

TABLE OF CONTENTS

Chapter 1 Introduction

Longline Observer Authority and Goal	5
Objectives for Longline Fishery Observers	5
Guidelines	5
Responsibilities	6

Chapter 2 Summary of Duties

Employment Purpose	9
The Observers Role	9
Before A Vessel Assignment	10
Placement Meeting	10
During A Vessel Assignment	10
Interference and Harassment	12
Injuries	12
After A Vessel Assignment	13
Travel Responsibilities	14

Chapter 3 Data Collection Instructions

General Instructions	15
Data Collection Priorities	15
International Date Line	17

Chapter 4 Trip Specifications

Introduction	19
Data Elements	19

Chapter 5 Longline Set and Haul

General Instructions	21
Data Elements	21
Weather Code Table	23
Beaufort Chart	24

Chapter 6 Gear Configuration

General Instructions	25
Data Elements	25
Longline Gear Diagram	28
Branchline Diagram	29

Chapter 7 Protected Species Event Log

Introduction	31
General Instructions	31
Special Notice for Recording Seabird Sighting Data	32
Data Elements	33

* There is no **Chapter 8 or 13** in American Samoa*

Chapter 9 Catch Event Log and Data Quality Control sheet	
General Instructions	39
Data Elements	39
Fish Measurement Instructions	41
BILLFISH: (Marlins, Swordfish, Shark, Spearfish)	43
Shark Diagram	43
Shark Sexing Diagrams	44
TUNAS and All other Fish	45
Opah Sexing Diagram	46
Dolphinfish Sexing Diagrams	46
Chapter 10 Sea Turtle Biological Data	
Introduction	47
Sea Turtle Handling and Dehooking	47
Resuscitation	53
Instructions for Applying Metal Flipper Tags	54
Protocol For Collecting Sea Turtle Skin Biopsies	58
Sea Turtle Biological Data Form	60
Instructions for Reporting Sea Turtle Interactions	65
Chapter 11 Seabird Biological Data Form	
General Instructions	67
Data Elements	67
Chapter 12 Marine Mammal Biological Data Form	
General Instructions	71
Cetacean Skin Biopsy Protocol	73
Guidelines for Disentangling Cetaceans	75
Chapter 14 Specimen Logs	
Data Elements	77
Specimen Numbering System	78
Chapter 15 Tag Data Form	
Data Elements	79
Chapter 16 Photographs and Photo Log	
Photographs	81
Data Elements	84
Chapter 17 Sketch Log	
Data Elements	85

Chapter 18 Satellite Phones and Radio Reporting Instructions	
Introduction	87
Radio Distress Procedure	90
Standard Phonetic Alphabet	91
Radio Report Sheet Example	92
Satellite Phone Protocols	93
Important Numbers	94
Chapter 19 Equipment List and Maintenance Tips	
Checkout list	95
General Instructions	96
Chapter 20 Species Codes	
Fish	97
Seabirds	100
Sea Turtles	101
Marine Mammals	102
Chapter 21 Appendices	
Temperature & Length Conversion Formulas	103
Fahrenheit –Celsius Conversion Chart	104
Observer related regulations from 50 CFR part 600	105
Spiny Rayed Fish Bauplan	109
General Safety Policies	110
Liferaft cradle position	111
Chapter 22 Field Manual Changes and Updates	113

BLANK

Chapter 1 Introduction

Longline Observer Authority and Goal

The longline fishery based in American Samoa (AS) operates in the Southern Pacific Ocean, and is managed by the National Marine Fisheries Service (NMFS) under the authority of the Magnuson-Stevens Fishery Conservation and Management Act. The NMFS has determined that the AS longline fishery is likely to adversely affect Leatherback, Loggerhead, Olive Ridley, Green and Hawksbill sea turtles.

Other species of concern are False killer whales, *Pseudorca crassidens*, and Short finned Pilot whales, *Globicephala macrorhynchus*. Research indicates the need for more information to assess the impact of the fishery on these species.

Vessels registered with AS Longline Limited Access permits are required to carry observers, when directed to do so by the NMFS to document the incidental capture of sea turtles as well as seabird and marine mammal interactions in the fishery. Other data on the fishery are collected to support research undertaken by fisheries scientists at the Pacific Islands Fishery Science Center (PIFSC). The research is directed at several different issues such as; understanding the basic biology of the species encountered, identifying factors that influence the bycatch rates of selected species, and the economic factors that affect fishing behavior for example.

Guidelines

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

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 views on the original back of the data forms or in the comments section.

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. There is no guarantee that your data will not be used as evidence to assess penalties. 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.

Responsibilities

Sea-assignment readiness is determined by personal fitness, training preparation and staff assessments.

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

Observers should not keep personal diaries during a trip assignment. This does not include materials issued to you for documentation purposes.

Because observer objectives are mandated by federal regulations, personal research is prohibited aboard vessel assignments.

Intentionally entering the water from an assigned vessel is prohibited; such activity will compromise personal safety and data collection duties.

Observers do not choose vessel assignments; however **observers have the right to refuse deployment on a vessel they perceive as unsafe**. Management selects sea assignments through a predetermined sampling plan and confirms that the boats meet minimum U.S. Coast Guard safety requirements. 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 than the port of departure. In these instances, the trip is considered completed when the vessel arrives in port to offload its catch. If you are directed by the PIRO Observer Program (or a designated authority) to remain on the vessel and observe the subsequent fishing trip do not use the same trip number. Contact the PIRO Observer Programs office in AS for the trip number to use.

Never leave your assigned vessel prematurely without approval from the PIRO Observer Program 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.**

BLANK

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, and
Biological (life history), data

General Duties

Work at sea and on shore

Work under the direction of the PIRO Administrator and Operations Coordinator

Collect research and management data from the AS longline fisheries

Work at sea aboard longline fishing vessels

Collect data on vessel activity and fishing operations

Identify protected species, target species, and by-catch species

Record the number and position of protected species, target species, and by-catch species caught during fishing operations or sighted during the trip.

Record sea turtles interactions and sightings observed during fishing activity

Record biological data for sea turtles and other selected marine species

Review collected data and enter data into the database

The Observer's Role

(adapted from an article by P. Cullenberg and K. Rivera in the OTC Quarterly, vol 8, #3)

A longline observer's job in AS 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. This is where the data you collected are reviewed, first by yourself and secondly by a debriefer. As part of the initial reviews, you may be asked questions on species identification, clarification of notes or comments and possibly to document some information for enforcement issues. After the initial checks, you'll enter data pertaining to protected species interactions in LODS,

when a suitable internet connection can be established. The rest of the data entry process, and readback, will take place in Honolulu.

Before A Vessel Assignment

Placement Meeting

Before each trip, observers will meet with the vessel operator to review respective responsibilities, and participate in vessel drills. This meeting will be led by the Port Coordinator, or acting designate. After the meeting, observers have the responsibility to place their gear aboard their assigned vessels and to be aboard one hour before the scheduled departure time.

- Observers assigned to a vessel should report to the AS port coordinator each day until their vessel departs.
- An observer's trip begins when the vessel leaves port to conduct fishing operations.

During a Vessel Assignment

These lists of do's and don'ts, is the same list that is reviewed with vessel captains during the placement meetings before each trip.

Observers are to:

1. Collect objective data on fishing activity, the take of target and non-target species, and selected specimen samples
2. Perform their duties in a way that minimizes interference with fishing operations.
3. Keep open communication with vessel personnel by informing them about observer duties and collected data.
4. Obtain permission from the vessel captain before using any boat equipment.
5. Collect specimens as instructed by NMFS and clean up afterward.
6. Use work cameras only for photographing NMFS directed subjects.
7. Ask the captain about emergency procedures and familiarize themselves with the locations of life rafts, fire extinguishers and first aid kits.
8. Remain aboard their vessels until the vessels return to port to unload their catch.

9. Share housekeeping routines such as dishes and general clean up with the crew.
- **Note:** It is incumbent upon observers to maintain his or her personal hygiene. Bathe or shower as allowed, recognizing that fishing vessels are often cramped and freshwater for bathing may be in limited supply.

Observers are not to:

1. Dictate procedures or direct fishing operations.
2. Be involved with crew responsibilities, such as standing watch or helping with fishing operations.
3. Keep personal diaries in any form.
4. Bring aboard personal recording devices or personal cameras of any type.
5. Compromise data or record extemporaneous or personal comments.
6. Conduct personal research of any kind.
7. Keep specimens or edible fish of any kind.
8. Discuss boat business from one vessel to another or to any fishermen.

Captains are to:

1. Cooperate with the observer in the performance of the observer's duties.
2. Provide living quarters comparable to a crewmember.
3. Provide the same meals, snacks and amenities provided to crewmembers
4. Allow the observer access to areas of the vessel necessary to conduct observer duties, including access to communications and navigation equipment.
5. Notify the observer when fishing operations are to begin and end.
6. Provide true vessel locations by latitude and longitude upon request by the observer.
7. Bring aboard sea turtles and marine mammals killed during fishing operations that

are readily accessible to crewmembers, if requested by the observer.

8. Provide storage space for observer collected specimens.
9. Record personal statements on the back of the observer's original forms, if there is disagreement with the observer's collected data.
10. Comply with other guidelines, regulations or conditions that NMFS may provide in writing to ensure the effective use of observers.

Captains are not to:

1. Ask observers to stand watch or help with fishing operations
2. Forcibly assault, harass or sexually harass, intimidate or attempt to influence observers, interfere with or impede observer duties.
3. Fish without an observer onboard the vessel after the owner or agent of the owner has been directed by NMFS to make accommodations for an observer.

Interference and Harassment

- Record in the 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.**
- 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 of 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 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) o section 403©.
- 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 UC 8108 et seq.)”*
- If you are an observer working for the 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. This includes your 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 within seven days of any injury or illness incurred while aboard the vessel.

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

- In order to obtain FECA benefits, you should submit the appropriate FECA claim form within 30 days of the injury. The most common FECA 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 external force, including stress or strain. Traumatic injuries must be 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 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 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 complete the following forms:

- a. Post-trip questionnaire and possibly a safety or incident report.

- *At the conclusion of their first trip, each observer will also fill out a first trip training critique-questionnaire.

- After a trip, each observer should ask if there have been changes to the procedures for data editing and entry.

Travel Responsibilities

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

Keep your collected data and cameras, in close possession at all times. **Do not check data as baggage. Do not mail originals.**

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

No data is better than bad data!

(No pun intended)

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. (Use the Documentation Notebook to describe any situations during the trip that you feel should be recorded when there is no form or designated area for the particular situation.)

1. Use a pencil on all forms. Line out any errors, and write the correct data above the struck item. It is acceptable to erase within 24 hours of the original inscription. **Do not try to make changes over a number that is already recorded.**
2. Print legibly.
3. Observe and accurately record descriptive and quantitative data with explicit notes and explanations. **Record data as events occur**, trust nothing to memory.
4. Record times as four digits using the 24-hour clock, for example, 5:30 P.M. is written as 1730, but 5:30 A.M. is written as 0530. Use AS local time.
5. **Protected species are 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 this event(s) you are describing.

Data Collection Priorities

As an observer in the AS longline fishery your primary duty is to obtain reliable information about sea turtles and other protected species interactions. Therefore, a data collection hierarchy has been established and is described below.

Process animals in the following order of priority:

- Sea turtles
- Seabirds
- Marine Mammals
- Billfish
- Sharks
- Tunas

Sample and Data Collection Priorities

Samples

- Sea turtles, skin biopsies or whole dead animals
- Seabirds, whole - leave any leg bands present on the bird
- Marine mammal skin biopsies
- Selected biological samples from fish, as directed - see Circular Updates.

Data

- Collect & document data from all incidental catches and interactions of protected species.
- Record species composition and disposition of the catch.
- Record fishing locations and gear characteristics.
- Collect fish & shark measurements.
- Describe all incidents where tags are applied, observed, or removed on any caught animal.

Sample Collection General Comments

Make collections only if you have the proper storage medium & space. Collect only directed specimens and samples.

Specimen Collection Protocol

Refer to the appropriate Circular Update packet and the collection protocols in the Appendix of this field manual.

International Date Line

It is entirely possible for your trip to cross the International Date Line. When this happens, the GPS units will automatically adjust to read their current positions date and time. The Date line does not entirely follow a line of longitude, but moves to include various nations and territories. Should you cross the International Date Line, continue recording your header information with the AS local date and time (don't change your watch), and record your current locations information in the comments section of each applicable form. These forms include:

Set and Haul

Gear Configuration

Trip Specifications

All Biological Forms

Tag Form

The Trip Specifications Form should receive 2 comments; one noting your first crossing, and the second when you cross back. It should read something along these lines:

“10 Sep 2007, we crossed the international Date line around 1410 AS Local time. “

“We returned back across the International Date Line 21 Sep 2007 around 2230 hrs AS Local time”.

Observe the following:

29 Sep 2006 1345 hrs in American Samoa = 30 Sep 2006 1345 hrs in Tonga



Overview

The priorities of data & sample collection are as follows:

- Record sea turtle identifying characteristics, morphometric measurements, and tag data. Retain dead sea turtles after processing, if applicable.
- Record seabird identifying characteristics and tag data. Retain dead seabirds after processing; leave any leg bands in place.
- Record marine mammal interactions and collect samples.

Collect & record fish measurements

Chapter 4 Trip Specifications Record

Data Elements

Observer ID - Use your Observer ID number.

Trip Number - in the upper right corner, the unique six-digit number assigned by the Operations Coordinator. In the first two blocks enter **AS**. After the second block, enter the four digit number.

Manual Version – in the upper right corner of the form, fill in the spaces with the Manual Version number. It can be located on the title page of the manual. The first two characters are **AS** for longline manual.

Documentation Number - the 6 to 7-digit number assigned to the vessel by the US Coast Guard. It is painted on the vessel. Right justify this number and do not put in any leading zeros.

Vessel Name - print in block letters 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 “fishing vessel.”

Vessel Length - the overall length of the vessel in feet. This value can be retrieved by the debriefers from the USCG if you can not 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 names you may be unfamiliar with. If the operator has no middle name, then write “(NMI)” for *No Middle Initial*, after the operator’s first name.

Departure Date - the date the vessel first departed for the fishing area. Use two digits for the day. Write the first three letters of the month (*ex.* JAN, FEB, MAR). In the last two spaces, write in two digits representing the year. Example; August 15, 2003 would be recorded as 15 AUG 2003.

Time - the time that the vessel first departed for the fishing area. Use AS local time and the 24-hour clock.

Port of Departure - print in block letters the name of the port city the vessel departed from, e.g., Pago Pago.

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 this section. As a rule a stop is considered a port stop if the vessel has been **out of the harbor** (that's seaward of Flower Pot Rock) for more than 30 minutes before returning.

Stop Number - record a single digit indicating the number of the port stop starting with 1.

Port Stop Date - the date the vessel returned to any port for any reason other than the end of the trip. Use the standard date format (*ex.* 24 JUL 2003).

Time - the time that the vessel returned to port for any reason other than the end of the trip. Use AS local time and the 24-hour clock with two digits for the hour and two digits for the minutes.

Date Trip Resumed - the date that the vessel departed port after Port Stop 1 to resume fishing.

Time - the time that the vessel departed port after Stop 1 to resume fishing.

Arrival Date - the date the vessel returns to port after completing the fishing trip.

Time - the time that the vessel returns to port after completing the fishing trip.

Port of Arrival - print in block letters the name of the port city the vessel returned to, *ex.* Pago Pago or San Pedro, CA.

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. An Example of these types of specimens is a seabird that dies on deck but was not brought up on gear.

Chapter 5 Longline Set & Haul Information

General Instructions

Observers must observe the entire haul back (gear retrieval process).

Record unusual information pertaining to the set and haul in the comments section

Data Elements

Observer ID -, Use your Observer ID number.

Trip Number - Record the number of the trip assigned by the port coordinator.

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

Log Book Page Number - record the page number from the *NMFS Daily Longline Fishing Log* that the captain uses to report the catch for this set. **Note:** Right justify and do not use leading zeros.

Begin Set Block

Date - the date when the setting operations start (the first piece of gear goes into the water.) Use the standard date format

Time – record the exact time when the setting operations start. **DO NOT** round the time. Record times using the 24-hour clock and use AS Local time.

Latitude - the latitude of the vessel at the beginning of the setting operation. Enter *Degrees, Minutes and Tenths of Minutes*. Obtain positions from the GPS unit on the vessel. Enter **N** in the trailing block for the Northern Hemisphere, and **S** for the Southern Hemisphere. (ex. 21° 18.3 N) **DO NOT** record positions from the captain's logbook.

Longitude - the longitude of the vessel at the beginning of the setting operation. Enter *Degrees, Minutes and Tenths of Minutes*. Obtain positions from the GPS unit on the vessel. Enter **E** in the trailing block to indicate East longitude and **W** for West longitude. Be aware of the date change when crossing the International Date Line (in the General Instructions pg. 17). AS lies on the Western side of the International Date Line. **DO NOT** record positions from the captain's logbook.

Weather Code - record the two digit number representing the weather conditions at the beginning of the setting procedure.

In-situ Surface Temperature – Record the sea surface temperature as a 3 digit number in the Fahrenheit scale to the nearest 0.1 degree. Use the vessel's thermistor

(thermometer probe). If the vessel does not have a working thermistor, use the issued back-up thermometer.

End Set Block

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

Time - Previously explained in this section. You still remember it right?

Latitude - Previously explained in this section.

Longitude - Previously explained in this section.

Weather Code - Previously explained in this section.

Beaufort - record the Beaufort Scale 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.

In-situ Surface Temperature – Previously explained in this section.

Begin Haul Block

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 purposed on the catch record. Use the standard date format.

Time - record the exact time when the haul back operation is begun. **DO NOT** round the time. Record times using the 24 hour clock set to AS local time.

