

Southeast Fisheries Science Center
Miami Laboratory
75 Virginia Beach Drive
Miami, Florida 33149

Pelagic Observer Program

FIELD MANUAL 2013

Program Coordinator
Ken Keene

and

Program Staff
Sascha Cushner
Tiffany Walter

75 Virginia Beach Dr.
SEFSC Miami Lab
Key Biscayne, FL 33149
1-800-858-0624

TABLE OF CONTENTS

January 2013

FIELD INSTRUCTIONS COMMUNICATIONS FIELD DIARY GUIDELINES POST-TRIP CHECKLIST	1
SAFETY MANUAL COMMERCIAL FISHING VESSEL EXAMINERS REGULATIONS CONTACT LIST	2
HAUL LOG INSTRUCTIONS BLANK HAUL LOG BEAUFORT SCALE	3
GEAR DESCRIPTION/HOOK GUIDE GEAR LOG INSTRUCTIONS BLANK GEAR LOG DISTANCE CALCULATION INSTRUCTIONS DISTANCE CALCULATION TABLE DOLPHINFISH GEAR APPENDIX	4
INDIVIDUAL ANIMAL LOG INSTRUCTIONS BLANK ANIMAL LOG SPECIES CODE LIST PHOTO LOG PELAGIC LOGBOOK INSTRUCTIONS BLANK LOGBOOK CATCH SUMMARY	5
BIOLOGICAL SAMPLING REQUIREMENTS OPAH SAMPLING INFO TAG RECAPTURE SAMPLING TAG RECAPTURE REWARD POSTERS A. BLUEFIN POP-UP TAGS B. BLUEFIN ARCHIVAL TAGS C. BILLFISH STREAMER TAGS D. ICCAT TAGS BILLFISH SEX DETERMINATION BILLFISH ID	6
MARINE MAMMAL FORM INSTRUCTIONS BLANK MAMMAL FORM PILOT WHALE ID SEA BIRD LIFE HISTORY FORM BLANK SEA BIRD FORM	7

January 1, 2012

Pelagic Observer Program (POP)
Field Instructions

I. BACKGROUND

The Atlantic pelagic longline fleet is managed under the Atlantic Highly Migratory Species Fishery Management Plan (HMS-FMP) and under the authority of the Magnuson Fishery Conservation and Management Act (Magnuson Act). The HMS-FMP was prepared by the National Marine Fisheries Service (NMFS) with jurisdiction over the U.S. coastal waters of the Northeast Atlantic, the Gulf of Mexico, and the Caribbean Sea out to the Exclusive Economic Zone (EEZ), as well as U.S. flagged vessels operating outside the EEZ.

The Fishery Conservation Amendments of 1990 (FCA), Public Law 101-627, transferred management authority over the Atlantic swordfish fishery to the Secretary of Commerce. The Secretary issued emergency regulations on June 12, 1991, that were consistent with the November 1990 recommendation of the International Commission for the Conservation of Atlantic Tunas (ICCAT), and were made effective through December 9, 1991.

Modifications over the years were made to the various Fishery Management Plans regulating Atlantic swordfish, sharks, billfish, and tunas which finally culminated into the comprehensive HMS-FMP published in May 28, 1999 with those regulations becoming effective on July 1, 1999. Specific rules are summarized below:

- 1) redefine the swordfish management unit to include the entire North Atlantic Ocean North of 5 degrees North latitude and portions of the South Atlantic;
- 2) continue the minimum size limit for swordfish of greater than or equal to 29 inches (73 cm), carcass length (cleithrum to keel (CK));
- 3) establish an annual total allowable catch by gear and species;
- 4) specify bycatch limits that apply after a quota closure for purse seine, harpoon, longline, and gillnet;
- 5) require vessel operators to carry NMFS-approved observers on permitted vessels upon the request of NMFS;**

6) specify minimum size limits for billfish species for the recreational fishery and prohibit the landing of billfish by commercial gear;

7) establish the categories of small coastal, large coastal, and pelagic species with landing prohibitions on selected shark species;

8) establish area closures for bluefin tuna, swordfish, and billfish;

9) make other changes to facilitate the management of the Atlantic pelagic species.

