
= (F - 32) x 0.555

Example: 81 F = ??? (C)

a. (81 F - 32) x 0.555 = C
b. (49) x 0.555 = C
c. 27.195 = C
Solution: 81 F = 27.195 C

Fahrenheit to Celsius Conversions

Deg F	Deg C	Deg F	Deg C	Deg F	Deg C	Deg F	Deg C	Deg F	Deg C
0	-17.8	21	-6.1	42	5.6	63	17.2	84	28.9
1	-17.2	22	-5.6	43	6.1	64	17.8	85	29.4
2	-16.7	23	-5	44	6.7	65	18.3	86	30
3	-16.1	24	-4.4	45	7.2	66	18.9	87	30.5
4	-15.5	25	-3.9	46	7.8	67	19.4	88	31.1
5	-15	26	-3.3	47	8.3	68	20	89	31.6
6	-14.4	27	-2.8	48	8.9	69	20.5	90	32.2
7	-13.9	28	-2.2	49	9.4	70	21.1	91	32.7
8	-13.3	29	-1.7	50	10	71	21.6	92	33.3
9	-12.8	30	-1.1	51	10.5	72	22.2	93	33.9
10	-12.2	31	-0.6	52	11.1	73	22.8	94	34.4
11	-11.7	32	0	53	11.7	74	23.3	95	35
12	-11.1	33	0.6	54	12.2	75	23.9	96	35.5
13	-10.5	34	1.1	55	12.8	76	24.4	97	36.1
14	-10	35	1.7	56	13.3	77	25	98	36.6
15	-9.4	36	2.2	57	13.9	78	25.5	99	37.2
16	-8.9	37	2.8	58	14.4	79	26.1	100	37.7
17	-8.3	38	3.3	59	15	80	26.6	101	38.3
18	-7.8	39	3.9	60	15.5	81	27.2	102	38.9
19	-7.2	40	4.4	61	16.1	82	27.8	103	39.4
20	-6.7	41	5	62	16.7	83	28.3	104	40

Relevant Statutes Regarding Data Collection by NMFS

NMFS is authorized to collect biological, economic, social, and other data under the following statutes, among others:

a. Agricultural Marketing Act of 1946, 7 U.S.C. 1621-1627

b. Agricultural Trade Development and Assistance Act of 1954, 7 U.S.C. 1704

c. Anadromous Fish Conservation Act, 16 U.S.C. 757-757f

d. Atlantic Coast Fish Study for Development and Protection of Fish Resources, 1950, 16 U.S.C. 760a

e. Atlantic Tunas Convention Act of 1975, 16 U.S.C 971-971I

f. Eastern Pacific Tuna Licensing Act of 1984, 16 U.S.C. 972-972h

g. Endangered Species Act, 16 U.S.C. 1531-1543

h. Farrington Act of 1947, 16 U.S.C. 758-758d

i. Fish and Wildlife Act of 1956, 16 U.S.C. 742(a) et seq

j. Fish and Wildlife Coordination Act of 1934, 16 U.S.C. 661-666c

k. Fishery Market New Service Act of 1937, 50 Stat. 296

l. Fur Seal Act, 16 U.S.C. 1151-1175

m. Interjurisdictional Fisheries Act of 1986, 16 U.S.C. 4101 et seq

n. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. 1801 et seq

o. Marine Mammal Protection Act, 16 U.S.C. 1361 et seq

p. Marine Migratory Gamefish Act of 1959, 16 U.S.C. 160e

q. South Pacific Tuna Act of 1988, 16 U.S.C. 973-973n

r. Tuna Conventions Act of 1950, 16 U.S.C. 951-961

LIST OF ACRONYMS

Environmental Laws

CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora

ESA Endangered Species Act of 1973

MBTA Migratory Bird Treaty Act

MMPA Marine Mammal Protection Act

MSA Magnuson-Stevens Fishery Conservation and Management Act

Longline Observer Program

BFOP Northwestern Hawaiian Islands Bottomfish Observer Program

PIROP Pacific Islands Regional Observer Programs

OC Operations Coordinator

ASOP American Samoa Observer Program

PIRO Pacific Islands Regional Office

PIFSC Pacific Islands Fishery Science Center

HLOP Hawaii Longline Observer Program

Title 50: Wildlife and Fisheries
PART 600—MAGNUSON-STEVENS ACT PROVISIONS
Subpart H—General Provisions for Domestic Fisheries

§ 600.746 Observers.

(a) *Applicability.* This section applies to any fishing vessel required to carry an observer as part of a mandatory observer program or carrying an observer as part of a voluntary observer program under the Magnuson-Stevens Act, MMPA (16 U.S.C. 1361 *et seq*.), the ATCA (16 U.S.C. 971 *et seq*.), the South Pacific Tuna Act of 1988 (16 U.S.C. 973 *et seq*.), or any other U.S. law.