Latitude - Previously explained in this section.

Longitude - Previously explained in this section.

Weather Code - Previously explained in this section.

In-situ Surface Temperature – Previously explained in this section.

End Haul Block

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. **DO NOT** round the time. Record times using the 24 hour clock and use AS local time.

Latitude - Previously explained in this section.

Longitude - Previously explained in this section.

Weather Code - Previously explained in this section.

Beaufort - Previously explained in this section.

In-situ Surface Temperature – Previously explained in this section.

Set / Haul Events

Haul Back Direction Code - enter the appropriate two digit code to indicate which end the gear was hauled. 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 or X in the box if the mainline unintentionally parted while the gear was hauled.

Number Section Retrieved - if the mainline parts, enter the number of pieces that were hauled back.

Protected species Interaction - Place a check or X in the appropriate box if you there was a protected species interaction or entanglement during fishing operations. Be sure to document the interaction in the Protected Species Event Log.

Comments - Use this section to describe any particulars that could not be placed in the data elements. If any data elements were left blank (except line parted), record what was left blank and why the information could not be collected, in this section.

Weather Code Table

00 Not determined	06 Rain
01 Clear	07 Thunderstorms
02 Partly Cloudy	08 Rain & Fog
03 Cloudy (one or more layers)	09 Fog/Thick Haze
04 Drizzle	10 Snow, or rain/snow mix
05 Showers	99 Other

Beaufort Chart

<u>Sea Surface State</u>	<u>Beaufort</u>	<u>Wind Speeds</u>	<u>Wave Height</u>
Surface is like a mirror.	0	Calm	0 ft
Ripples with the appearance of scales, no foam.	1	1-3 kts	¼ ft
Small wavelets, glassy crests, not breaking.	2	4-6 kts	½ ft
Large wavelets, crests break, some scattered whitecaps.	3	7-10 kts	2 ft
Small waves, becoming longer, numerous white caps.	4	11-16 kts	4 ft
Moderate waves, longer form, many white caps, some spray.	5	17-21 kts	6 ft
Larger waves forming, whitecaps everywhere, more spray.	6	22-27 kts	10 ft
Sea heaps up, white foam from breaking waves blown into streaks.	7	28-33 kts	14 ft
Moderately high waves of greater length, edges of crests break into spindrift, foam is blown in well marked streaks.	8	34-40 kts	18 ft
High waves, rolling starts, Foam in dense streaks spray may reduce visibility.	9	41-47 kts	23 ft
Very high waves with over hanging crests, sea takes on white appearance, foam is blown in dense streaks obscuring visibility, heavy rolling.	10	48-55 kts	29 ft

Chapter 6 Gear Configuration

Data Elements

Observer ID: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

Set Number: Record the number of the set.

Hooks & Floats Block:

Number of 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. *Not sure?...check the diagram on pg.31.*

Hook Type: 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. If possible, ask for a hook as an example. If more than one hook style is used, record the predominant style and describe all of the hook types used and approximate amounts or percentages in the Comments section.

Hook Size: Record the size number of the hooks used.

Hooks/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.

Number Hooks Set: Count and record the number of hooks deployed on the 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.

Fishing Techniques Block

Should any information in the following blocks be composed of more than one type of material, record the material code of the majority in the space provided on the form. Record the other materials (write the names of the materials & the codes) in the comment section of the form. Try to get a sample when appropriate

Reported Target Depth: Ask the vessel operator how deep he wants the deepest part of the gear to fish. The units for this are meters. If the operator gives you the depth in fathoms, refer to the conversion formulas in the Appendices. (1fm = 1.82m) If you have to convert fm to m, make sure to include this in the Comments section of the form.

Target Species Code: Enter the three-digit code from the Species Code List. Ask vessel operator for target species type.

Name: In the box labeled Name, print the name of the target species from the Species Code List.

Bait Code: Enter the two-digit code from the list to indicate which bait was used on this set. Small squid (code 02) are 4-7" long calamari sized squid. If the bait code is 05, Mixed, or 06, Other; describe in the Comment section, what the bait was, and approximate amounts or percentages. If you are unsure of what bait type is, take a picture.

Examples: - *Mixed bait, 60/40 sanma-sardines*
- *9 cases sanma, 1 case sm. squid.*

Light Devices Block

Type Code: Enter the two-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. If using code 03, *Other*, describe with notes in the Comments section. If using code 00, *None*, leave the *No. Devices* and *Color Code* elements blank.

Number of Devices: Record the number of light devices deployed on this set.

Color Code: Record the color light the devices emit. If using code 08, *Mixed*, describe the colors used and approximate percentages on the Comments section of the form.

Mainline Block

Material Code: Select the appropriate code. If the code is 3 (Other), describe the material with notes, and collect a short sample if possible.

Diameter: Record the diameter of the mainline to the nearest tenth of a millimeter (0.1mm). Use dial calipers for this measurement

Reported Length: Record the length of mainline 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.

Reported Test: Record the test strength of the mainline material in lbs. Ask the captain for this information.

Number of Strands: Record the number of strands of material the mainline is woven, or braided from. Occasionally a vessel may have several long pieces of mainline tied together. Do not count these pieces to find the number of strands.

Color: Select the appropriate code indicating the color of the mainline. If the code is 9, Other, describe in the Comments section of the form.

Float line Block

Select examples of typical float lines used on this set. For the measured data elements (length & diameter), measure three typical float lines and take the average.

Material Code: Select the appropriate code. If there are more than 2 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.

Diameter: Record the diameter of the floatline to the nearest tenth of a millimeter (0.1mm). Use dial calipers for this measurement.

Measured Length: Record the length of the float line to the nearest tenth of a meter. Measure the line from end to end without a float attached to it

Branch Line Block

Select examples of typical branchlines used on this set. For the measured data elements (length & diameter), measure three typical branchlines and take the average.

Material Code: Previously explained in this section..

Diameter: Record the diameter of the branch line. Previously explained in this section.

Measured Length: Record the length of the branch line. Previously explained in this section.

Color: Previously explained in this section.

Reported Test: Record the test strength of the mainline material in lbs. Ask the captain for this information.

Leader Material Block

For the measured data elements, measure three typical leaders and take the average. If no leader is present, leave this field blank.

Material Code: Previously explained in this section.

Diameter: Record the diameter of the leader to the nearest tenth of a millimeter.

Measured Length: Record the length of the leader to the nearest tenth of a meter. Measure from the eye of the hook to end of the leader, usually to the weight.

Reported Test: The breaking strength of the leader material in lbs. Ask the captain for this information.

Weight Size: Record the predominant size of the weights used, in grams. If weights of different size are used, describe the weights used in the Comments section. AS LL vessels often do not employ weights.

Diagram of LL gear

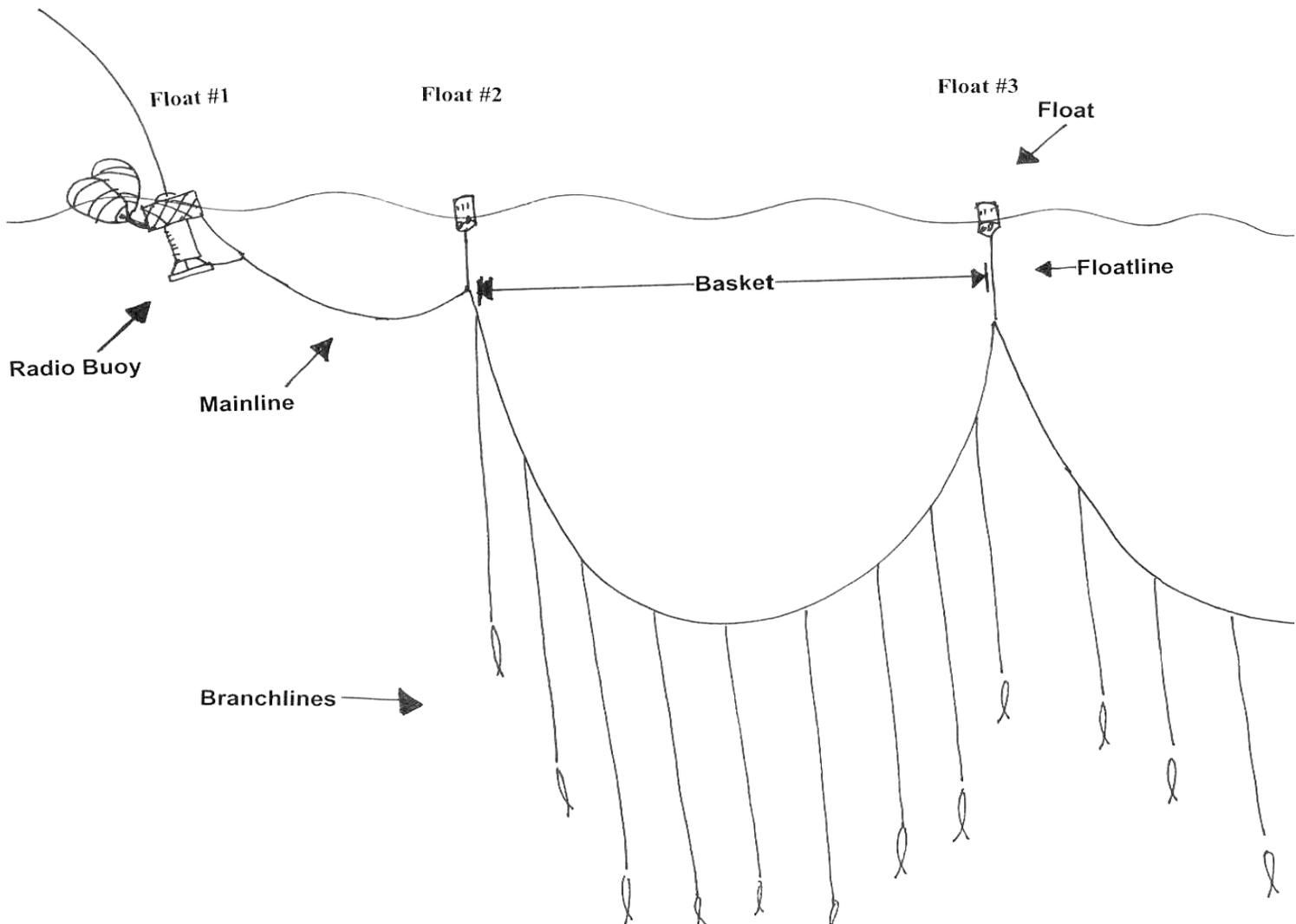
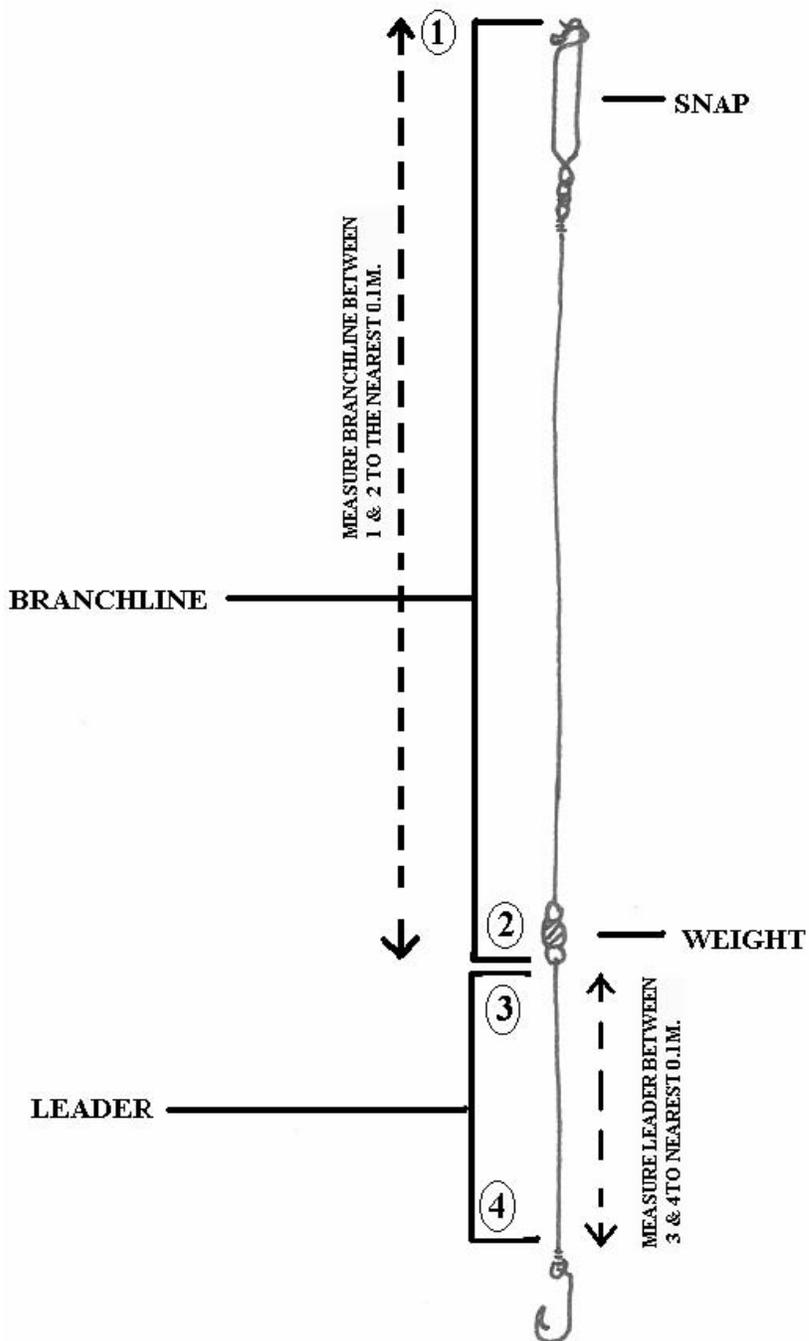


Diagram of Branchline



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

Blank

Chapter 7 Protected Species Event Log

Introduction

This form provides a means to record data from the three main types of events. They are Behavior, Contacts and Sightings.

For Behavior and Contacts, only use this form when you physically see the event occur (*e.g.* a sea turtle becoming hooked or entangled, or a bird diving on the bait). Sightings can be either by the observer, vessel crew or both.

Approaches: Events where the marine mammals or sea turtles are observed coming closer to the vessel or gear from its initial observation. This does not include sea birds.

Contact: Events where the animal is observed to come into contact with the gear. Contact with bait or catch that is on a hook is considered as a gear contact. Birds that land on floats in the water are considered contact with gear. Birds that land on the boat are not considered contacts (that's Behavior). Animals observed becoming hooked or entangled in the gear are considered "catch-contacts" and are counted as "contacts" on this form. Data from these "caught" (catch-contact) animals would then be completed on the Catch Log. If you have a turtle 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. All contacts require comments.

Behaviors (incl. sightings): Descriptions of marine mammal or sea turtle activity that do not involve contact with the fishing gear.

Special Notice for Short-tailed Albatross Observations

**Short-tailed Albatross observations are a high priority.
RECORD ALL SHORT-TAIL SIGHTINGS
NO MATTER WHEN YOU SEE ONE!
If you see one, 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). A single event, like an observed hooking could include such steps as:

1. The observed arrival & investigation (BEHAVIOR).
2. The observed contact with the fishing gear (CONTACT).

All steps would have the same overall Event Number, but each step would have a different Event Type Code.

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 may contain several different species of animals engaged in similar behaviors such as a mixed pod of dolphin species traveling as a cohesive group in the same direction.

Sightings: Sightings simply mean you saw a species of animal at a certain place and at a certain time. The term sightings, also implies that the animals, (marine mammals) were not observed in contact with the gear, attempting to steal bait off hooks or preying upon caught fish.

Interactions: Interactions are a specific type of sighting. An interaction means an animal was observed making contact with the fishing gear, and require comments.

Special Notice for Recording Seabird Sighting Data

(These instructions do not cover sea turtle or marine mammal sightings)

Seabird Interactions During the Set:

All incidents of seabirds observed making contact) with the gear should be recorded on the PSEL as completely and as soon as possible. *Try to determine as best you can given the local conditions, an estimate of the numbers of individuals involved in any observed interaction.*

Observed incidents of seabirds making *obvious attempts* (i.e. unsuccessful dives on baited hooks) should be recorded on the PSEL as completely as possible. Try to determine as best you can, given the local conditions, an estimate of the numbers of individuals making attempts. During the setting of the longline, seabirds that are observed injured (hooked or entangled) or killed should be recorded on the PSEL.

At times, you may only be able to get the lat/lon coordinates from the GPS 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, note this in the comments section.

During the Haul

Seabird Sightings During the Haul:

Sea bird sightings are to be recorded during the “bird survey” that is conducted at the beginning of each haul, unless it is a Short-Tailed Albatross, which gets recorded any time.

Seabird Interactions During the Haul:

All incidents of seabirds observed making contact (incl. 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) should be recorded on the PSEL 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 a Protected Species Event Log and then the information (re: float & hook nos., and condition information) about the catch/entanglement on the Catch Log 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 Record and the appropriate biological data form.

Data Elements

Observer ID: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

Protected Species Event Log Page No.: Begin with page 01 and number them consecutively throughout the trip.

Page Number: Enter the page number, as on this 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 last line.

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.

Date/Time: The date and time the event occurred. Use the AS local date and time formats (e.g., 24 JUL 2003).

Group/Individual ID: A number to designate the group or individual. If a group splits apart, each sub-group would then be entered onto its own line with a different Group/Indiv. ID. This should **not** be filled in for Scan events.

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

Event Type Code List

- B** = Behavior
- C** = Contact.
- S** = Scan (survey)
- X** = Event ended

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 Code List. Birds landing on the vessel are an example of behavior.

C = Contact is used to signify that the data on that line describes an animal(s) that was 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 contact. Animals that are seen only after being hooked or entangled should not be recorded on this form.