Hence, the creation of the Pelagic Observer Program (**POP**). This program is directed by the SE Fisheries Science Center, and places observers aboard U.S. longline vessels who currently hold swordfish permits. A computer generated list of boats by quarter and area provides 8% coverage (in fishing sets).

These boats are notified as to their selection in writing and are required to respond initially in writing with requested information and then to contact the coordinator by phone or fax 5 business days prior to all departures during the selection period or until a trip is observed.

II. OBJECTIVES

- A. Provide trained observer personnel to meet **8%** coverage of U.S. Commercial longline fleet (in fishing sets).
- B. Obtain target and bycatch numbers on pelagic species caught on longline gear.
- C. Record length measurements and sex on all pelagic species brought on board. (swordfish, tunas, billfish, sharks and other finfish)
- D. Record detailed gear characteristics of commercial longline vessels.

III. OBSERVER DUTIES

The observer's primary responsibility is to identify and record all animals caught during longline operations, take required measurements and samples, and obtain dressed weights on all tagged swordfish and tuna landed.

Due to liability and safety considerations observers will not participate as deck hands during the fishing operations or stand regular watches. Observers are encouraged to assist in daily cleanup duties and lend a hand once fishing operations are secured.

Observers will abide by normal living routines aboard the vessel and adopt the standard habits of the captain and crew as regards use of living space, preparation and consumption of meals, storage of personal gear, personal hygiene and chores. Observers will abide by all POP safety policies and will conduct themselves in a professional fashion. It is the POP policy that observers may not consume alcohol on board a vessel or at/on the dock. The POP also has a zero tolerance for possession and/or use of illegal drugs at any time.

Other duties include: record tagging information, assist captain with completing Pelagic Logbook Set Forms and obtaining a copy of the weigh out sheet from the dealer or captain.

NOTE: WHEN POSSIBLE OBTAIN INDIVIDUAL WEIGHTS OF SHARKS, FINFISH OR SMALL TUNAS.

Observers are provided with the current fisheries regulations (see Tab#2 REGULATIONS) and any updated materials received by the POP, regarding changes in regulations, closures, or notice to fishers. (see Tab#8, MISC) However, interpretation of these materials will be left to the captain or crew.

Observers must provide access to data collected when requested by any NMFS, Coast Guard or state official. In the event data is provided to an official, the observer will contact the POP coordinator and document all materials turned over to the officer.

NOTE: ATTEMPT TO PROVIDE COPIES OF DATA RATHER THAN ORIGINALS.

An additional day should be taken once landing and weigh out is finished to review data forms for completeness, make copies of all data and then arrange for shipping of data and samples.

If logistics allow, observers may come through Miami to debrief with program staff. Otherwise data should be sent **UPS Next Day Air Saver** to the Miami lab.

Once the data is received, POP personnel will contact the observer by phone to arrange a time for a debriefing. During debriefing, observers are provided feedback on their data collection, data questions are resolved, information is shared

and field supplies are replenished.

NOTE: YOUR TRIP IS NOT OVER UNTIL YOU COMPLETE A DEBRIEFING WITH THE POP STAFF.

IV SAFETY.

This section has been replaced by a safety manual. Please refer to the manual for all POP safety information and policies.

V. COMMUNICATIONS (see TAB# 1 COMMUNICATION for more details)

Once an observer is deployed he/she must update Miami once each day by land line (1-800-858-0624) until the boat leaves the dock.

At sea, observers should make contact with the Miami Lab once a week via satellite phone (preferred) at 1-305-361-4563 to report their work status and ships' position. Reporting can also be done by email if available on the vessel: **popobserver@noaa.gov**

Upon landing, observers must contact the Miami Lab by land line, discuss post trip details and determine if an observer should remain on site for a debriefing.

Observers are provided with contact names and numbers to assist with logistical or shipping needs; however, travel arrangements and questions should be directed to IAP office staff.