(b) Observer safety. An observer will not be deployed on, or stay aboard, a vessel that is inadequate for observer deployment as described in paragraph (c) of this section.

(c) Vessel inadequate for observer deployment. A vessel is inadequate for observer deployment if it:

(1) Does not comply with the applicable regulations regarding observer accommodations (see 50 CFR parts 229, 285, 300, 600, 622, 635, 648, 660, and 679), or

(2) Has not passed a USCG Commercial Fishing Vessel Safety Examination, or for vessels less than 26 ft (8 m) in length, has not passed an alternate safety equipment examination, as described in paragraph (g) of this section.

(d) Display or show proof. A vessel that has passed a USCG Commercial Fishing Vessel Safety Examination must display or show proof of a valid USCG Commercial Fishing Vessel Safety Examination decal that certifies compliance with regulations found in 33 CFR Chapter 1 and 46 CFR Chapter 1, and which was issued within the last 2 years or at a time interval consistent with current USCG regulations or policy.

(1) In situations of mitigating circumstances, which may prevent a vessel from displaying a valid safety decal (broken window, etc.), NMFS, the observer, or NMFS' designated observer provider may accept the following associated documentation as proof of the missing safety decal described in paragraph (d) of this section:

(i) A certificate of compliance issued pursuant to 46 CFR 28.710;

(ii) A certificate of inspection pursuant to 46 U.S.C. 3311; or

(iii) For vessels not required to obtain the documents identified in (d)(1)(i) and (d)(1)(ii) of this section, a dockside examination report form indicating the decal number and date and place of issue.

(e) Visual inspection. Upon request by an observer, a NMFS employee, or a designated observer provider, a vessel owner or operator must provide correct information concerning any item relating to any safety or accommodation requirement prescribed by law or regulation, in a manner and according to a timeframe as directed by NMFS. A vessel owner or operator must also allow an observer, a NMFS employee, or a designated observer provider to visually examine any such item.

(f) Vessel safety check. Prior to the initial deployment, the vessel owner or operator or the owner or operator's designee must accompany the observer in a walk through the vessel's major spaces to ensure that no obviously hazardous conditions exist. This action may be a part of the vessel safety orientation to be provided by the vessel to the observer as required by 46 CFR 28.270. The vessel owner or operator or the owner or operator's designee must also accompany the observer in checking the following major items as required by applicable USCG regulations:

(1) Personal flotation devices/ immersion suits;

(2) Ring buoys;

(3) Distress signals;

(4) Fire extinguishing equipment;

(5) Emergency position indicating radio beacon (EPIRB), when required, shall be registered to the vessel at its documented homeport;

(6) Survival craft, when required, with sufficient capacity to accommodate the total number of persons, including the observer(s), that will embark on the voyage; and

(7) Other fishery-area and vessel specific items required by the USCG.

(g) Alternate safety equipment examination. If a vessel is under 26 ft (8 m) in length, and in a remote location, and NMFS has determined that the USCG cannot provide a USCG Commercial Fishing Vessel Safety Examination due to unavailability of inspectors or to unavailability of transportation to or from an inspection station, the vessel will be adequate for observer deployment if it passes an alternate safety equipment examination conducted by a NMFS certified observer, observer provider, or a NMFS observer program employee, using a checklist of USCG safety requirements for commercial fishing vessels under 26 ft (8 m) in length. Passage of the alternative examination will only be effective for the single trip selected for observer coverage.

(h) Duration. The vessel owner or operator is required to comply with the requirements of this section when the vessel owner or operator is notified orally or in writing by an observer, a NMFS employee, or a designated observer provider, that his or her vessel has been selected to carry an observer. The requirements of this section continue to apply through the time of the observer's boarding, at all times the observer is aboard, and at the time the observer disembarks from the vessel at the end of the observed trip.

(i) Effect of inadequate status. A vessel that would otherwise be required to carry an observer, but is inadequate for the purposes of carrying an observer, as described in paragraph (c) of this section, and for allowing operation of normal observer functions, is prohibited from fishing without observer coverage.

Last updated: October 23 2009.

Title 50: Wildlife and Fisheries

PART 665—FISHERIES IN THE WESTERN PACIFIC

Subpart C—Western Pacific Pelagic Fisheries

§ 665.28 Conditions for at-sea observer coverage.

(a) NMFS shall advise the permit holder or the designated agent of any observer requirement at least 24 hours (not including weekends and Federal holidays) before any trip for which NMFS received timely notice in compliance with these regulations.