S = Scan Count (Survey) is used to signify that the data on that line(s) describes seabirds that were sighted during the survey at the beginning of the haul. 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 should 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 Code 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 Prep. Crew is preparing the vessel and gear for setting operations.
- 05** = Post Haul Clean-up. Crew are cleaning up and reorganizing the fishing gear after the last piece of gear is on board.
- 06** = Running / traveling while the gear is onboard the vessel
- 07** = Other

Set Number: Record the set number if the vessel activity is setting, soaking, or

retrieving.

Sighting Method: Enter the code that indicates the method by which you first became aware of the event.

Sighting Method Code List

- 00** = Undetermined. (for legacy & historical data considerations)
- 01** = Naked eye.
- 02** = Binoculars.
- 03** = First sighted by captain/crew, then by observer.
- 04** = Sighted by captain/crew only. (Do not record animals you do not see)
- 09** = Other.

Latitude & Longitude: Record the vessel's lat/lon coordinates from the GPS receiver at the time of the sighting. Record the minutes to the nearest tenth (only one place behind the decimal point; for example: 15°45.3 S or 153°19.1 W). If you are unable to obtain the coordinates right away, record them as soon as you are able.

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.

English Name: Enter a common name of the species. There is a list of the common species encountered on the bottom of the form.

Species Code: Enter the 2 or 3 letter code indicating the species code from the Species Code list in the Appendices.

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

Behavior Code List

01 = Contact. The animal was observed making contact with any part of the gear (incl. hooked bait). If a bird lands on a float in the water this is considered a contact. If a bird lands on the boat this is not considered a contact. Animals observed becoming hooked or entangled get this code and are also recorded onto the Catch Log. Observations of bait or caught fish in the animal's mouth / beak can be accepted as evidence of contact, provided the same material (*i.e.* offal, spent bait) was not observed already present in the immediate vicinity of the animal.

02 = Attempt, no contact. An observed unsuccessful attempt to steal / feed on hooked bait or catch. 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.

03 = Near gear (or vessel), within 50m.

04 = Distance, 51 to 150m.

05 = Feeding on catch. The animal(s) were observed preying on hooked catch. Animal(s) observed in the immediate vicinity of the gear / vessel during hauling operations and catch showing fresh signs of damage or predation typical of the species observed, are evidence of *Feeding on Catch* and should receive this behavior code.

06 = Porpoising - splashing along the surface, breaking the surface regularly, large portions of the body visible.

07 = Bow riding: animal(s) are observed keeping pace with the vessel in front of the bow wave.

08 = Breaching: jumping out of the water and crashing down on flank, back or belly.

09 = Swimming at surface, not porpoising.

10 = Milling: the animal(s) are resting at the surface and are moving about very slowly. Do not appear agitated or excited.

11 = Motionless: the animals are observed floating at the surface and not moving.

12 = Avoidance: the animal(s) suddenly change behavior or direction of movement to avoid the vessel.

13 = Vessel attraction: the animal(s) suddenly changes behavior or direction of movement and approach closer to the vessel than the initial sighting distance. Birds on the vessel fit into this category.

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 comment section.

Condition Code - Select the code that represents the state of the animal at the end of the phase you are recording on the line. A change in the condition necessitates a new line.

Condition Code List

02 = Alive, not injured: The animal(s) of this species involved in this event that are alive & uninjured.

03 = Injured: The animal(s) of this species that are injured at the end of this event. The **Behavior code** of injured animals must be 01.

04 = Killed. The animal(s) of this species that are clearly dead at the end of this event, when the interaction does not occur during gear retrieval.

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 Block

Often you will observe a large number of animals, such as a mixed species flock of albatross or a large pod of dolphins.

Low Estimate: 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 Estimate: 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 Estimate: 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: Place a check mark or X in the box if you drew a sketch of the animal(s) or incident.

Photo: Place a check mark or X in the box if you took a photo of the animal(s). Make sure to record the details on your photo log.

Comment: Place a check mark or X in the box if there are comments/notes.

Association Code Block

The elements in this section indicate which other forms may relate to this event. For example, after an animal is observed becoming hooked, the form code CL element will indicate that the capture information is in the Catch Log. If the event on this line follows a previous line, the form code PS indicates that there is another preceding event on this form; use the line number of the initial event.

Form Code: A two-letter abbreviation of each form title. It can be found in the lower right corner of each form.

Page Number, Line Number: The page and line number of the form that contains the related information to this event. Use the first line of an event for the associated page and line number on the Protected Species form.

Chapter 9 Catch Event Log

General Instructions

It is your duty to personally see everything that comes up on the line.

Do not record unknown objects, unseen animals, or squid and other invertebrates on this form. If there is an unknown object on the line (*i.e.* something comes 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. Comments on unknowns and invertebrates will be entered on the Set & Haul entry screen during data entry.

SPECIAL NOTE FOR OBSERVING SEA BIRDS AND RECORDING PROTECTED SPECIES INTERACTIONS

During bird surveys 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 ok 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, with broken or damaged spinal columns, or if taking the measurement will endanger you (such as with a large active shark). Record the **approximate length** of fish that fall off or are accidentally knocked off the hook before they are landed. Do not use AL for fish that are heads only.

Observers should ask that, if possible, every 3rd fish be brought on board to measure. 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 the fish to the sea.

Data Elements

Observer ID: Use the Observer ID number assigned to you..

Trip Number: Record the number of the trip assigned by the port coordinator.

Set Number: Sets are numbered consecutively beginning with 01.

Catch Page Number: Number the first page of each set 01.

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 Column: Enter same page number as entered at the top of this form page. 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

Species Code: Enter the three-digit species code from the Species Code list (Chapter 20) for all fish.

Float Number: Floats are counted sequentially beginning with the first float brought aboard the vessel during the haul.

Hook Number: Hooks are counted sequentially between each float. 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 damage code of CO with comments. The second fish should have comments stating that it became hooked while feeding on catch.

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

Fish & Sharks: **A** = Alive (active). **D** = Dead (or inactive). If you are unable to determine whether or not a fish is alive, enter D.

*Caught Condition codes **I** & **U** are reserved for protected species. They will not be accepted for fish or sharks.

Protected Species: **A** = Alive, **D** = Dead, **I** = Injured, **U** = Unknown.

Kept/Returned: 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.

***A fish or shark retained by the observer as a specimen (identification purposes or a research request) should be marked as though it were returned *Dead*.**

K = Kept: Fish retained, in part or whole, by the fishermen for sale or personal consumption.

A = Alive: For a fish or shark, a Return code of Alive indicates that the animal was active when it was returned to the sea. The "I" (Injured) code is reserved for protected species only all others are listed as A or D.

For Protected Species, a Return Code of Alive indicates that the animal freed itself and swam or flew away from the gear with no visible injuries or deformations. However; protected species that are observed hooked before freeing themselves should be marked as *Injured*, even if you don't see any blood or wound. They must have freed themselves from the gear through their own efforts.

D = Dead: Dead indicates the animal did not swim away after being returned, or had any visible muscular activity. Inactive fish and fish which you are unable to determine if they are alive or not, should be marked as returned *Dead*. A fish or shark retained by an observer as a specimen (for identification purposes or a research request) should be marked as returned *Dead*

I = Injured: (Only for protected species) Injured indicates the protected species was physically damaged as a result of becoming hooked or entangled in the longline gear. All hooked animals are considered *Injured*, no matter the severity. Animals that are observed entangled and are unable to free themselves are considered as *Injured*. If they are disentangled or cut free from the longline gear by the crew or the observer, the animal should be marked as *Injured*. Animals that are released with part(s) of the fishing gear attached to their bodies are considered *Injured*. Describe all injuries of protected species on the appropriate biological form or PSEL as fully as you can, in addition to recording the data elements required to complete this form. Take a photograph of the injury, if possible. Make sketches if necessary, 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 animal after it was released.

F = Finned: This code is for sharks only. It means that the fins, and only the fins, were retained and that the rest of the shark's body was discarded. Sharks are marked as kept if any body parts (*i.e.* jaws, gall bladder, skin, body) other than the fins are retained. If a crew kept the fins and shark gall bladders, the sharks would be marked as *Kept*.

U = Unknown: 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. Describe any unknown returns in the notes/comments section.

Damage: Record the appropriate code for any damage observed. Damage refers to damage caused by other animals, not from gear or crew. Use the code the “*ND*” (*Observation Shows no Damage*) if you looked and did not see any damage. If you could not tell if the fish was damaged, record “*UO*” (*Un-Observed*). Describe any damage not covered by one of the damage codes. Enter CO for fish with two or more damage types, and explain the damage in the comment.

Sex: Indicate the sex of the specimen with an M or F. If the gender of the animal is unknown or undetermined, leave this blank.

MEASUREMENT

Measure every third fish caught, whether or not the vessel intends to keep the fish. Start by measuring the first fish caught and every “3rd” fish after that. If a “3rd” fish comes off the hook before being brought on board, make a visual estimate of the Fork

Length in FEET (*Approximate Length*, code AL). Measure the left side of the body, if possible. Accurate length measurements cannot be obtained from fish whose tails have been cut off, damaged or have a severed/damaged spinal column. Do not bother with MM heads.

Measurement Code: Enter the two letter code indicating which measurement(s) was taken. Different species groups have the following different measurements taken:

- Billfish: EF** – eye to fork

- Sharks: FL** – fork length
 PC – pre-caudal length
 CI – clasper inner length
- *Do not measure Rays**

- All Other Fish: FL** – fork length

Approximate Length for Billfish - Eye to Fork length: Estimated length in feet, from the posterior margin of the eye orbit to the fork in the tail.

Approximate Length for Sharks, Tunas & Other fish - Fork length: Estimated length in feet, from the tip of upper snout to the fork in the tail. When estimating the fork length of a thresher shark; you may use half the total length (snout to tail tip) as the value for the AL if you can't see the fork area.

Measurement: The dimension(s) of the animal are measured with the 2m calipers (or measuring tape for the clasper inner length of male sharks).

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).

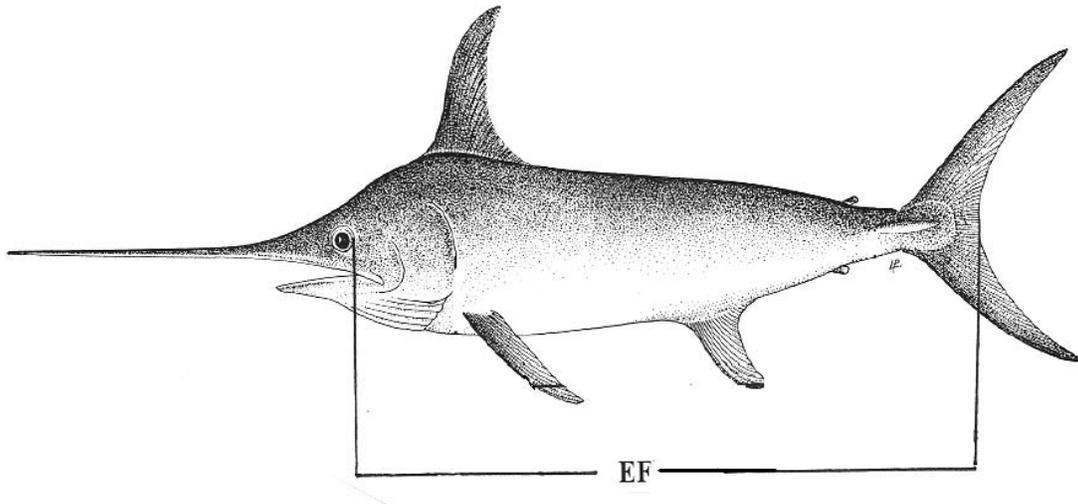
Photo: Check or X the box if you took a photo or video of the animal.

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

Comments: Check or X this box if you made a comment about this animal.

BILLFISH: (Marlins, Swordfish, Spearfish)

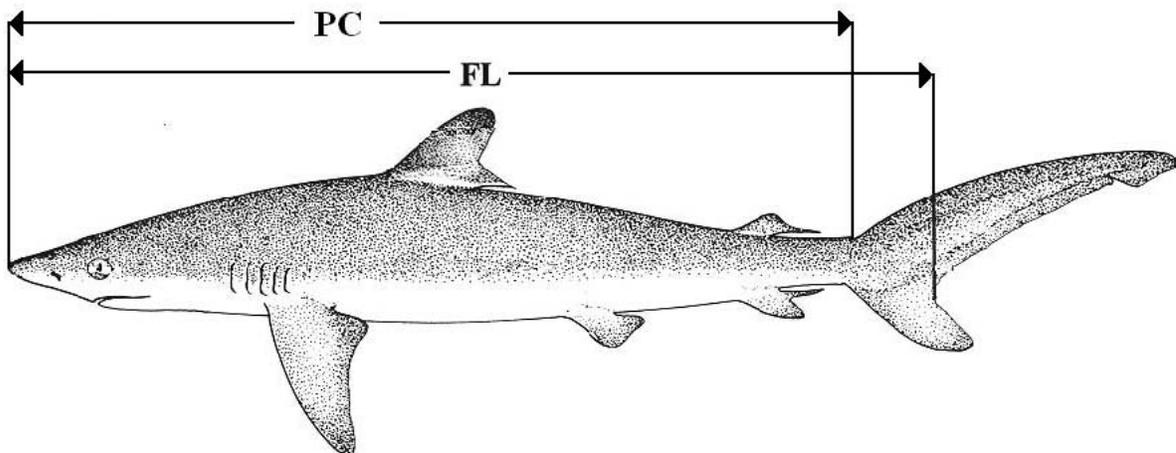
Eye to fork (EF): Measure from the posterior margin of **left** eye orbit to the inside of the fork in the tail. This measurement is taken with the 2m calipers.



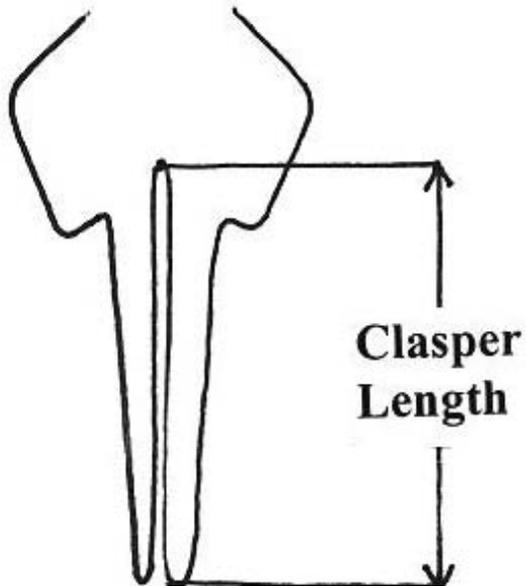
SHARKS

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

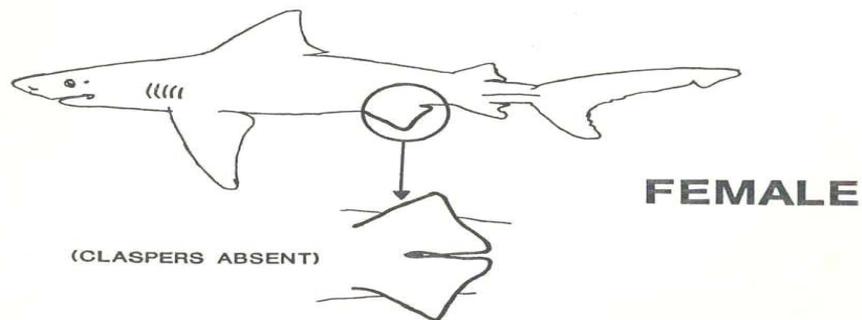
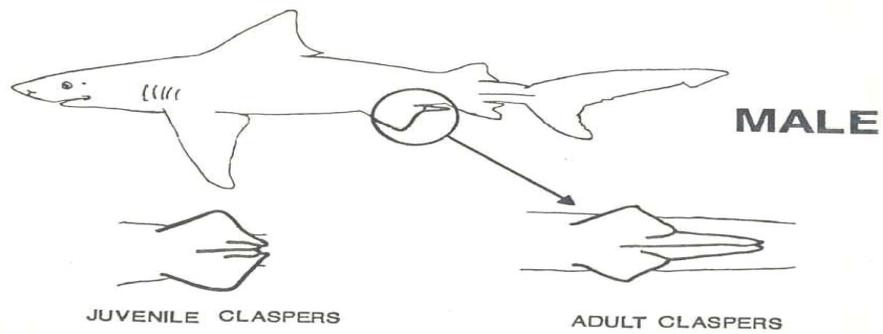
Pre-caudal length (PC): * Measure from the tip of the snout to the pre-caudal pit (small crease) at the end of the caudal peduncle. If the shark does not have a pre-caudal pit, use the point where the front edge of the upper tail lobe meets the caudal peduncle.



Clasper Inner Length (CI): For male sharks, measure from the tip of the clasper to the center of the angle between the claspers.