SEFSC SWITCHBOARD	(305)361-5761
POP FAX#	(305)361-4282
POP LAND LINE	1-800-858-0624
POP AT SEA	(305)361-4563
USCG SAR Command	(757)398-6390
UPS Account#	W8098F

VI. PROCEDURES

A. DATA FORMS

1) Longline Gear Log

A detailed description of the gear being used(see Tab#4 Gear Log Instructions and Distance Calculation Instructions for more details).

NOTE: CHANGES FROM HAUL TO HAUL (E.G. % LIGHT STICK COLORS USED OR DROPLINE LENGTHS) SHOULD BE RECORDED IN THE COMMENTS SECTION OF THE LONGLINE HAUL LOG. AT THE END OF TRIP USE HAUL LOGS TO DETERMINE IF MULTIPLE GEAR LOGS ARE NEEDED AND USE THE DISTANCE CALCULATION TABLE TO COMPUTE AVERAGES.

2) Longline Haul Log

Information relating to the gear deployment/set and retrieval/haul are recorded. (see Tab#4 Haul Log Instructions for more details)

3) Individual Animal Log

Information on each fish that is observed as caught on the longline. Information includes: fish identification to species, alive/dead on hook, kept or released, sex, length measurements, tag/release information, dressed weights and biological sampling. (see Tab#5 Animal Log Instructions for more details)

A Comment field for individual animals was added in 2004 and may include details on % damage to dressed carcass, damage type (shark, mammal, squid or other) or details on how an animal was hooked or entangled.

NOTE: ALL INCIDENTAL TAKE (TURTLES, MAMMALS AND SEA BIRDS) ARE RECORDED ON BOTH THE ANIMAL LOG AND ONE ADDITIONAL FORM DESCRIBED BELOW.

4) Protected species forms: Sea Turtle Life History Form, Marine Mammal Life History Form, and Sea Bird Life History Form

These forms are completed as applicable for each turtle, marine mammal, or bird involved in the gear. Complete as much information as possible given the equipment you have available and whether the captain brings the animal on board. If the animal appears to be comatose, a request should be made to bring it aboard, but the decision remains with the captain. Refer to form manuals for protocols, and apply them to your specific situation.

All observers will receive training and carry required permits in the field. At a minimum, protected species are to be photographed to verify identification and gear involvement (e.g. how hooked and/or how entangled).

5) Catch Summary (optional)

The Pelagic Logbook Set Form is not an observer program data form. However it is mandatory for the owner/operator to submit them in compliance with permit requirements. Please assist the skipper in completing this form as accurately as possible. Use the Catch Summary sheets we provide to total daily catch numbers. Record summarized catch(both kept and discards)in your field diary and give original catch summary sheets to the captain.

Paperwork Reduction Act

Some of the data we collect may require you to ask the captain or owner questions about safety gear, fishing gear, or other items. These questions have gone through review as required by the Paperwork Reduction Act (PRA). If vessel personnel ask to be provided with proof that these questions have been cleared, you may provide them with the PRA statement page at the end of this section.

B. Field Identification

Reference materials are provided to the observer to assist in making accurate identifications of pelagic species:

Guide to Sharks, Tunas & Billfishes of the U.S. Atlantic & Gulf of Mexico.

Marine Mammal & Turtles of the U.S. Atlantic & Gulf of Mexico

Peterson Atlantic Coast Fishes

Fish Identification Supplemental Guide

Photographs must be taken in the following circumstances; to help POP staff identify an unknown animal; to document a rare fish; to verify species identification and document gear involvement of all incidental take (turtles, mammals, sea birds).

If a fish is dead and manageable, an observer should request that it be brought on board to get an actual measurement, biological sample or a better photo opportunity. If species identity is in question, record the known group name (e.g. BIL) on the Individual Animal Log, take enough photos(at least 2) showing prominent features and collect parts (e.g. skin patch, DNA sample) or collect the whole fish.

Document all photos by using a Photo Log.(see Tab#8 for the form) Photos taken to document a specific fish also need to have the roll number-total number photos taken(r-n)recorded on the Individual Animal Log. Photos of the boat, gear and fishing operations can be useful. However these photos should not be taken without with the captain's permission.

C. Length Measurements

Refer to the Individual Animal Log Instructions and Appendix 1 for measurement instructions. (see Tab#5 for details)

Unless working on deck is unsafe, observers will record the required measurements for all species brought aboard (priority swordfish, tunas, turtles, billfish, sharks and finfish).