(b) The "Notice Prior to Fishing Trip" requirements in this subpart commit the permit holder to the representations in the notice. The notice can be modified by the permit holder or designated agent because of changed circumstance, if the Regional Administrator is promptly provided a modification to the notice that complies with the notice requirements. The notice will also be considered modified if the Regional Administrator and the permit holder or designated agent agree to placement changes.

(c) When NMFS notifies the permit holder or designated agent of the obligation to carry an observer in response to a notification under this subpart, or as a condition of an EFP issued under §665.17, the vessel may not engage in the fishery without taking the observer.

(d) A NMFS observer shall arrive at the observer's assigned vessel 30 minutes before the time designated for departure in the notice or the notice as modified, and will wait 1 hour for departure.

(e) A permit holder must accommodate a NMFS observer assigned under these regulations. The Regional Administrator's office, and not the observer, will address any concerns raised over accommodations.

(f) The permit holder, vessel operator, and crew must cooperate with the observer in the performance of the observer's duties, including:

(1) Allowing for the embarking and debarking of the observer.

(2) Allowing the observer access to all areas of the vessel necessary to conduct observer duties.

(3) Allowing the observer access to communications equipment and navigation equipment as necessary to perform observer duties.

(4) Allowing the observer access to VMS units to verify operation, obtain data, and use the communication capabilities of the units for official purposes.

(5) Providing accurate vessel locations by latitude and longitude or loran coordinates, upon request by the observer.

(6) Providing sea turtle, marine mammal, or sea bird specimens as requested.

(7) Notifying the observer in a timely fashion when commercial fishing operations are to begin and end.

(g) The permit holder, operator, and crew must comply with other terms and conditions to ensure the effective deployment and use of observers that the Regional Administrator imposes by written notice.

(h) The permit holder must ensure that assigned observers are provided living quarters comparable to crew members and are provided the same meals, snacks, and amenities as are normally provided to other vessel personnel. A mattress or futon on the floor or a cot is not acceptable if a regular bunk is provided to any crew member, unless other arrangements are approved in advance by the Regional Administrator.

(i) Reimbursement requirements are as follows:

(1) Upon observer verification of vessel accommodations and the number of assigned days on board, NMFS will reimburse vessel owners a reasonable amount for observer subsistence as determined by the Regional Administrator.

(2) If requested and properly documented, NMFS will reimburse the vessel owner for the following:

(i) Communications charges incurred by the observer.

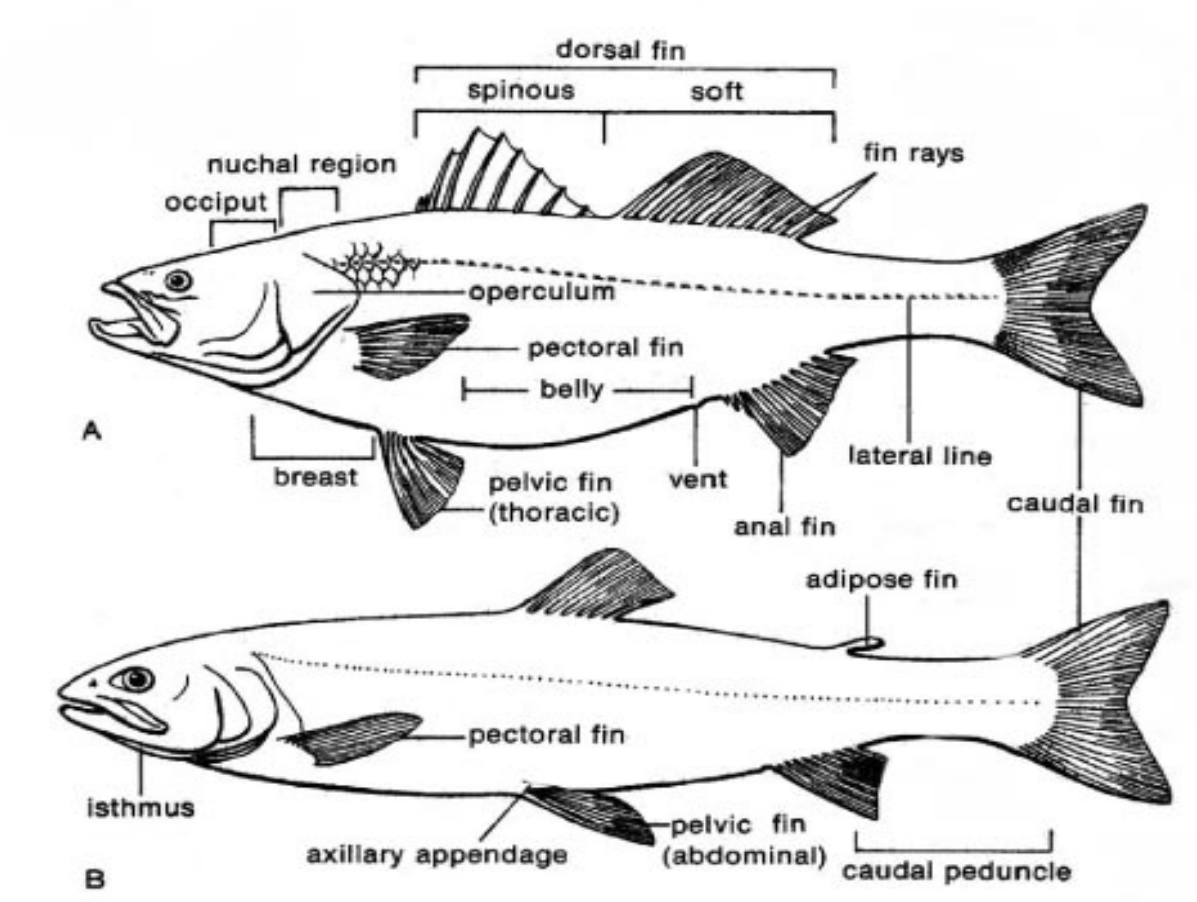
(ii) Lost fishing time arising from a seriously injured or seriously ill observer, provided that notification of the nature of the emergency is transmitted to the Observer Program, NMFS (see address for PIRO Regional Administrator) at the earliest practical time. NMFS will reimburse the owner only for those days during which the vessel is unable to fish as a direct result of helping the NMFS employee who is seriously injured or seriously ill. Lost fishing time is based on time travelling to and from the fishing grounds and any documented out-of-pocket expenses for medical services. Payment will be based on the current target fish market prices and that vessel's average target fish catch retained per day at sea for the previous 2 years, but shall not exceed $5,000 per day or $20,000 per claim. Detailed billing with receipts and supporting records are required for allowable communication and lost fishing time claims. The claim must be completed in ink, showing the claimant's printed name, address, vessel name, observer name, trip dates, days observer on board, an explanation of the charges, and claimant's dated signature with a statement verifying the claim to be true and correct. Requested reimbursement claims must be submitted to the Fisheries Observer Branch, Pacific Islands Region, NMFS. NMFS will not process reimbursement invoices and documentation submitted more than 120 days after the occurrence.