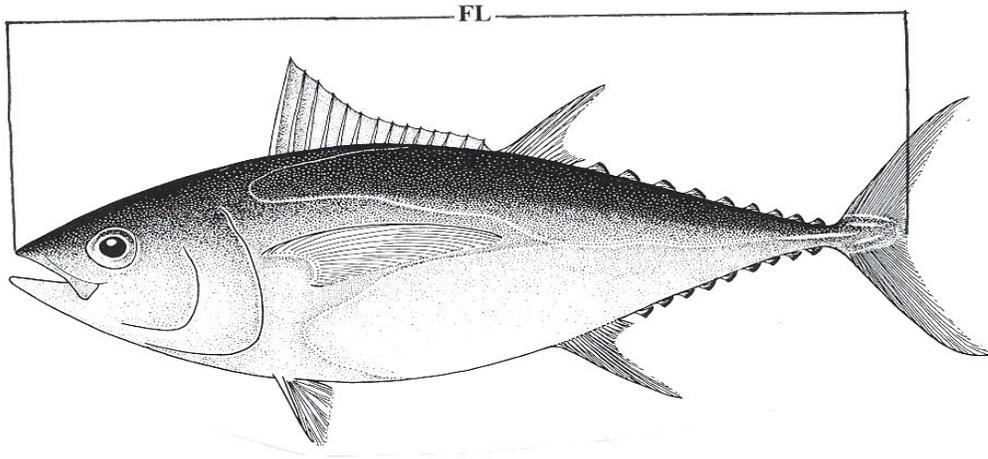


Shark Sexing Diagrams (Also works for Rays)



TUNAS and All Other fish

Fork length (FL): Measure from the tip of the snout to the inside of the fork in the tail. If an Opah's mouth is open, close it to take the measurement. **NOTE:** For fish with modified caudal fins (ie. Slender molas, Crestfish, etc.) measure to the middle of the tail. **Do not measure Rays.**



TUNA SEXING:

Female: 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 in color and circular in cross-section.

Male: The testes are compressed (somewhat flattened) lanceolate paired structures. The testes are white or light cream in color and flattened in cross-section.

Opah Sexing Diagram

Male: ↓



Female: ↑

** Note the sharp angle and concave nature of the male chestplate and the more gentle sloping, convex nature of the female chestplate.*

Dolphinfish Sexing Diagram

Male: ↓



Female: ↑

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

The Data Quality Control sheet

The ASOP version of this form varies from the Hawaii version. In AS it is common to have multiple sheets of DQC. The form is primarily self explanatory, and is filled out as in Hawaii, with the exception that each sheet gets subtotaled, and then totaled on the final sheet.

Header information: Provide the requested data.

Page_ of _: The first blank gets the page number you are on, and the 2nd blank gets the total number of DQC pages.

Set number: You will have to fill in the preceding 10's digit. For example place a "1" in front of anything in the "10's", and a 2 in front of anything in the "20's", etc.

Subtotals: Use this row to total the columns for the current page you are on, unless it is the final page. Carry forward all pages' *subtotals* to the final pages subtotals row.

Totals/ Last pg only: To complete this row, combine all the previous pages *subtotals* together and place into the *subtotals* row, then sum each column including the *subtotals* to achieve the trip *Totals*.

IE.: Pg 1 of 3 subtotals get combined with Pg 2 of 3 subtotals, and the sum is put into Pg 3 of 3 *subtotals* row.

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 them. These protocols and guidelines have been developed to reduce the risk of further injury to the turtle and the people handling the animals. 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.

Once the turtle has been safely brought on board or alongside the vessel your job is to collect samples, photographs, measurements, apply tags when applicable, and to remove as much gear as possible. All information is to be documented on the Sea Turtle biological data form. In addition any photographs, specimens, or tags applied or recaptured turtles need to be filled out on the appropriate logs. Incidentally caught protected species need to be reported to the AS office using the satellite phone as soon as possible.

Data collection

1. Skin biopsies from all permitted turtles
2. Carcass of dead animals when small enough to bring aboard

3. Photographs
4. Identifying characteristics described
5. Measurements for landed turtles
6. Position and time of capture
7. Detailed description gear attached and how much remains if not removed.
8. Detailed Description of how turtle was landed and handled on deck.
9. Apply flipper tags to live turtles brought on board
10. Apply PSAT to live, Hard-shelled turtles brought on board

Photographs that need to be taken for turtles brought on board include a **dorsal**, **ventral**, and **frontal** view, as well as a photo showing the hook location and any damage. If a satellite tag (PSAT) is attached to the turtle, take a picture of the carapace showing the satellite tag after attachment.

Sea Turtle Handling and Dehooking

Dehooking equipment is required aboard all permitted vessels in the AS Longline fishery. The dehooking equipment is used for the safe release of incidentally caught sea turtles. A number of specific dehookers and related items that meet specific minimum design and performance standards are required (see Table 1).

Releasing turtles with minimal injury:

What are the observer's responsibilities?

Observers are responsible for assisting the vessel in an attempt to remove all the gear from the turtle, including line and hooks. 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. Upon sighting a turtle, the vessel operator must stop the vessel and bring the turtle alongside by slowly and gently retrieving the branch line. Do not use gaffs or any other sharp devices to retrieve the turtle. Determine if you are able to land the turtle, depending on the size and sea conditions, by working and coordinating with crew members. This is not a one person operation. If possible take a picture of the turtle as it is being pulled to the boat prior to sampling and release. You should then assess the location of the hook/entanglement and proceed with the best possible release that will cause the minimal amount of injury to the turtle.

What should I do if the turtle is too big to bring aboard or safety conditions are questionable?

If you are unable to board the turtle due to size or conditions, 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 this order:

1. Get a biological sample with the biopsy pole
2. Take photos to show where the turtle is entangled/hooked
3. Then begin the dehooking/release process as quickly as possible

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
3. dehooking
4. biological sampling

What if removing the hook may cause more damage?

Deciding whether to remove a hook or not is a judgment call for each case on the part of the observer. Almost all external hooks should be able to be removed. If the hook is in a place where removal may cause more damage 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. Just cut the eye or barb of the hook and pull out the other end using long nose 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.

What equipment is required on all AS Longline vessels?

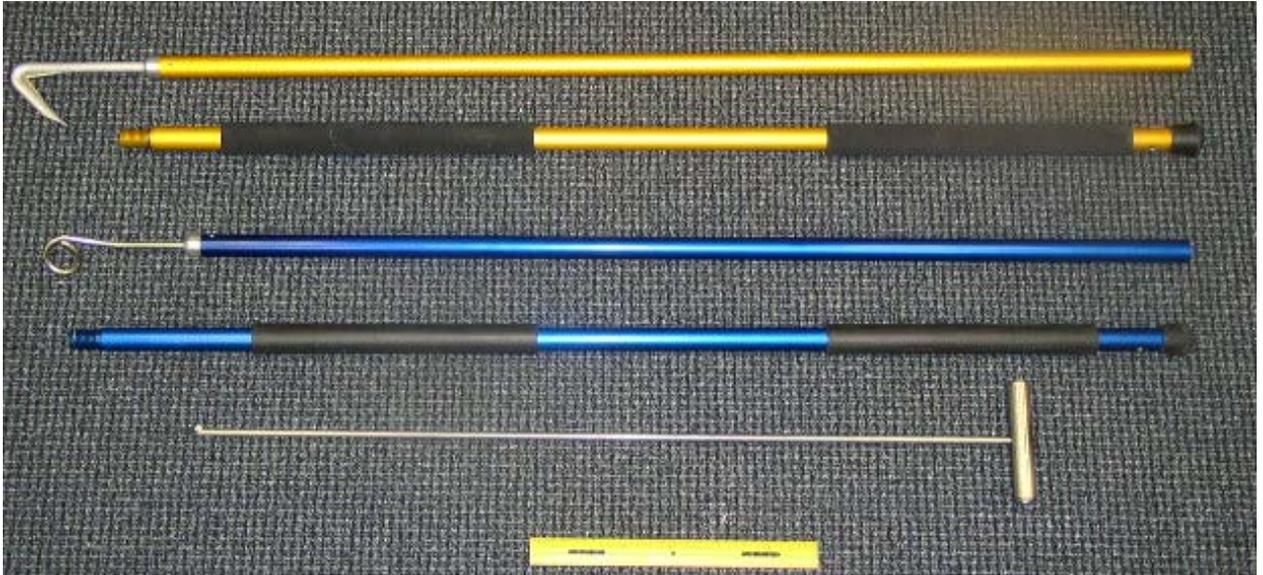
Table 1

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 cutter
8. Tire
9. Dip net
10. 2 of 7 mouth openers: Wood, hank of rope, canine mouth openers, rope with protective hose covering, set of 4 PVC couplings, 2 sizes of Nylabones

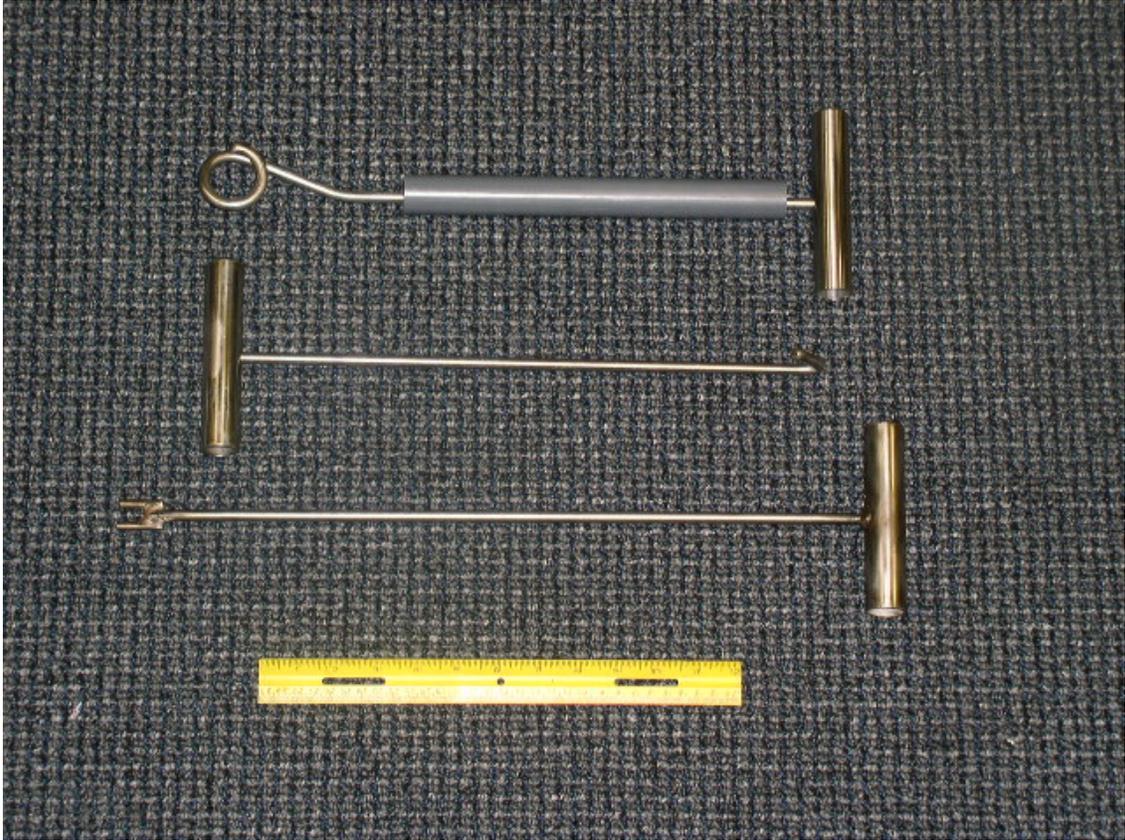
Gaff: A standard gaff found on almost any fishing vessel can be used to fulfill the requirement of a device to “pull and inverted V”. It will be used to assist in detanglements, never to control the turtle.

Long handled “pigtail” dehooker: This dehooker comes in 2 pieces that is 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 line from turtles that are released while they remain in the water.



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 hide 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 aren’t too deep.



Mouth gags and openers 2 of the 7: wood and rope or PVC set



How do you 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 ¼ 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 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 dehooking 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 loose and does not re-engage.

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

1. Place the turtle in a secure and shaded location for a minimum of 4 hours and up to 24 hours. It is best that the stress toxins have time to dissipate.
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 stop the vessel by placing it in neutral to disengage the propeller.

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

- A) Entangled but not hooked
- B) Hooked but not entangled
- C) Hooked and entangled
 - a) The Inverted V technique: Used when it is difficult to engage the line closest to the hook with the dehooker. Carefully engage the line closest to the hook with a gaff. Make sure to avoid hitting the turtle with the point of the gaff. Hold the line up ward with the gaff forming an inverted “V”. The dehooker person can then engage the line and continue with the steps for using a long handled dehooker.



How do you use a short handled pigtail dehooker?

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.

1. Place the dehooker on the line (perpendicular / at a 90 degree angle) with the opening of the pigtail facing up.
2. Pull the device toward you as you would a bow and arrow, until you engage the line.
3. Turn the dehooker a $\frac{1}{4}$ turn clockwise, putting the mono in the center of the curl.
4. 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 proper engagement on the hook.
5. Once engaged, bring the line and the device together making sure the mono is tight and parallel with the dehooking device.
6. 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.

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 elevating its hindquarters at least 6 inches (15.2 cm) for a period of 4 up 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 edge of the shell (carapace) and lifting one side about 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 circumstance be placed into a container holding water. A water-soaked towel placed over the head, carapace, and flippers is the most effective method in keeping a turtle moist, without covering the nostrils.



3. Sea turtles that revive and become active must be released over the stern of the boat only when fishing or scientific collection gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by vessels. Sea turtles that fail to respond to the reflex test or fail to move within 4 hours (up to 24, if possible) are considered Dead.



Observers are to request, from vessel personnel, that **any dead sea turtles, under the AS hardshell cap**, during a trip be **retained** after processing for return to Pago Pago. This includes dead turtles that may be encountered “free floating” and which are not necessarily attached to any gear. Dead turtles too large to bring aboard or store in the vessel’s hold space may be returned overboard after all samples, measurements, and photographs are taken.

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

- Leave any entangled line or hook in place. Leave the free end about 2ft long.
- Do not apply flipper tags and leave any tags present in place.
- Collect two skin biopsies.

Take **three (3) photographs of identifying characteristics**: Dorsal, Ventral, and Frontal views.

Complete a Sea Turtle Biological Data Form.

Record the turtle on the Specimen Log and update your Radio Report form.

Double wrap and store frozen or buried in ice until the turtle is secured by the AS port coordinator.

Instructions For Applying Metal Flipper Tags On Sea Turtles

Special Conditions

Only one hardshell turtle may be tagged per year in AS. The AS port coordinator will keep you apprised of the status of this cap. All tags shall be cleaned (e.g., oil residue) and disinfected before being used. First, wash the tag with soap and rinse thoroughly. Next, rinse the tag with a 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 one or two tags at a time. If more tape is removed, the tags are liable to fall off and become lost or 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 (figs. **1 & 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 part way, and released, the bent tag will fall out, and will not function properly (fig. 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 (figs. 4 & 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 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 turtle 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.

Adapted from instructions by G. H. Balazs

MTRP, NMFS Pacific Islands Fishery Science Center, Honolulu, HI

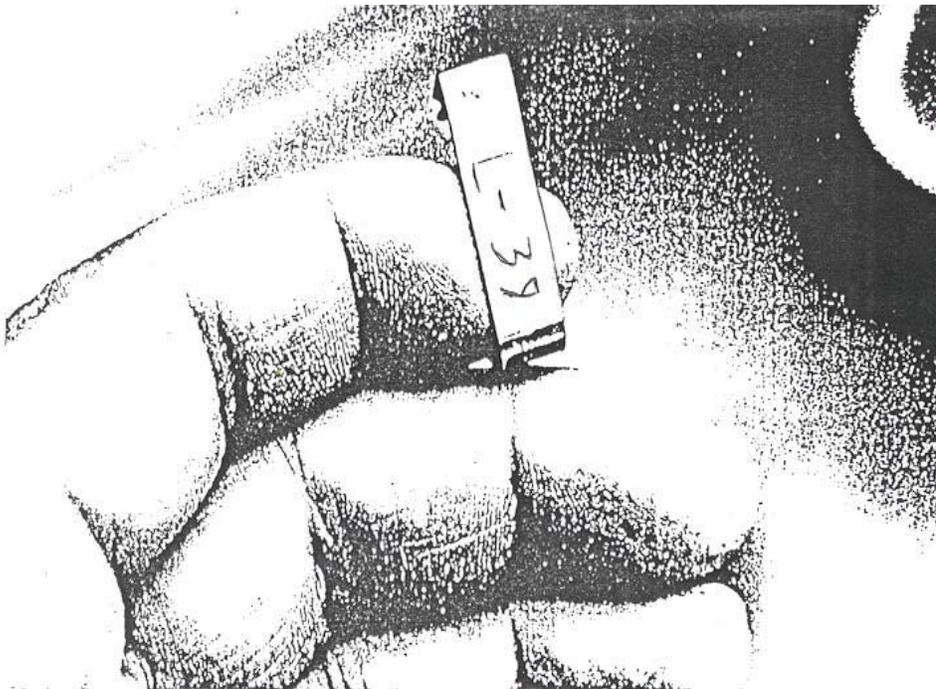


Figure 1. Holding a flipper tag in correct orientation to load into applicator. Note the numbered side of the tag is up.



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 placement. 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 angle of tag and edge of flipper.



Figure 6. A properly applied flipper tag.

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 clean tire for cushioning. The area surrounding the turtle should be made clear of materials that could be accidentally ingested.
2. Stabilize the turtle by turning it over and holding it still in a supine position. If available, a second person should provide assistance.
3. Using a disposable alcohol/or Betadine swab, clean the skin region between the plastron and the base of the hind flippers. The skin in this area is normally soft and smooth, and devoid of hard or enlarged keratinized scales. Skin on the ventral side at the base of the hind flippers 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 hand held biopsy punch] using your thumb and index finger. Place the circular cutting end on the smooth skin dorsal 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 [this is the hand held biopsy punch] from the skin by lifting it straight out. Use forceps to grasp and remove the thin circular plug of skin resulting from the cut made with the biopsy punch. The plug 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 (Whirl-pak™) containing purified granular salt (NaCl). Using another disposable alcohol/or Betadine swab clean around and inside the region of the turtle from which the skin plug was taken. Shake the container for several seconds after placing the skin sample inside, to make sure the sample is covered by the salt. Label the container with the date, the turtle's flipper tag number, and/or any other unique identifying information available for the turtle. These data should correspond with information entered in your observer's logbook.