NOTE: DO NOT HANDLE LIVE SHARKS AND RAYS

The observer should record an estimated length for all released or discarded animals, to the nearest foot and convert to cm on the data form.

D. Biological Sampling

All new POP observers are required to collect gonadal material until sex identification of swordfish, tunas and billfish is verified. Sampling will not be done unless proper equipment, training, protocols and permits have been provided. Whole specimens may be requested to be brought back to the dock but should only be shipped with the coordinators' authorization.

NOTE: REVIEW POP BIOLOGICAL SAMPLING REQUIREMENTS EACH QUARTER FOR CURRENT SAMPLING PROTOCOLS.

A sample label will be included with all biological samples collected. Use sharpie pens provided to fill out the labels as pencil or ink will fade or smear.

Whole fish specimens or fish parts should be placed in multiple plastic bags, provided by POP and stored on ice or kept frozen. If multiple parts are collected for a single specimen, each part should be placed into a separate plastic bag and labeled with the trip#, date, species abbreviation (SWO), tissue type (gonad), and a carcass tag or unique sample number (not more than five characters because that is the limit accepted in the POP database e.g., SW001) for each fish sampled. Then combine the smaller bags, and triple bag in larger plastic bags. The carcass tag number or unique sample number is also recorded on the Individual Animal Log, so that a length measurement, sex and a dressed weight can be recovered for each sample.

For a tag recapture animal, special biological sampling is required (see Tab#6 APPENDIX 2, figures 1-4). Tag information is also recorded on the Individual Animal Log. All tag recapture fish are important. However, never sacrifice a live fish to recover a tag.

E. FIELD DIARY

The field diary should be used to document events or actions that occur during a single deployment and backup data information. (See Tab#1 Field Diary Guidelines for more details)

Your field diary is an important data element. Include original pages of your field diary for each trip submitted. The Field diary spiral notebook can be used for multiple trips, however to ensure individual vessel confidentiality, **observers must remove pages from a completed trip prior to another deployment.**

VII Shipping Procedures

At the conclusion of your trip (either after you return home or if possible while still on travel), make copies of all your data forms and send the originals to the POP. Please note that due to data confidentiality rules it is unacceptable to take your data to a location where a third party does the copying. You must do the copying yourself.

All data and/or samples will be shipped **UPS Next Day Air Saver**. If you land on a weekend or holiday you may have to purchase a cooler and ice to keep samples cool until you can ship. You can arrange for pickup service ([1-800-742-5877](tel:1-800-742-5877) or www.ups.com) or take to the nearest **UPS Store or Customer Center**.

All biological samples should be kept on ice or frozen until they can be shipped by **UPS**.

NOTE: NEVER SHIP DATA, PRESERVED SAMPLES (e.g biopsy) OR CAMERAS WITH BIOLOGICAL SAMPLES.

Pre-addressed **UPS** labels are provided by POP. Packaging is the responsibility of the observer and might require some creativity. The major concern is to minimize smell and leakage throughout transport. **DO NOT SHIP WITH ICE!** Use coated boxes with insulated liners when possible. Triple bag samples with plastic bags and fill any air spaces with insulation (newspaper is good). ALL bags must be SEALED (e.g. tied or ziplocked). If you use a Styrofoam container, you need to put these inside a cardboard box and label to be accepted by **UPS**.

NOTE: ALWAYS RECORD THE TRACKING NUMBER PRIOR TO SHIPPING.

Shipping Address: ATTN: **Sascha Cushner**
 Southeast Fisheries Science Center
 75 Virginia Beach Dr.
 Miami FL. 33149

See example **UPS** label at the end of this section.

VIII EQUIPMENT CHECKLIST

The observer will be provided with all field equipment necessary to meet the needs of the project. An equipment checklist will be signed by the observer upon checkout and then by the coordinator upon check in. The following personal items are suggested:

- Sun glasses
- Sun screen
- Hat
- Personal toiletries including a towel
- Deck shoes (closed toed)
- Candy, books, walkman etc.
- Sea sickness medicine
- Bedding (sleeping bag or sheet & blanket)
- Clothing appropriate for weather conditions

Smooth seas and good fishing!