(j) If a vessel normally has cabins for crew members, female observers on a vessel with an all-male crew must be accommodated either in a single person cabin or, if NMFS concludes that adequate privacy can be ensured by installing a curtain or other temporary divider, in a two-person shared cabin. If the vessel normally does not have cabins for crew members, alternative accommodations must be approved by NMFS. If a cabin assigned to a female observer does not have its own toilet and shower facilities that can be provided for the exclusive use of the observer, or if no cabin is assigned, then arrangements for sharing common facilities must be established and approved in advance by NMFS.

[61 FR 34572, July 2, 1996, as amended at 70 FR 29657, May 24, 2005]

Last updated: December 3, 2007

Spiny-Rayed Fish and Soft-Rayed Fish



From "Biology of Fishes" by Carl Bond, 1979. Saunders College Publishing.

A. Example of a typical spiny-rayed fish (Order Perciformes).

B. Example of a typical soft-rayed fish (Order Salmoniformes).

Chapter 22 Changes To The Manual

Update 09/09

Additions to the manual have been left in RED to facilitate easier location.

CHAPTER 2: Added exit questionnaire protocols

CHAPTER 5: Added clarification for haul interactions check block
Removed wind speeds from Beaufort scale
Added directions on collecting logbook data

CHAPTER 6: Added new hook chart

CHAPTER 7: Clarified resumption of scans after dark
Clarified defintions and utilization of event type codes
Clarified condition codes
Changed form example

CHAPTER 8: Changed lazy-line into tended and untended lines
Changed the form example
Added instructions for Attepmts check box, and Attempts Comments section

CHAPTER 9: Removed the collection of UO for damage codes
Changed lazy-line into tended and untended lines
Clarified return disposition codes
Changed form example

CHAPTER 10: Added requirements for more precise internal hooking descriptions on the Sea Turtle Biological Data Form and Sketch form.
Added examples of new forms and requirements.

CHAPTER 12: Added directions to hook type and size data collection

CHAPTER 13: Added directions for comemnts on preservation method

CHAPTER 14: Added directions for comments on multipe tags

CHAPTER 16: Clarified use of Sketch form
Added Identification forms

CHAPTER 17: Added National Weather Radio stations
Updated the USCG SAR emergency number

CHAPTER 18: Added a “rules of the road” reference sheet

CHAPTER 20: **Added new codes for all species by category**
Removed several species
Combined Velvet Dogfishes in the Deepwater Dogfishes category
Added new species/groups

CHAPTER 21: Updated list of Acronyms