8. Using the same biopsy punch [this is the hand held biopsy punch], obtain a second disk of skin from the turtle, but from the opposite 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/or Betadine swab clean around and inside the region of the turtle from which the skin plug was taken. Store the container in a secure location reserved for valuable scientific specimens.

8. When both skin samples have been obtained, immediately return the biopsy punch [this is the hand held biopsy punch] to its protective wrapper and mark the package as “**USED**”. Return it to the PIRO Observer Programs 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.

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

Category B: Sampling a dead sea turtle brought aboard the 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 port. A comatose but live sea turtle may, in some cases, exhibit absolutely no movement or signs of life. In other cases, an unconscious turtle may show some evidence of eyelid or tail movement when touched. A turtle that shows no signs of life after 4 hours on deck (held in the shade where further damage to it won't occur) 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' pole with a threaded adapter securely fixed to one end. The threads have silicon grease on them and are fitted with a protective rubber sheath that can be easily removed. Each pole comes with a 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 2cc cryovial in a Ziploc bag. The bag also contains a vial of 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, shoulders, and pectoral and pelvic regions. The depth of the corers (1cm) 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. We do not want the carapace targeted, but if a tissue core is taken from this area, the sample can be successfully used to extract DNA.
4. The corer should be unscrewed once the pole is brought back on deck. Care should be taken not to strike a crewmember while swinging the 10' 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

Complete a Sea Turtle Biological Data form for every sea turtle caught (including entangled individuals). If a sea turtle is caught, but it is not landed, complete as much of the form as possible. For **unlanded** turtles 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: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

Set Number: Record the set number from the Catch Event Log.

Species Code: Record the two-letter code from the Species Code list of the turtle captured.

Associated Log Forms: Place a checkmark 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 that contains information on the capture of this particular sea turtle.

Capture Block

Date/Time : Record the date and time the turtle was landed. Use the standard date and time format.

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

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.

Landed: Place a checkmark or X in the box to indicate that the turtle was landed. Landed means the turtle was brought on board the vessel. Leave blank if the turtle was not landed. **Describe the landing of the animal in the Comments Section.**

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

Release Block

_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

Date/Time: The date and time the turtle was released. Use the standard date and time format.

Latitude: Record the 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 the hemisphere.

Longitude: Record the 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.

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 it was released. If the initial condition of the turtle changes, then the final condition should be recorded. Record complete 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. A previously dead turtle will usually have rotten tissue around the eyes and vents, and it may be bloated and foul smelling. It may also have sloughing scutes and scales.

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

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 with gear attached. Turtles that are hooked are considered injured. Turtles that are entangled and landed should be considered injured too.

Died [04]: The turtle died due to injuries incurred during fishing operations, or was returned to the sea while comatose.

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 is different from the above codes. Describe in Comments.

Unknown [08]: The final fate of the turtle was not observed.

Tags Removed & Tags Applied: Record a checkmark or X in the box to indicate if tags were removed from or applied to 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. If you apply any tags (flipper or PSAT), make sure to fill out a Tag Log for each tag applied to the turtle.

Hooking / Entanglement Block

Hook/Entangled: Answer each question Y, N, or U. A turtle can be both hooked and entangled.

Hook/Entanglement Location: Select the code that indicates which part of the turtle the line was hooked & wrapped on. If more than one part is hooked or entangled, use the code indicating the part that had the most severe impact. Photograph the hook/entangled area, if possible and describe on Comments form.

Gear Removal Code: 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 not removed from the turtle. On the lines below, describe what type and amount (length) of gear left on the turtle. If the turtle is dead, photograph the remaining gear.

Morphology Block

Answer these four questions with a Y, No or U.

Skin Covered Carapace: Is the carapace covered by thick rubbery skin?

Overlapping Scutes: Are there overlapping scutes on the dorsal surface?

Inframarginal Scutes w/ Pores: Do the inframarginal scutes have pores?

1 Pair Prefrontal Scales: Does the turtle have only one pair of prefrontal scales? If there are more than 1 pair, enter an N in the box.

Carapace Scute Counts Block

Number of Left Costal Scutes: Count the number of costal scutes on the left side of the carapace and record the number.

Number of Right Costal Scutes: Count the number of costal scutes on the right side of the carapace and record the number.

Number Vertebral Scutes: Count the number of scutes on the midline of the carapace and record the number.

Number 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 the details on the Comment Log.

Dorsal Carapace Coloration: Select the code that describes the general color of the carapace.

Measurements Block

Take measurements in centimeters, to the nearest **0.5-cm**, using a tape measure for curved measurements and a meter stick calipers for the straight measurements. Try to remove any epibiota that affect these measurements. Record these details on the back of the form.

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.

Carapace Length (curved): Record the distance between the center of the nuchal (the scute in the middle of the front edge of the carapace) scute and the rear edge 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, measured over the curvature of the shell.

Plastron Length (straight): Record the maximum distance from the anterior margin of the (front tip of the plastron) intergular scute to the posterior margin of the (rear tip of the plastron) post-anal scute. Use the 2m calipers for this data element.

Tail Length: Measure and record the distance between the posterior 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 2m calipers for this data element.

Carapace Width (straight): Measure and record the maximum distance between the lateral edges of the carapace. Use the 2m calipers for this data element.

Light Device Block

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.

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 branchline the turtle was on.

Instructions for Reporting Sea Turtle Interactions

All sea turtle interactions should be reported within 1 hour after the turtle interaction. -
The report should be completed with your issued satellite phone by calling (684) 252-
2567. 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
- Floatline length
- Hook number
- Number of lightsticks used on the set
- Total number of swordfish retained during the entire trip (including that set)

For reporting the severity of the hooking, use the hooking categories on the Sea Turtle Biological Data Form. They are as follows:

- | | | |
|-------------------------------|---------------|--------------------------|
| 01 - ingested, (in esophagus) | 04-body/shell | 07-leg/foot/rear flipper |
| 02- head/beak/mouth | 05-unknown | |
| 03- wing/front flipper | 06-tail | |

Please include descriptive details about the hooking such as how the hook was removed or injuries to the turtle.

Chapter 11 Seabird Biological Data Form

General Instructions

Complete a Seabird Biological Data form for every seabird observed caught (including entangled individuals). If a seabird is observed caught, but it 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.

Take photographs of all unidentified seabirds that are caught.

Data Elements

Observer ID: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

Set Number: Record the set number from the Catch Event Log.

Species Code: Record the three-letter code from the Species Code list, which corresponds to the species of the seabird in the code box.

Check boxes: Place a checkmark or X on the box for each type of additional documentation or information was collected from this specimen.

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

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

Capture Block

Date/Time : Record the date and time the bird was landed. Use the standard date and time format.

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

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.

Landed: Place a checkmark or X in the box to indicate that the bird was landed. Landed means the bird was brought on board the vessel. Leave blank if the bird was not landed. **Describe the landing of the animal in the Comments Section.**

Tags Present: Record a Y, N or U to indicate whether tags were present on the sea

bird at the time of capture.

Release Block

_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

Date/Time: The date and time the bird was released. Use the standard date and time format.

Latitude: Record the degrees and minutes of latitude of the vessel at the time the animal was released. Record **N** or **S** in the last blank.

Longitude: Record the degrees and minutes of longitude of the vessel at the time the animal was released. Record **E** or **W** in the last blank.

Disposition Code: Record the code corresponding to the fate of the bird. In the comments section on the back, record specific notes about any damage to the bird. Describe the behavior of the bird when it was released. If the initial condition of the bird changes, then the final condition should be recorded. Record complete notes about the change.

Disposition Code List

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

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

Released Injured [03]: The bird 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 with gear attached. Birds that are hooked are considered injured. Birds that are entangled and landed should be considered injured too.

Died [04]: The bird died due to injuries incurred during fishing operations, or was returned to the sea while comatose.

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 [07]: The final fate of the bird is different from the above codes. Describe in Comments.

Unknown [08]: The final fate of the bird was not observed.

Hooking / Entanglement Block

Hook/Entangled: Answer each question Y, N, or U. A bird can be both hooked and entangled.

Hook/Entanglement Location: Select the code that indicates which part of the bird the line was hooked & wrapped on. If more than one part is hooked or entangled, use the code indicating the part that had the most severe impact. Photograph the hook/entangled area, if possible and describe on Comments form.

Gear Removal Code: 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 not removed from the bird. On the lines below, describe what type and amount (length) of gear left on the bird. If the bird is dead, photograph the remaining gear.

Morphology Block

Enter the appropriate code for each of these items; bill color, head color, and mantle color. If the tip of the bill is a different color than rest of the bill, write an X or checkmark in the box.

Light Device Block

Complete these elements only if devices were used on this set.

Color Code: Record the code that best indicates the color of the light emitted by the device.

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 branchline the bird was on.

Blank

Chapter 12 Marine Mammal Biological Data Form

General Instructions

Complete a Marine Mammal Biological Data form for every marine mammal caught (including entangled individuals). If a marine mammal is caught, but not landed, complete as much of the form as possible.

Data Elements

Observer ID: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

Set Number: Record the set number from the Catch Event Log.

Species Code: Record the two-letter code from the Species Code list of the marine mammal captured.

Associated Log Forms: Place a checkmark or X in the box to indicate which additional log forms contain 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 photos, sketch, and comments.

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 that contains information on the capture of this particular marine mammal.

Capture Block

Date/Time : Record the date and time the animal was landed. Use the standard date and time format.

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

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.

Landed: Place a checkmark or X in the box to indicate that the animal was landed. Landed means the animal was brought on board the vessel. Leave blank if the bird was not landed. **Describe the landing of the animal in the Comments Section.**

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

Associated Log Forms: Check all that apply.

Hooking / Entanglement Block

Hook Type Code: Choose the appropriate code for the hook type involved in the interaction.

Hook Type: Use the code list to identify the hook type attached to the animal.

Hook/Entangled: Answer each question Y, N, or U. A marine mammal can be both hooked and entangled. 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/entangled area, if possible and describe details in the comments section.

Release Condition: Record the code corresponding to the fate of the marine mammal. In the comments section on the back, record specific notes about any damage to the marine mammal. Describe the behavior of the animal when it was released. **Note:** If the initial condition of the marine mammal changes, then the final condition should be recorded. 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.*

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 obvious physical injury or with gear attached. Marine mammals that are hooked are considered injured. Marine mammals that are entangled should be considered injured too.

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

Unknown [08]: The final fate of the marine mammal was not observed. Explain in detail in the comments section why this was not observed.

Gear Block

Gear Attached After Release: Check all the boxes that apply among the following choices; none, hook, branchline, mainline, floats and other. If you check branchline, determine the number of attached branchlines and estimate the total length (in feet, meters or body lengths) of branchline material attached in the subsequent boxes. If you check mainline, estimate the total length of mainline material attached in (feet, meters or body lengths). Describe the configuration of how gear was attached in the comments (ie. 12 meters of mainline wrapped around tail 4 times then trailing for an additional 3 meters).

Measurements Block

Total Length: If the marine mammal is landed, use your calipers to measure the total length of the animal in cm.

Approximate Length: Record the approximate length of the marine mammal in either feet or meters.

Capture Behavior Block

Check the appropriate box that describes the behavior of the animal during capture. Describe significant events such as changes in behavior in as much detail as possible in the comments.

Identification

Diagnostic Characteristics: Try to list five of the diagnostic characteristics you used to identify this animal in the comments section.

Sketch: Sketch the features you saw and used to identify this animal on the sketch log.

ADDITIONAL 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.

Biopsy collection Protocol

Equipment:

Included in your sampling kit are:

- (1) stainless steel coring tips (to be mounted on the pole)
- (2) plastic vials containing DMSO (Dimethyl Sulfoxide) and NaCl solution.
- (3) sample labels
- (4) strips of Parafilm®
- (5) a Sharpie® permanent marker
- (6) pencil.

Preservative:

The preservative in the vials is 20% salt saturated solution of 20% DMSO. Avoid getting DMSO on your skin.

Methods:

When an entangled or hooked marine mammal comes up, work with the crew 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 you, 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.**

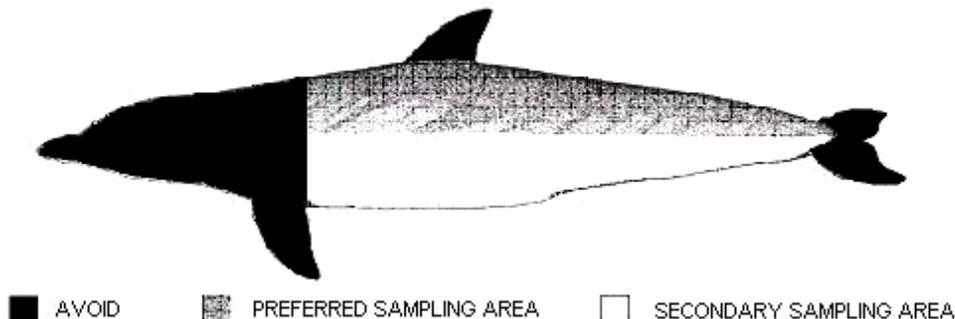
Use your best judgement as to when during the disentanglement / dehooking process to take your sample. For example, you may have ample opportunity to gather a sample from a dead or seriously entangled animal. However, an animal that is just hooked may be very lively, and your opportunities will be limited. 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 cutting tip to your sampling pole (turtle). Thrust the cutting tip into the dorsal surface of the animal **away from the blowhole** 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's difficult to cut the skin. The diagram below illustrates

The best areas to collect your sample from and the areas to avoid.



Once, you've collected the tissue sample, unscrew the tip from the pole and place it in the vial containing the DMSO/salt solution.

Labeling:

- 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) using the enclosed **Sharpie® Permanent Marker** with the specimen number and species name.
- 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 while the sample is in transport.
- 4) Complete a Marine Mammal Life History Data Form with your specimen number, species identification (detail the characteristics used to make the ID), date collected and the position. A sketch or photo showing the entanglement and any obvious wounds would be very useful.

Guidelines for Disentangling Cetaceans from Longline Fishing Gear

Never enter the water in an attempt to disentangle the animal!

CAUTION: These instructions are provided to give guidance to observers encountering entangled marine mammals at sea, far from support or aid of outside personnel.

Disentangling marine mammals is a dangerous activity and should be undertaken with the utmost regard to personal safety!

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 actively struggling animals. As quickly as you can; document the incident as fully as you are able, collect a skin biopsy; if possible; 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 collected will do more good for the species, than risking life or limb to save the individual animal.

Disentangling marine mammals is a dangerous activity and should be undertaken with the utmost regard to personal safety!

9 Steps to take when disentangling cetaceans from longline gear.

- 1) Ask the crew to assist you.
- 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 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 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) most lines first.** If the vessel has a line cutter device (*e.g.* ALC or LaForce Line Cutter), use it to cut the lines. Avoid becoming entangled in bundles or loops of line attached to a live animal. The animal may suddenly dive, and cause 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 of the hook with long handled bolt cutters and remove hook. This may be nearly impossible on live animals in the water.
- 8) If hook removal is not possible cut the line as close to the eye of the hook as possible.
- 9) Remove as much line from the animal as possible. If it is not possible to remove all the line, make sure to describe what, how much, and where the remaining line is on the animal on the Marine Mammal Biological Data form. If possible take several photographs showing the entangled area and the remaining gear.

Chapter 14 Specimen Log

Data Elements

Observer ID: Use the Observer ID number assigned to you.

Trip Number: Record the number of the trip assigned by the port coordinator.

Specimen Log Page Number: Sequentially numbered for each new page

Date: Enter the date the specimen was collected.

(This) Forms Page & Line Number: The page number that appears at the top of this form.

Set: Enter a two-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.

Catch Form, Page & Line Number: Enter the Page & Line no. from the Catch Log that contains the data on the animal from which the specimen was collected from.

Specimen Code: Enter the single letter code that indicates the type of specimen collected. .

Specimen Type: The English term for this specimen type. For example specimen code D would have DNA plug written in this box.

Content Description: General comments about this specimen. Include either the Species Code or English common name of the organism from which the sample(s) were collected.

Collection Purpose: Explain the reason the specimen was collected. The two common reasons are research request and ID confirmation.

Specimen Delivered To: To be signed by the requesting party. This is handled by PIRO staff.

At the end of each trip, check each specimen label and match it on the Specimen Log to ensure the specimen numbers and contents are correct.

Specimen Numbering System

Each sample or specimen collected by an observer will have a unique 12 character specimen number assigned to it. This number, the specimen number, is composed of the *Trip Number*, *Set Number*, *Catch Log Form Page Number*, and *Catch Log Form Line Number*. Label each sample and record the information on the Specimen Log.

When filling out a specimen tag, include the following:

- Specimen number
- Species common English name
- Species code
- How the sample was stored

See the two examples below.

Example Specimen Tags

Example 1. Loggerhead sea turtle on Trip # AS0017. Set 15, Catch Log Form page 04, line 07.

<p>AS0017 15 04 07</p> <p>Loggerhead sea turtle (CC) 2 skin biopsy plugs in NaCl</p>
--

The specimen number for example 1 is **AS0017150407**

Example 2. Shortfin Mako shark on Trip # AS7745. Set 03, Catch Log Form page 02, line 13.

<p>AS7745 03 02 13</p> <p>Shortfin Mako shark (151) tissue plug in DMSO</p>

The specimen number for example 2 is **AS7745030213**

Chapter 15 Tag Data Form

Fill out a separate form for each tag encountered/ placed on an animal.

Data Elements

Species Code: Enter the two letter or three-digit species code.

Tag Event Type: Select AP, RC or RM to indicate if a tag was Applied (AP), Recovered (RC) or Removed (RM). 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.

▶ If a sea turtle is captured and it already has flipper tags on its front flippers; **leave them in place.** Fill out a Tag Data Form for each tag recovered, and another one for each of the flipper tags you place on the flippers.