PAPERWORK REDUCTION ACT STATEMENT: Information collected through the observer program will be used to: (1) monitor catch and bycatch in commercial and recreational fisheries; (2) understand the population status and trends of fish stocks and protected species, as well as the interactions between them; (3) determine the quantity and distribution of net benefits derived from living marine resources; (4) predict the biological, ecological, and economic impacts of existing management action and proposed management options; and (5) ensure that the observer programs can safely and efficiently collect the information required for the previous four uses. In particular, the observer program provides information that is used in analyses that support the conservation and management of living marine resources and that are required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), Executive Order 12866 (EO 12866), and other applicable law. Most of the information collected by observers is obtained through "direct observation by an employee or agent of the sponsoring agency or through non-standardized oral communication in connection with such direct observations". Under the Paperwork Reduction Act (PRA) regulations at 5 C.F.R. 1320.3((h)(3), facts or opinions obtained through such observations and communications are not considered to be "information" subject to the PRA. The public reporting burden for responding to the questions that observers ask and that are subject to the PRA is estimated to average 50 minutes per trip, including the time for hearing and understanding the questions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: National Marine Fisheries Service, F/SF1, 1315 East West Highway, Silver Spring, MD 20910. Providing the requested information is mandatory under regulations at 50 C.F.R. 600.746 for the safety questions and at 50 C.F.R. Part 622.8, 50 CFR 229.7, and 50 CFR 222.401 for the other questions. All information collected by observers will be kept confidential as required under Section 402(b) of the MSA (18 U.S.C. 1881a(b)) and regulations at 50 C.F.R. Part 600, Subpart E. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. This is an approved information collection under OMB Control No. 0648-0593 through 09/30/2012.

January 1, 2012

COMMUNICATIONS

Observers will contact the Pelagic Observer Program (POP) using the toll free number **1-800-858-0624** via land line once he/she arrives at the boat and has completed a safety check. Observers will update the POP each day while on standby to confirm the actual departure time and date. Observers will call in again when the boat has landed and update the POP on the unloading and discuss how long the observer should remain on site. **Please note that logistical reporting should always be done to the 800 line, do not leave messages on individual POP staff voice mails.** Observers should report landings on the voice mail over the weekend, and not wait to call in Monday morning.

While at-sea, the observers primary method of communication is the satellite phone (1-305-361-4563). It will be at the observer's discretion as to when phone is made with the Miami Lab. However we want at least one contact each trip and when a trip exceed 10 days in duration, one contact each week.

Communication **is necessary** for the following:

- 1) To provide a last known position for safety. This can be given in degrees Lat & Long or as a geographic location.
- 2) Report work status (see status codes)
- 3) Confirm collection and or sampling protocol
- 4) Alert the lab to an emergency or request assistance.
- 5) Report work hours

Communications Protocol

During all contacts, the lab will ask about your working status. Please use one of the following codes:

work status=0 I'm OK, Work OK;
work status=1 I'm OK, Work rough, Workable;
work status=2 I'm OK, Work not OK, Workable;
work status=3 I may not be OK, Work not OK;
work status=4 I'm not OK, Work not OK.

In work status **0,1 & 2** no immediate action will be taken by the lab. Specific problems, if any will be addressed during the debriefing.

Work status **code 3** denotes a serious situation aboard the vessel. All events will need to be documented and enforcement will be included in the debriefing process. If the observer desires, we will attempt to have enforcement present when the vessel reaches the dock.

Code 4 denotes that an observer has suffered an assault or otherwise feels that they may be in jeopardy. In this instance, steps will be taken to involve NOAA enforcement and the United States Coast Guard. An evacuation will be arranged or the vessel will be asked to return to port. Communications should be maintained until the observer is off the vessel.

Please be very careful about the use of these codes. A message left of "Code 4" on the 800 line voice mail will most likely result in dangerous and costly USCG rescue operations, please do not confuse the code; repeat it several times for clarity. Further, if you are out of earshot of the vessel crew and can speak freely, in addition to the code please elaborate on the vessel situation and why you feel you need evacuation.

Personal Sat phone use:

Observers equipped with Globalstar satellite phones are allowed unlimited minutes of personal calls; however in the event you depart from a port outside the continental U.S. or issued an Iridium phone, your allowable time for personal use of the phone may be very limited.

Email:

Certain vessels may possess email communications that can be used in a limited fashion. Please check with the Captain to see if communications are pay-by-the-word or otherwise. Although we prefer to see all official communications come in to the 800/logistics line, in some cases where sat phone communications are difficult observers may report to **popobserver@noaa.gov**

Radio:

At the current time the SSB radio at the Miami Lab is not functional, and may not be for some time. We will advise observers if and when the radio back on line. Observers should still familiarize themselves with any radios the vessel in case emergency communications become necessary.

PROPER UPS LABEL

Below is an example of the CORRECT way to address a UPS label when shipping data or samples to the Miami lab. The preprinted labels can only be used to send packages NEXT DAY AIR. Call us if you have any questions!

1. Fill-in observer's name.
2. Nothing needed if using preprinted labels. If not using preprinted labels, make sure Sascha Cushner is list as the recipient.
3. Place a check mark in the box for 'LTR' if using a UPS Express Envelope. At this point, leave weight blank since you don't have postal scales. Place a check mark in the box for 'LARGE PACKAGE' if it meets the definition for large package listed on the back of the preprinted labels. Obviously, our gear bags would be considered a large package.
4. There should never be a reason to use this option—we want someone to sign for all data and samples.
5. Leave blank since the package is being charged to our UPS account.
6. Leave blank.
7. Leave blank.
8. Place a check mark in "BILL SHIPPER'S ACCOUNT NUMBER". Make sure it's written in if not using preprinted labels (W8098F).
9. Leave blank.
10. Sign and date.

Affix label to envelope/ box/ package and keep second copy, 'SHIPPER'S COPY', so you have a record of the tracking number incase the package is lost.

03355 013416_p1 1941383 1 of 100

UPS Next Day Air Saver	
Shipping Document	
See instructions on back. Visit UPS.com or call 1-800-PICK-UPS® (800-742-5877) for additional information and UPS Tariff/Terms and Conditions.	
TRACKING NUMBER 1Z W80 98F 23 1000 0001	
1 SHIPMENT FROM	
SHIPPER'S UPS ACCOUNT NO. W8098F	REFERENCE NUMBER
NAME OBSERVER'S NAME	TELEPHONE 800-858-0624
COMPANY NOAA/NMFS/POP	
STREET ADDRESS 75 VIRGINIA BEACH DR	
CITY AND STATE KEY BISCAYNE FL	ZIP CODE 33149
2 EXTREMELY URGENT DELIVERY TO	
NAME OBSERVER PROGRA	TELEPHONE 800-858-0624
COMPANY NOAA/NMFS/POP	
STREET ADDRESS 75 VIRGINIA BEACH DR	
CITY AND STATE KEY BISCAYNE FL	ZIP CODE 33149

3	WEIGHT	LTR <input checked="" type="checkbox"/>	WEIGHT	DIMENSIONAL WEIGHT If Applicable	LARGE PACKAGE <input type="checkbox"/>	4 SHIPPER RELEASE <input type="checkbox"/>
5	NEXT DAY AIR SAVER CHARGE					CHARGES
6	OPTIONAL SERVICES	<input type="checkbox"/> SATURDAY PICKUP See instructions			\$	\$
		<input type="checkbox"/> DECLARED VALUE FOR CARRIAGE For declared value over \$100, see instructions.	\$	AMOUNT	\$	\$
		<input type="checkbox"/> C.O.D. If C.O.D., enter amount to be collected and attach completed UPS C.O.D. tag to package.	\$	AMOUNT	\$	\$
7	ADDITIONAL HANDLING CHARGE	<input type="checkbox"/> An Additional Handling Charge applies for certain items. See instructions.				\$
TOTAL CHARGES						\$
8	METHOD OF PAYMENT	<input checked="" type="checkbox"/> BILL SHIPPER'S ACCOUNT NUMBER In SECTION 1	<input type="checkbox"/> BILL RECEIVER	<input type="checkbox"/> BILL THIRD PARTY	<input type="checkbox"/> CREDIT CARD	<input type="checkbox"/> CHECK
						American Express Diner's Club MasterCard Visa
9	RECEIVER'S/THIRD PARTY'S UPS ACCT. NO. OR MAJOR CREDIT CARD NO.					EXPIRATION DATE
THIRD PARTY'S COMPANY NAME						
STREET ADDRESS						
CITY AND STATE						ZIP CODE
10	SHIPPER'S SIGNATURE X Joe Observer	DATE OF SHIPMENT 12/10/2010				