▶ 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 leg.

Tag Number: Fill in the boxes with the number-code on the tag. Make sure the sequence matches what is on the tag. Different tags may have different mixes of letters & numbers; E-770 is not the same tag as 770-E.

Tag Type Code: Select the code from the reference table that indicates the type of tag encountered. 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 Code: Select the code for where the tag was attached to the animal's body.

Tag Material Code: Enter the code for the material the tag is constructed of. Inconel is the type of metal used for the sea turtle flipper tags. Some tags routinely placed in fish or sharks are made of wire with a plastic sheath. Consider these tags as made of plastic.

Tag Color Code: Select the code for the color of the tag. If the tag looks like it was faded, record the color of the tag as it appears now, not what you think it may have been. A tag that was originally red can fade to a pink-ish color, but not be the same color "pink" as a tag that was originally pink.

BLANK

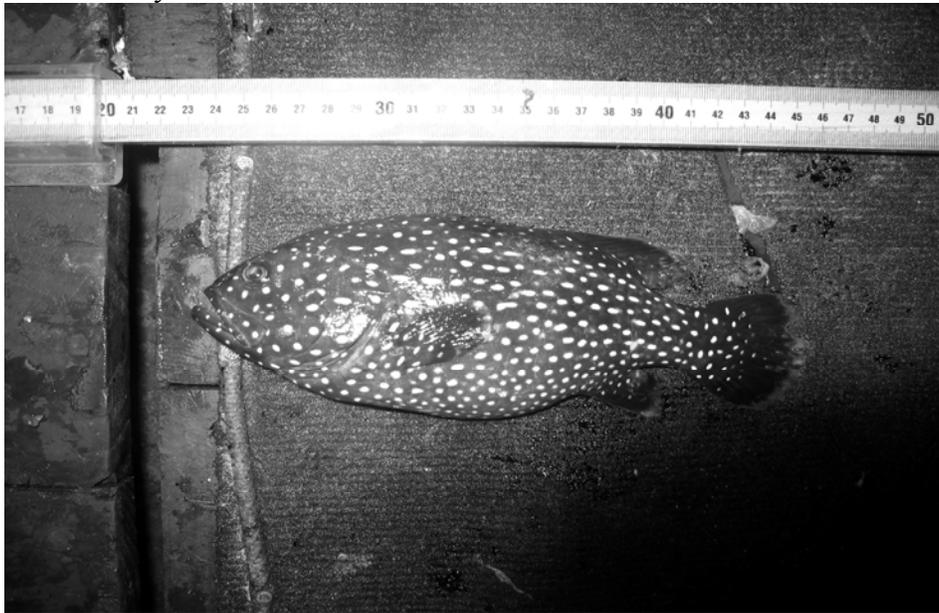
Chapter 16 Photographs and Photo Log

Photographs

Cameras are to be used for pictures of sea turtles, birds, fish, or marine mammals. All unidentified items (i.e.: animals, damage, gear) should also be photographed. Photograph *all* incidentally caught sea turtles, birds and marine mammals. Compose photographs so that the vessel identity and crew remain anonymous.

When taking a photograph with the sun at your back, make sure to frame the photo so that shadows do not fall across the subject. Avoid direct mid-day sun. Photograph the left side of fish. 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.

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 the specimen. Use “Macro” setting to capture close ups 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 half of the body, and another of the rear half of the body.



For fast moving species (like bowriding mammals), photograph with high speed setting, and take video clips when needed. As a guideline, 10-20 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, use your additional flash card. You may also review your photos and delete poorly developed shots (as in flash white-outs and too dark shots). Your camera is issued with a travel charger, and it is recommended to charge your battery nightly. The underwater camera housing needs to be rinsed nightly, and soaked for 10-15 minutes at the completion of each trip. The entire camera is to be brought in during debriefing; it is part of your data!

Digital Cameras

- ❖ The care and maintenance of these cameras are the observer's responsibility. Always keep the camera in the provided housing to protect it from the elements. **Underwater camera housing should be rinsed nightly and soaked (with the camera inside so it will be submerged and not float), for 10-15 minutes at the completion of each trip.** The camera is to be brought in your first day of debriefing; it is part of your data!

- ❖ **The Basics;**

Remove battery from camera and charge, light is red when charging, green when fully charged
Open the lens cover, set the shooting mode dial to AUTO

Resolution and compression should be set at M2, superfine. Do this by pressing function button, arrow down to bottom icon then press arrow right to M2, hit set button (middle one) and arrow right again to superfine icon, press set again

Aim camera, use zoom if needed and LIGHTLY press the shutter button to halfway focus (two beeps will sound and the AF frame on monitor appears green when in focus)

Press the button all the way down—there will be a delay, do not remove camera until you hear the shutter sound.

- ❖ **Continuous Shooting;** Ideal for protected species sightings

Change shooting mode dial to the “runner” for fast shutter speed
Hit function, arrow down to the empty box, hit set button

Arrow right to the multiple box icon without the H. Hit Set. This one provides 1.5 shots per second, where as 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;** Keep in mind this option requires a lot of memory

Change shooting mode dial to the movie, camera icon--- lower right hand corner displays the maximum recording time (in seconds) available.

Press shutter button all the way down, red circle appears in the upper right corner

To end—press shutter button.

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 CD's.

The following subject views are helpful in identifying animals:

- a. Left Side view (showing dorsal fin if fish, shark, or marine mammal)
- b. Dorsal view
- c. Ventral view
- d. Top of head, close up (macro setting)
- e. Bottom of head, close up (macro setting)
- f. Tail flukes, top & bottom
- g. Any ID characteristics, close up (macro setting)

Avoid oblique angled shots or direct head on views. They may make interesting photos, but they are usually useless for identification purposes.

Scale objects:

- yard/meter stick
- tool (deck knife, ice shovel, butcher saw)
- measuring tape
- pencil/pen/coin for close-up shots

Check the photos box on the Catch Log and make sure to record the camera and frames on the Photo Log.

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:**
- | | |
|----------------------------|--------------------|
| a. Common thresher | b. Longfin mako |
| c. Black-tip shark | d. Cookie cutter |
| e. Salmon shark | f. Galapagos shark |
| g. Sand tiger, any species | h. Megamouth |

- Rays:**
- | | |
|-----------|---------------------------------------|
| a. Mobula | b. any ray with a WHITE ventral side. |
|-----------|---------------------------------------|

- Billfish*:**
- | | |
|-----------------|-----------------------|
| a. Black marlin | b. any unid. Billfish |
|-----------------|-----------------------|

- Bony Fish:**
- | | |
|--------------------------|-------------------|
| a. Scabbardfishes | b. King-of-Salmon |
| c. Pompano dolphinfish | d. Cutlassfishes |
| e. Short-nose lancetfish | f. Ribbonfishes |
| g. Hammerjaw | h. Bluefin tuna |
| i. Longfin escolar | j. any unid. Fish |
| k. Roudi's escolar | |

* Special notes for photographing billfish. 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 of the second dorsal & 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 of the body and a second of the rear half of the body.

Photo Log

One line should contain all the photos of a single subject. State the number of pictures in the description.

Data Elements

Observer ID: Use your Observer ID number.

Trip Number: Record the number of the trip assigned by the port coordinator.

This Photo Page Number: Number consecutively with each new page.

Page & Line Number: Enter the Page & Line no. of this form.

Date: Enter the date the photo was taken.

Set: Enter a two-digit number indicating the set that the subject was captured.

Form: Enter the two letter code from the Form Code reference chart on the left edge of the form.

Page & Line Number: Enter the Page & Line no. of the form that refers to the subject of the photo

Camera Number: Enter your longline trip number without "0" (i.e.: AS16)

Frame Number: Leave the frame number blank; this will be filled in during the debriefing process. **Each video gets its own separate line.**

Photo description: A few key words, specimen ID number or short sentence that briefly describes the photo. Also note how many photos were taken of the subject.

Chapter 17 Sketch Form

Data Elements

The **Sketch Form** is provided as a place for observers to draw sketches of animals for ID purposes, or gear configurations. It is to be used the first time you encounter a species, or for an unidentified species that you are unable to photograph

Observer ID: Use your observer ID number.

Date/Time : Record the date (not the time) the animal was landed. Use the standard date format.

Trip Number: Record the number of the trip assigned by the port coordinator.

Assoc. Form: Use the two-letter code for the form that the sketch pertains to.

Page & Line Number: Fill in the page and line number of the form that contains the information the sketch is related to.

Sketch Caption/Short Description: A short sentence or key words describing the subject of the sketch. Once scanned, this will be used as the title of the image.

Long Description: Use this area to describe characteristics that you are trying to portray in your sketch. You must include 5 ID characteristics for each animal sketched.

BLANK

Chapter 18 Satellite Phones and Radio Reporting Instructions

Radio Report Instructions

Using the number assigned to the code type that best describes the situation aboard the vessel, fill out the status box in the radio-reporting matrix.

- 0 = I'm OK, Work OK;**
- 1 = I'm OK, Work rough, Workable;**
- 2 = I'm OK, Work not OK, Workable;**
- 3 = I may not be OK, Work not OK; and**
- 4 = I'm not Okay, Work not OK.**

Code 0: I'm OK - Work OK

“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 OK - Work Rough But Workable

“The situation aboard the vessel is somewhat deteriorated. I am meeting resistance to my duties. I am, however, confident that I can complete my assignment.”

Code 2: I'm OK - Work Not OK 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 a 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 OK - Work Not OK

“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 OK - 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.”

In this instance, the agency will take steps to involve NOAA enforcement personnel, and the United States Coast Guard. An evacuation will be arranged or the vessel will be asked to return to port.

As soon as you can, take your EPIRB outside, and turn it on. Once on, stow it somewhere and leave it on.

During decoding of the report, your status will be determined and appropriate action taken. If for any reason it is not possible to contact the AS Observer Program directly, the observer should request that the radio report and a message be relayed through a nearby fishing vessel.

***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 box in the upper left-hand corner of the worksheet is the radio-reporting matrix. The information encoded in the radio reporting matrix will include your status code, departure date and time, the type of specimens collected, and estimated date and time of arrival. The shaded areas are scramble boxes. Any number may be entered in these boxes to help disguise the encoded data. Complete the radio-reporting matrix from top to bottom using numbers **0** through **9**. Begin by recording the one digit number in the status square that best reflects the situation aboard the vessel.

Next fill in the "DEP / ARR" box to indicate if the dates & times are Departure or Arrival information. When making a mid trip radio report, fill in the DEP / ARR box with 3 for Mid-trip. Complete the departure date using two digits for the month (**01** through **12**) and two digits for the day (**01** through **31**).

Use the 24-hour clock when recording the departure time. Use two digits for the hour (**00** through **24**) and two digits for the minutes (**00** through **59**). The squares are labeled; "DEP / ARR MONTH", "DEP /ARR DAY", "DEP / ARR HOUR" and "DEP / ARR MINUTES."

Fill in the shaded squares with random numbers, 0-9. To avoid confusion, avoid using the same number to fill in the squares. Over the SSB radio, it is sometimes difficult to distinguish between the numbers like "111" and "1111".

On subsequent reports, unless there is a port stop, record a number greater than "2" in the first square of the "DEP / ARR MONTH" and "DEP / ARR HOUR" blocks to indicate that there are no changes to report. You are required to notify the Port Coordinator whenever the vessel makes a port stop.

To report specimens use the following codes:

- 0** = None
- 1** = Whole animal
- 2** = Skin plug (for DNA analysis)
- 3** = Skin plug & Whole animal
- 4** = Other parts

At the bottom of the worksheet in the Radio Reporting Summary block, summarize your radio transmissions, and Sat phone calls, whether you make contact or not. Record the date, time, frequency, and notes regarding the transmission.

In order to facilitate the recovery of specimens at the docks, record the estimated date and time of arrival in the respective code boxes. If you do not know the scheduled arrival time or date, be sure a number greater than "2" is used in the first square of the "DEP /ARR MONTH" and "DEP /ARR HOUR" boxes to indicate that no information is available. Any number may be used in the subsequent squares as long as a number greater than "2" is used in the first square of the Departure/Arrival boxes. Remember, numbers should be used that make it more difficult to decipher the radio-reporting matrix. Always prepare new numbers for each transmission. Never communicate that your report is the same as last time and avoid using a single repetitive number for all boxes.

► NEVER USE the common name of ANY protected species that have been caught or entangled during a trip when talking on the SSB (to Pago Pago or other observers).

PIRO Observer Programs maintain a Single Side Band (SSB) high seas radio base station in Pago Pago, AS. The base station call letters are **WNG 611** (Whiskey November Golf). This is a Federal Communications Commission (FCC) station licensed for international use. Users must comply with FCC regulations.

Three channels are monitored Monday through Friday, except holidays. The following schedule is for AS Local time.

Channel	Frequency	Time Schedule
Channel 4A(4.149.0 KHz).....	0800-0900 hrs
Channel 8A (8.294.0 KHz).....	0900-1000 hrs
Channel 12A (12.353.0 KHz).....	1000-1500 hrs
Channel 6A(6.224.0 KHz).....	1500-1630 hrs

Radio reports are to be made weekly on **Monday**. To initiate a call, arrange with the captain to call **WNG-611 Tutuila** using the SSB radio. Some vessel operators may prefer to call the data 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. If you do not get through on your first try, try two more times, waiting a couple of minutes between calls. If still no contact, try again later in an hour or two. If you do not get through on Monday, continue trying on Tuesday and Wednesday. If on Wednesday, you have not made contact with WNG-611 Tutuila, call the ASOP office using your satellite phone.

Keep in mind that lower frequencies work better during early morning and late afternoon, while higher frequencies work better during mid-day.

To hail the Tutuila Field Station, speak clearly:

W-N-G-611, W-N-G-611, W-N-G-611, Tutuila, this is (name of the vessel spoken 3 times) followed by the vessel's call sign. If there is a lot of static on the channel, you may need to say "Whiskey November Golf" instead the letters "WNG" when hailing the ASOP. Be sure to allow at least one minute between attempts and be careful not to "step on" other users on the frequency. FCC monitoring stations listen for infractions and issue citations.

If you hear **WNG 611** calling your vessel, please respond and try to establish contact. Then broadcast your radio report, line by line anyway. Occasionally we are able to hear observers calling in, but they are unable to hear a response from the program office.

DO NOT SAY THE POSITION OF THE VESSEL when making a radio report to the ASOP, or talking to anyone else on the SSB.

When the base station is ready, transmit the lines of data, reading each horizontal line in numerical order. Listen after each line as the base station radio operator confirms the transmission. For example, if line one was **4760**, you would say, "**Line one, four, seven, six, zero; forty-seven, sixty, over.**" **WNG 611** would respond, "**Roger, copy line one, four, seven, six, zero; forty-seven, sixty, over.**"

Remember, when calling in, try not to tie up the radio with idle "chit-chat". Also, it is not permitted to transmit music or communications containing obscene, indecent, or profane words, language, or meaning.

Radio Distress Procedure

In case it is necessary to transmit an emergency radio distress signal, it is important that the following procedure is used. Most single side band radios have a button that automatically switches the radio to the emergency broadcasting frequency and transmits an alarm signal. If not, then it will be necessary to manually switch to **2182 KHz** or **4125 KHz** on single side band radios (SSB) or to **Channel 16 on VHF** radios. A radio distress signal may be sent by following the steps below.

- 1. Say "MAY-DAY" 3 X**
- 2. Say "This is the [Vessel name] 3 X (and radio call sign)**
- 3. Say the Location of vessel.** (Lat / Lon coordinates, if possible)
- 4. Say Nature of distress.**
- 5. Say Number of persons on board.** (state number of injured and types of injuries)
- 6. Say a Description of the vessel.** (include vessel type, length and color)

Standard Phonetic Alphabet

Letter	Word	Pronunciation
A	Alfa	AL FAH
B	Bravo	BRAH VOH
C	Charlie	CHAR LEE
D	Delta	DELL TAH
E	Echo	ECK OH
F	Foxtrot	FOKS TROT
G	Golf	GOLF
H	Hotel	HOH TELL
I	India	IN DEE AH
J	Juliet	JOO LEE ETT
K	Kilo	KEY LOW
L	Lima	LEE MAH
M	Mike	MIKE
N	November	NO VEM BER
O	Oscar	OSS CAR
P	Papa	PA PAH
Q	Quebec	KWE BECK
R	Romeo	ROW ME OH
S	Sierra	SEE AIR RAH
T	Tango	TANG GO
U	Uniform	YOU NEE FORM
V	Victor	VIK TUR
W	Whiskey	WISS KEY
X	X-ray	ECKS RAY
Y	Yankee	YANG KEY
Z	Zulu	ZOO LOO

Radio Report Sheet: Example

LONGLINE RADIO REPORTING WORKSHEET ONE

A	B	C	D
DEP / ARR MONTH		DEP / ARR HOUR	STATUS
()			
TURTLE SPEC	BIRD SPEC	MM SPEC	FISH SPEC
()			
DEP / ARR DAY		DEP / ARR	DEP / ARR MINUTES
()			

OBSERVER NAME:

 VESSEL NAME:

 CALL SIGN:

 CRUISE NUMBER:

PERSONAL STATUS

 0 : I'M OK, WORK OK
 1 : I'M OK, WORK ROUGH, WORKABLE
 2 : I'M OK, WORK NOT OK, WORKABLE
 3 : I MAY NOT BE OK, WORK NOT OK
 4 : I'M NOT OKAY, WORK NOT OK

RADIO REPORTING SUMMARY

DATE	TIME	FREQ.	NOTES

Specimen Type Codes

 0 = None
 1 = Whole animal
 2 = Skin plug
 3 = Skin plug & Whole
 4 = Other parts

Dep / Arr Codes

 1 = Departure
 2 = Arrival
 3 = Mid-Cruise

Satellite Phone Protocols

Usage

Do not use your satellite phone for weekly radio reports if there is nothing noteworthy to report; with the exception of your first trip. On your first trip, you must call every Monday. Should contact with NMFS be required (questions, incidents, or reporting a take), use the radio first, and then the satellite phone only if a response is required.

In the case of a protected species interaction or rare sighting, use your satellite phone to contact ASOP staff as soon as possible. See instructions on what should be included when reporting a sea turtle interaction on page 65. Reports on the satellite phone do not need to be encoded unless privacy/intimidation are issues. In these cases utilize the radio report worksheet codes.

DIALING

To unlock the phone for use, enter the PIN # 1111.

To dial out, dial: 00+ 1 + Area Code + Phone Number

Your primary contact is, **Rich Kupfer @ 684-252-2567** secondary contact is **Kevin Busscher @ 808-944-2215**.

Your satellite phone # is listed on the antennae of the unit. This is for incoming calls from NMFS staff, MRAG staff, or other emergency personnel, **no exceptions**.

EMERGENCY – !!! CALL USCG FIRST , then ASOP. They will coordinate a response!

The satellite phone is to be used in **addition** to the radio and distress beacons.

Satellite Phones

Phone the port coordinator at ASOP, 684-252-2567, when departing on each vessel. Should contact with NMFS be required (questions, incidents, or reporting a take), use the radio first, and then satellite phone. All phones have the USCG programmed into the phone memory, to access, turn phone on and depress #1 keypad. The name will be displayed and the call will be made immediately. Check the phone **daily** for any voice or text messages. Refer to manual for other voicemail options.

Satellite phone Message Protocol

It is imperative to check for messages daily. Protected species protocols can change on a daily basis and need to be updated in real time. Have your Sat phone on and in its waterproof bag at 1900 hrs. This will give the ASOP a chance to call you directly should the need arise. Leave it on for 15-20 minutes before switching it off. The antennae must be extended, and the phone must register with the network to receive messages. To check for messages, you must dial "1234" send. If a message is received, follow the onscreen directions.

NUMBERS

USCG Search & Rescue - (808) 541-2500
Speed Dial #1 (Hold 1)

New Zealand Rescue Coordination Ctr.- 011-644-914-8380
Speed Dial #2 (Hold 2)
Marine radio Taupo maritime radio ZLM (standard emergency frequencies)

ASOP 24hr Cell phone- (684)-252-2567
Speed Dial #3 (Hold 3)

Cook Islands Police Dpt – 011-682-22-499
Speed Dial #4 (Hold 4)

Western Samoa Police Dept.- 011-685-22-222
Speed Dial #5 (Hold 5)

EMERGENCY PIRO OFFICE NUMBERS

ASOP	(684) 252-2567	24hrs
Kevin Busscher	(808) 944-2215	Cell# (808) 542-3032
Joe Arceneaux	(808) 944-2216	Cell# (808) 754-4213
John Kelly	(808) 944-2202	Cell# (808) 222-3535 Home (808) 230-2027

Chapter 19 Equipment List & Maintenance Tips

Checked out by _____ Date _____

Checked in by _____ Date _____

Observer _____

American Samoa Observer Program				
Item	Qty out	ID #/SN/CD#	QTY in	Comments- Type, size, etc.
Camera Bag	1			
Iridium 9505A Sat Phone	1			
Canon S60 camera	1			
ARC PLB	1			
Canon WP-DC40 housing	1			
Flash card 256MB	1			
Flash card 32MB	1			
5 gal. bucket				
Clipboard				
Duffle bag				
Waterproof duffle (red)				
Bags, Plastic (lg)				
Bags, Plastic (sm)				
Bolt cutters				
Boots				
Binoculars				
Batteries				
Cable ties				
Calipers, Dial				
Calipers, 2m				
Camera, dsiposable				
Earplugs				
Tape, duct				
Gloves				
Headlight, LED				
Handcounters				
Hard hat (optional)				
Knife				
Measuring tape				
Pencils				
PFD				
PML				
Rain gear				
Filter, Water (sweetwater)				
Poncho Liner				
Rubber bands				
Safety glasses				
Strobe llght				
Specimen tags				
Thermarest				
Thermometer				
Survival Suit				
Strobe light				
EPIRB/GFIX				
Wax				
Books/Misc.				

I understand that I am responsible for the care and possible replacement of these itmes.

Gear checkout example

General instructions

The care of all gear signed out to you, is your responsibility. You are expected to maintain, clean and repair your gear when necessary after each trip. Lost items should be reported to the ASOP coordinator during debriefings. Some items are considered expendable, and will be replaced by the ASOP coordinator when you run out. Keep a list of used up items (particularly from your first aid kit) for replacement.

Clean your deck gear with fresh water as often as is feasible, and after each trip. This gear will remain signed out to you for the length of your AS deployment, so make it last.

Chapter 20 Species Codes List

COMMON NAME	CODE	SCIENTIFIC NAME
FISH		
Barracuda, Great	131	<i>Sphyraena barracuda</i>
Billfish, Unidentified	089	Billfishes (Xiphiidae & Istiophoridae)
Bonito, Pacific	003	<i>Sarda chiliensis</i>
Bony Fish, Other Identified	910*	Osteichthyes
(*For instances when you are able to identify a species of fish, but it is not included in this list of codes. Record the English common name of the fish and enter 910 in the space for the species code.)		
Bony Fish, Unidentified	700	Osteichthyes
Crestfish	906	<i>Lophotus lacepede</i>
Dolphinfish	914	<i>Coryphaena hippurus</i>
Dolphinfish, Pompano	913	<i>Coryphaena equiselis</i>
Dogfish, Velvet	097	<i>Scymnodon squamulosus</i>
Driftfish	059	Nomeidae (<i>Cubiceps spp.</i>)
Escolar, (Smith's)	013	<i>Lepidocybium flavobrunneum</i>
Escolar, Longfin	054	<i>Scombrobrax heterolepis</i>
Escolar, Roudi's	056	<i>Promethichthys prometheus</i>
Flyingfish	445	Exocoetidae
Hammerjaw	472	<i>Omosudis lowei</i>
Jack, Cottomouth	042	<i>Uraspis spp.</i>
King-of-Salmon	912	<i>Trachipterus altivelis</i>
Lancetfish, Longnose	909	<i>Alepisaurus ferox</i>
Lancetfish, Shortnose	905	<i>Alepisaurus brevirostris</i>
Louvar	191	<i>Luvarus imperialis</i>
Manta-Mobula, unID	129	Mobulidae

Manta ray, Giant	132	<i>Manta birostris</i>
Mobula (a.k.a. Devil ray)	133	<i>Mobula spp.</i>
Mackerel, Bullet	019	<i>Auxis rochei</i>
Mackerel, Jack	055	<i>Trachurus symmetricus</i>
Mackerel, Pacific	051	<i>Scomber japonicus</i>
Marlin, Striped	092	<i>Tetrapturus audax</i>
Marlin, Blue	093	<i>Makaira mazara</i>
Marlin, Black	090	<i>Makaira indica</i>
Mola, Common (Sunfish)	292	<i>Mola mola</i>
Mola, Sharptail	294	<i>Masturus lanceolatus</i>
Mola, Slender	298	<i>Ranzania laevis</i>
Needle Fish, Gaping	474	<i>Ablennes hians</i>
Oarfish	911	<i>Regalecus glesne</i>
Oilfish	014	<i>Ruvettus pretiosus</i>
Opah	467	<i>Lampris guttatus</i>
Pomfret, Brama	903	<i>Brama spp. (B. orcini & B. japonica)</i>
Pomfret, Lustrous (Brilliant)	918	<i>Eumegistus illustris</i>
Pomfret, Sickie	908	<i>Taractichthys steindachneri</i>
Pomfret, Dagger	907	<i>Taractes rubescens</i>
Pomfret, Rough	904	<i>Taractes asper</i>
Puffer, Pelagic	293	<i>Lagocephalus lagocephalus</i>
Rainbow Runner	058	<i>Elagatis bipinnulatus</i>
Ray, Other Identified	919	Rajiformes
Ray, Unidentified	170	Rajiformes
Remora/Suckerfish	127	Echeneidae
Ribbonfish, Scalloped	902	<i>Zu cristatus</i>
Ribbonfish, Tapertail	901	<i>Trachipterus fukuzakii</i>
Sailfish	095	<i>Istiophorus platypterus</i>
Scabbardfish, Razorback	053	<i>Assurger anzac</i>
Scad, Mackerel	296	<i>Decapterus macarellus</i>

Scad, Bigeye	297	<i>Selar crumenophthalmus</i>
Shark, Basking	156	<i>Cetorhinus maximus</i>
Shark, Bigeye Thresher	147	<i>Alopias superciliosus</i>
Shark, Bignose	944	<i>Carcharhinus altimus</i>
Shark, Blacktip	149	<i>Carcharhinus limbatus</i>
Shark, Blacktip Reef	948	<i>Carcharhinus melanopterus</i>
Shark, Blue	167	<i>Prionace glauca</i>
Shark, Common Thresher	155	<i>Alopias vulpinus</i>
Shark, Cookie Cutter	136	<i>Isistius brasiliensis</i>
Shark, Crocodile	143	<i>Pseudocarcharias kamoharai</i>
Shark, Galapagos	947	<i>Carcharhinus galapagensis</i>
Shark, Gray Reef	137	<i>Carcharhinus amblyrhynchos</i>
Shark, Longfin Mako	938	<i>Isurus paucus</i>
Shark, Megamouth	192	<i>Megachasma pelagios</i>
Shark, Oceanic White-Tip	138	<i>Carcharhinus longimanus</i>
Shark, Other Identified	935*	Chondrichthyes
(*For instances when you are able to identify a species of shark, but it is not included in this list of codes. Record the English common name of the shark and enter 935 in the space for the species code.)		
Shark, Pelagic Thresher	148	<i>Alopias pelagicus</i>
Shark, Salmon	942	<i>Lamna ditropis</i>
Shark, Sandbar	943	<i>Carcharhinus plumbeus</i>
Shark, Scalloped Hammerhead	949	<i>Sphyrna lewini</i>
Shark, Shortfin Mako	151	<i>Isurus oxyrinchus</i>
Shark, Silky	139	<i>Carcharhinus falciformis</i>
Shark, Smooth Hammerhead	158	<i>Sphyrna zygaena</i>
Shark, Tiger	142	<i>Galeocerdo cuvieri</i>
Shark, Unidentified	936	Chondrichthyes
Shark, Unid. Hammerhead	157	<i>Sphyrna spp.</i>
Shark, Unid. Mako	939	<i>Isurus spp.</i>
Shark, Unid. Thresher	937	<i>Alopiidae spp.</i>
Shark, White	096	<i>Carcharodon carcharias</i>
Snake Mackerel	295	<i>Gempylus serpens</i>
Spearfish, Shortbill	094	<i>Tetrapturus angustirostris</i>
Stingray, Pelagic	193	<i>Dasyatis violacea</i>
Swordfish	091	<i>Xiphias gladius</i>
Triggerfish, Unidentified	291	Balistidae
Triggerfish, Rough (Pelagic)	290	<i>Canthidermis maculata</i>
Tuna, Albacore	005	<i>Thunnus alalunga</i>

Tuna, Bigeye	916	<i>Thunnus obesus</i>
Tuna, Pacific Bluefin	004	<i>Thunnus orientalis</i>
Tuna, Skipjack	002	<i>Katsuwonus pelamis</i>
Tuna, Kawakawa	009	<i>Euthynnus affinis</i>
Tuna, Unidentified	006	Tunas (tribe: Thunnini)
Tuna, Yellowfin	001	<i>Thunnus albacares</i>
Wahoo	057	<i>Acanthocybium solandri</i>
Yellowtail	040	<i>Seriola lalandei</i>

SEABIRDS

Albatross, Black-Footed	dNG	<i>Phoebastria nigripes</i>
Albatross, Laysan	dIM	<i>Phoebastria immutabilis</i>
Albatross, Short-tailed	dAL	<i>Phoebastria albatrus</i>
Albatross, Unidentified	dSP	<i>Phoebastria spp.</i>

Alcid, Unidentified	aSP	Alcidae
---------------------	------------	---------

Bird, Unidentified	aVE	Aves
Bird, Other Identified	aVO*	Aves

(*For instances when you are able to identify a species of bird, but it is not included in this list of codes. Record the English common name of the bird and enter aVO in the space for the species code.)

Booby, Brown	sLP	<i>Sula leucogaster plotus</i>
Booby, Masked	sDP	<i>Sula dactylatra personata</i>
Booby, Red-Footed	sSR	<i>Sula sula rubripes</i>
Cormorant, Brandt's	pPN	<i>Phalacrocorax penicillatus</i>
Cormorant, Double-crested	pAU	<i>Phalacrocorax auritus</i>
Cormorant, Pelagic	pPL	<i>Phalacrocorax pelagicus</i>
Cormorant, Unidentified	pSP	<i>Phalacrocorax spp.</i>

SEA TURTLES

Turtle, Green/Black	CM	<i>Chelonia mydas / C. agassizi</i>
Turtle, Hawksbill	EI	<i>Eretmochelys imbricata</i>
Turtle, Leatherback	DC	<i>Dermochelys coriacea</i>
Turtle, Loggerhead	CC	<i>Caretta caretta</i>
Turtle, Olive Ridley	LV	<i>Lepidochelys olivacea</i>
Turtle, Unidentified	UT	Testudines
Turtle, UnID Hardshell	UH	Chelonidae (non-Leatherback)

MARINE MAMMALS

Beaked Whale, Baird's	BD	<i>Berardius bairdii</i>
Beaked Whale, Blainville's	MD	<i>Mesoplodon densirostris</i>
Beaked Whale, Cuvier's	ZI	<i>Ziphius cavirostris</i>
Beaked Whale, Mesoplodont	UM	<i>Mesoplodon spp.</i>
Beaked Whale, Unidentified	ZU	Ziphiidae
Cetacean, Unidentified	UC	Cetacea
Dolphin, Bottlenose	TT	<i>Tursiops truncatus</i>
Dolphin, UnID Common	DD	<i>Delphinus sp.</i>
Dolphin, Long-Beaked Cmn.	DL	<i>Delphinus capensis</i>
Dolphin, Short-Beaked Cmn.	DS	<i>Delphinus delphis</i>
Dolphin, Fraser's	LH	<i>Lagenodelphis hosei</i>
Dolphin, N. Right Whale	LB	<i>Lissodelphis borealis</i>
Dolphin, Pac. White-sided	LO	<i>Lagenorhynchus obliquidens</i>
Dolphin, Risso's	GG	<i>Grampus griseus</i>
Dolphin, Rough-toothed	SB	<i>Steno bredanensis</i>
Dolphin, Spinner	SL	<i>Stenella longirostris</i>
Dolphin, Spotted	SA	<i>Stenella attenuata</i>
Dolphin, Striped	SC	<i>Stenella coeruleoalba</i>
Dolphin, Unidentified	UD	Delphinidae
Porpoise, Dall's	PD	<i>Phocoenoides dalli</i>
Porpoise, Harbor	PP	<i>Phocoena phocoena</i>
Porpoise, Unidentified	UP	Phocoenidae
Whale, Blue	BM	<i>Balaenoptera musculus</i>
Whale, Bryde's	BE	<i>Balaenoptera edeni</i>
Whale, Dwarf Sperm	KS	<i>Kogia simus</i>
Whale, False Killer	PC	<i>Pseudorca crassidens</i>
Whale, Fin	BP	<i>Balaenoptera physalus</i>
Whale, Gray	ER	<i>Eschrichtius robustus</i>
Whale, Humpback	MN	<i>Megaptera novaeangliae</i>
Whale, Killer	OO	<i>Orcinus orca</i>
Whale, Melon-headed	PE	<i>Peponocephala electra</i>
Whale, Minke	BA	<i>Balaenoptera acutorostrata</i>
Whale, Pygmy Killer	FA	<i>Feresa attenuata</i>
Whale, Pygmy Sperm	KB	<i>Kogia breviceps</i>
Whale, Sei	BB	<i>Balaenoptera borealis</i>
Whale, Short-finned Pilot	GM	<i>Globicephala macrorhynchus</i>
Whale, Sperm	PM	<i>Physeter macrocephalus</i>
Whale, Unidentified Kogia	UK	<i>Kogia sp.</i>

Whale, Unidentified	UW	Cetacea
Fur Seal, Guadalupe	AT	<i>Arctocephalus townsendi</i>
Fur Seal, Northern	CU	<i>Callorhinus ursinus</i>
Fur Seal, Unidentified	UA	Arctocephalinae
Pinniped, Unidentified	PU	Pinnipedia
Sea Lion, California	ZC	<i>Zalophus californianus</i>
Sea Lion, Steller	EJ	<i>Eumetopias jubatus</i>
Sea Lion, Unidentified	UO	Otariinae (Eared seals)
Seal, Harbor	PV	<i>Phoca vitulina</i>
Seal, Hawaiian Monk	MS	<i>Monachus schauinslandi</i>
Seal, Northern Elephant	MA	<i>Mirounga angustirostris</i>
Seal, Unidentified	US	Phocidae (True seals)

Chapter 21 Appendices

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) = 81.9m.

Speed/Distance :

1 nautical mile = 1.1508 statute miles (mi) = 6086ft.

(1 nautical mile = 1 knot)

Example: 12kts x 1.1508 mi/kt = 13.8096 mph.

Temperature :

To get 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 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-Celsius Conversion Chart

Deg F	Deg C
0	-17.8
1	-17.2
2	-16.7
3	-16.1
4	-15.5
5	-15
6	-14.4
7	-13.9
8	-13.3
9	-12.8
10	-12.2
11	-11.7
12	-11.1
13	-10.5
14	-10
15	-9.4
16	-8.9
17	-8.3
18	-7.8
19	-7.2
20	-6.7

Deg F	Deg C
21	-6.1
22	-5.6
23	-5
24	-4.4
25	-3.9
26	-3.3
27	-2.8
28	-2.2
29	-1.7
30	-1.1
31	-0.6
32	0
33	0.6
34	1.1
35	1.7
36	2.2
37	2.8
38	3.3
39	3.9
40	4.4
41	5

Deg F	Deg C
42	5.6
43	6.1
44	6.7
45	7.2
46	7.8
47	8.3
48	8.9
49	9.4
50	10
51	10.5
52	11.1
53	11.7
54	12.2
55	12.8
56	13.3
57	13.9
58	14.4
59	15
60	15.5
61	16.1
62	16.7

Deg F	Deg C
63	17.2
64	17.8
65	18.3
66	18.9
67	19.4
68	20
69	20.5
70	21.1
71	21.6
72	22.2
73	22.8
74	23.3
75	23.9
76	24.4
77	25
78	25.5
79	26.1
80	26.6
81	27.2
82	27.8
83	28.3

Deg F	Deg C
84	28.9
85	29.4
86	30
87	30.5
88	31.1
89	31.6
90	32.2
91	32.7
92	33.3
93	33.9
94	34.4
95	35
96	35.5
97	36.1
98	36.6
99	37.2
100	37.7
101	38.3
102	38.9
103	39.4
104	40

Relevant statutes regarding data collection by NMFS

The 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

**TITLE 50--WILDLIFE AND FISHERIES
DEPARTMENT OF COMMERCE**

PART 600--MAGNUSON-STEVENS ACT PROVISIONS--Table of Contents

Subpart H--General Provisions for Domestic Fisheries

50 CFR Sec. 600.725 General prohibitions.

It is unlawful for any person to do any of the following:

(a) Possess, have custody or control of, ship, transport, offer for sale, sell, purchase, land, import, or export, any fish or parts thereof taken or retained in violation of the Magnuson-Stevens Act or any other statute administered by NOAA and/or any regulation or permit issued under the Magnuson-Stevens Act.

(b) Transfer or attempt to transfer, directly or indirectly, any U.S.-harvested fish to any foreign fishing vessel, while such vessel is in the EEZ, unless the foreign fishing vessel has been issued a permit under section 204 of the Magnuson-Stevens Act, which authorizes the receipt by such vessel of U.S.- harvested fish.

(c) Fail to comply immediately with enforcement and boarding procedures specified in Sec. 600.730.

(d) Refuse to allow an authorized officer to board a fishing vessel or to enter areas of custody for purposes of conducting any search, inspection, or seizure in connection with the enforcement of the Magnuson-Stevens Act or any other statute administered by NOAA.

(e) Dispose of fish or parts thereof or other matter in any manner, after any communication or signal from an authorized officer, or after the approach by an authorized officer or an enforcement vessel or aircraft.

(f) Assault, resist, oppose, impede, intimidate, threaten, or interfere with any authorized officer in the conduct of any search, inspection, or seizure in connection with enforcement of the Magnuson-Stevens Act or any other statute administered by NOAA.

(g) Interfere with, delay, or prevent by any means, the apprehension of another person, knowing that such person has committed any act prohibited by the Magnuson-Stevens Act or any other statute administered by NOAA.

(h) Resist a lawful arrest for any act prohibited under the Magnuson-Stevens Act or any other statute administered by NOAA.

(i) Make any false statement, oral or written, to an authorized officer concerning the taking, catching, harvesting, landing, purchase, sale, offer of sale, possession, transport, import, export, or transfer of any fish, or attempts to do any of the above.

(j) Interfere with, obstruct, delay, or prevent by any means an investigation, search, seizure, or disposition of seized property in connection with enforcement of the Magnuson-Stevens Act or any other statute administered by NOAA.

(k) Fish in violation of the terms or conditions of any permit or authorization issued under the Magnuson-Stevens Act or any other statute administered by NOAA.

(l) Fail to report catches as required while fishing pursuant to an exempted fishing permit.

(m) On a scientific research vessel, engage in fishing other than recreational fishing authorized by applicable state or Federal regulations.

(n) Trade, barter, or sell; or attempt to trade, barter, or sell fish possessed or retained while fishing pursuant to an authorization for an exempted educational activity.

(o) Harass or sexually harass an authorized officer or an observer.

(p) Fail to submit to a USCG safety examination when required by NMFS pursuant to Sec. 600.746.

(q) Fail to display a Commercial Fishing Vessel Safety Examination decal or a valid certificate of compliance or inspection pursuant to Sec. 600.746.

(r) Fail to provide to an observer, a NMFS employee, or a designated observer provider information that has been requested pursuant to Sec. 600.746, or fail to allow an observer, a NMFS employee, or a designated observer provider to inspect any item described at

Sec. 600.746.

(s) Fish without an observer when the vessel is required to carry an observer.

(t) Assault, oppose, impede, intimidate, or interfere with a NMFS-approved observer aboard a vessel.

(u) Prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer from conducting his or her duties aboard a vessel.

(v) to end on page 84 of CFR 50 part 600 to end; omitted. The material does not pertain to observers, observer deployment or placement. It will be made available upon request.

**TITLE 50--WILDLIFE AND FISHERIES
DEPARTMENT OF COMMERCE**

PART 600--MAGNUSON-STEVENSON ACT PROVISIONS--Table of Contents

Subpart H--General Provisions for Domestic Fisheries

50 CFR Sec. 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 requirement. An observer is not required to board, or stay aboard, a vessel that is unsafe or inadequate as described in paragraph (c) of this section.

(c) Inadequate or unsafe vessels. (1) A vessel is inadequate or unsafe for purposes of carrying an observer and allowing operation of normal observer functions if it does not comply with the applicable regulations regarding observer accommodations (see 50 CFR parts 229,

285, 300, 600, 622, 648, 660, 678, and 679) or if it has not passed a USCG safety examination or inspection. A vessel that has passed a USCG safety examination or inspection must display one of the following:

(i) A current Commercial Fishing Vessel Safety Examination decal, issued within the last 2 years, that certifies compliance with regulations found in 33 CFR, chapter I and 46 CFR, chapter I;

(ii) A certificate of compliance issued pursuant to 46 CFR 28.710;

or

(iii) A valid certificate of inspection pursuant to 46 U.S.C. 3311.

(2) Upon request by an observer, a NMFS employee, or a designated observer provider, a vessel owner/operator must provide correct information concerning any item relating to any safety or accommodation requirement prescribed by law or regulation. A vessel owner or operator must also allow an observer, a NMFS employee, or a designated observer provider to visually examine any such item.

(3) Pre-trip safety check. Prior to each observed trip, the observer is encouraged to briefly walk through the vessel's major spaces to ensure that no obviously hazardous conditions exist. In addition, the observer is encouraged to spot check the following major items for compliance with applicable USCG regulations:

(i) Personal flotation devices/immersion suits;

(ii) Ring buoys;

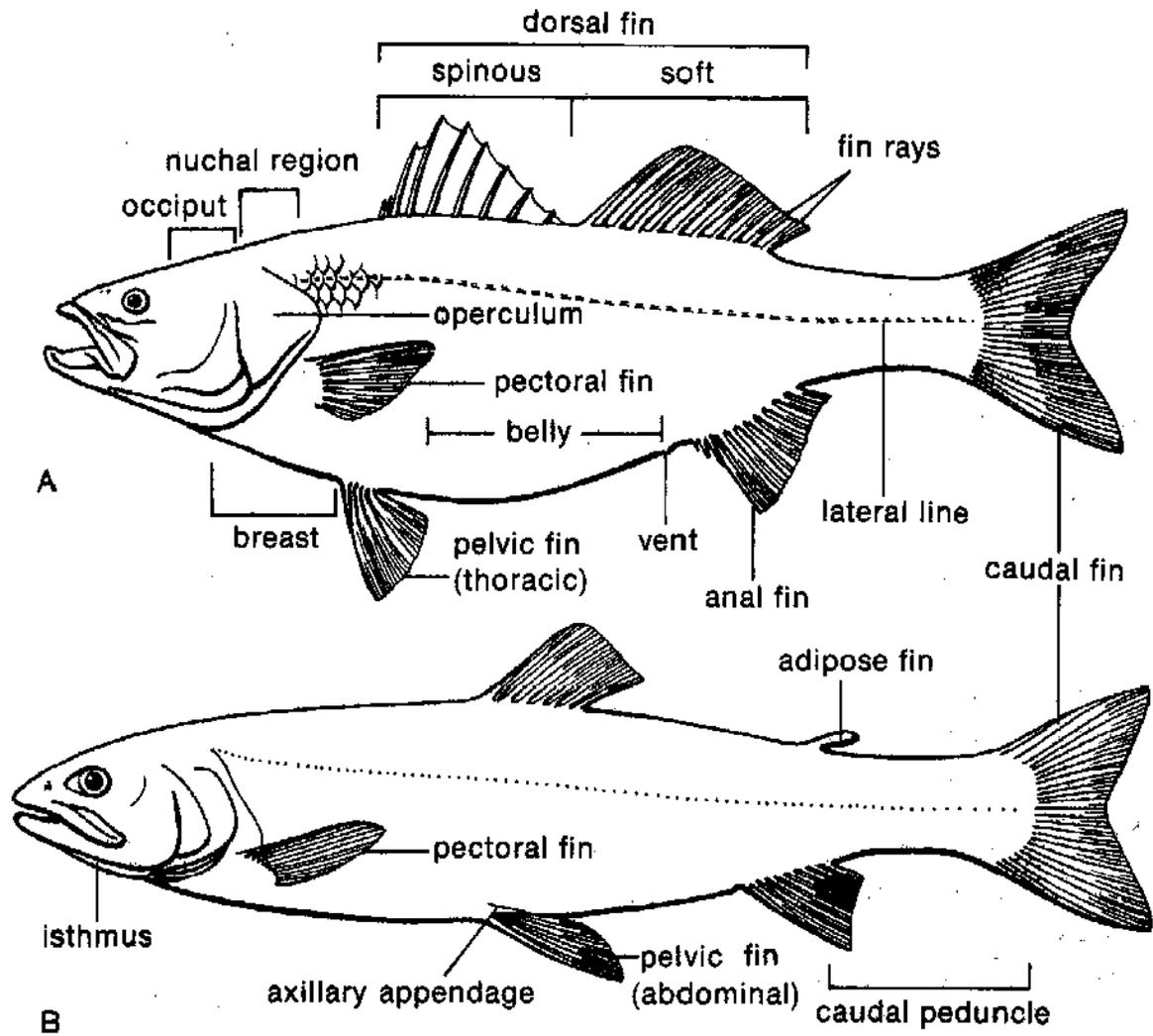
(iii) Distress signals;

(iv) Fire extinguishing equipment;

(v) Emergency position indicating radio beacon (EPIRB), when required; and

(vi) Survival craft, when required.

Spiny 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)

General Safety Policies

SAFETY and INTEGRITY continue to be the essential watchwords for observer performance and conduct.

Safety 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 trip assignment. Documentation of near misses is important. Make sure to notify the debriefer and describe any incidents, incl. near misses, during the post-trip process. Thorough documentation of the incident (what, where, when, and any fixes) can provide valuable information for improving safety training and protection for observers.

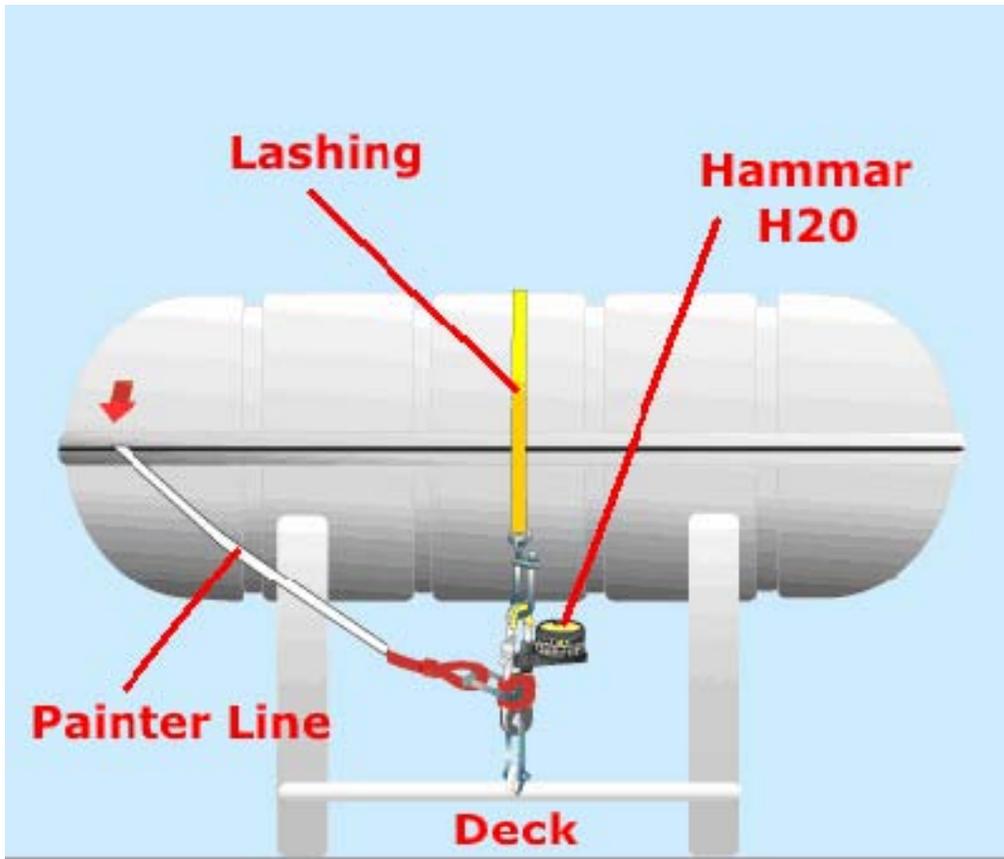
To help make each deployment safer for all observers, we have developed some rules and recommendations to help ensure observer safety while at sea. They are as follows:

1. All observers must wear their self inflating PFD when working out on deck. It is recommended that observers wear their self inflating PFD when out on deck during non working times also.
2. It is recommended that observers wear safety eyewear while out on deck. This will help protect your eyes in the case of a mainline break, sinkers flying back at the vessel after a line break, or any other potential eye hazard.
3. It is recommended that observers do not go out on the deck alone, especially in rough weather. If you feel that you must go out on deck by yourself make sure you tell someone you are going out on deck.
4. If the weather becomes too hazardous to be out on the deck during the hauling of the gear, you should first stop measuring fish and taking samples and move to a safe spot on the deck where you can record what is coming up on the line. At that time if you believe it is still too hazardous to be out on the deck, you should move inside to the best location where you can still observe what is coming up on the line if possible. When the weather becomes safe enough to return to the deck, you should do so.

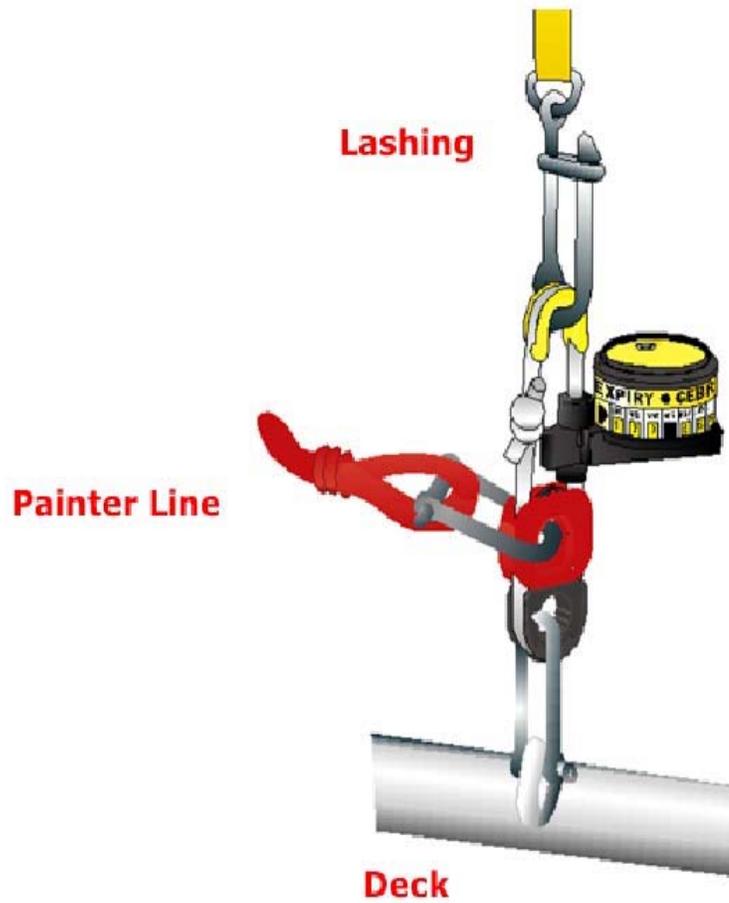
If something happens to you out here... a USCG vessel will probably not to be able save you.

Liferaft cradle position

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 is not obstructed so it can float away freely. 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.



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 and that it is not out of date.



MANUAL CHANGES

This is a new manual in a new area for all of us, and YOU are helping to write this and change it.

Feb. 2007

Added new safety requirements to pg 112.

Apr. 2007

Altered Ch. 7 by removing the Approach code, and clarifying the association codes on the PSEL form.

Changed Sketch form description.

Sep. 2007

Removed Chapter 13 (CITES form instructions)

Removed turtle limit information on pg. 47.

Feb. 2008

Added DQC instructions to CEL chapter 9

Added birds on vessel instructions to PSEL chapter 7

Added instructions for referencing videos in the Photographs chapter 16

FIN