Shipper certifies that the contents of this envelope are not hazardous materials, explosives, flammable liquids, or other dangerous goods. Shipper certifies that the contents of this envelope are not controlled substances, as defined in 21 CFR 1301.11, and are not prohibited by the International Convention for the Suppression of Terrorist Bombings, as defined in 22 CFR 121.11. Shipper certifies that the contents of this envelope are not prohibited by the International Convention for the Suppression of Terrorist Bombings, as defined in 22 CFR 121.11. Shipper certifies that the contents of this envelope are not prohibited by the International Convention for the Suppression of Terrorist Bombings, as defined in 22 CFR 121.11.

This form not needed with UPS Internet Shipping at UPS.com

Pelagic Longline Observer Program
Field Diary Guidelines

I. OUTLINE

A. COVER

1. Record Observer/ Trip Identifier unique to each deployment
(a deployment begins when you leave home and ends when the data is completed and sent to the coordinator.)

B. PAGE

1. Begin each new trip or deployment period on a new page.
2. Use both sides of page.
3. Record Trip identifier on each page and number pages within a trip
4. Record Date in the center of each page with a space between days
Record at least one entry for each calendar day
 - i. Record date on each page, if additional pages are used
5. Record Time for each entry made during a single day
use 24 hour clock
 - ii. Record time at left edge of page separate from text
 - iii. Record entries as soon after occurrence as possible

C. ENTRY

1. Documentation should be a record of facts and observations made during a deployment
 - i. Record entry to the right of time, so that time is separate and easily read
 - ii. Entries should be concise and provide necessary detail of facts or observations.
 - iii. Use of verbs to describe activities is best (travel, speak, set, haul, transit, check, weigh etc.)
 - iv. Do not use white out to make a correction draw a single line through the error and continue.

D. WHAT TO INCLUDE

1. Departure from dock
2. Begin/end set# time, position, temperature
3. Begin/end haul# time, position, temperature
4. Catch Summary
 - a. target species total
 - b. bycatch species total
5. Sample Log
6. Photo Log
7. Weigh-out
8. Travel and Expenses
9. Daily activity (standing by for departure, transiting to fishing grounds, fishing laying to for weather etc.)
10. Weather observations
11. Other fishing boats in the area
12. Marine mammal or turtle sightings (interaction versus involvement)
13. Radio communications
14. Compliance situations (who, what, where, when) resolved or not.

POST TRIP CHECK-LIST

Trip ID: _____	Present	Number	
Turtle Gear Checklist labeled with Trip ID	<input type="checkbox"/>		
Safety Checklist	<input type="checkbox"/>		
Original Field Notes (from home to home)	<input type="checkbox"/>		
SD Card/Camera(s) (specify) labeled with Trip ID on camera/envelope (SD Card shipped in storage case)	<input type="checkbox"/>	<input type="checkbox"/>	
Photo Log(s)	<input type="checkbox"/>	<input type="checkbox"/>	
Samples (packaged correctly-NOT biopsies)	<input type="checkbox"/>	<input type="checkbox"/>	
Incidental Take Form(s) (if needed):	<input type="checkbox"/>	<input type="checkbox"/>	
• Bait size calculated (turtles and birds ONLY)	<input type="checkbox"/>		
• USFW form #3-177 (if turtle biopsies)	<input type="checkbox"/>		
Calculations proofed:			
• Distance calculations	<input type="checkbox"/>		
• Mainline length	<input type="checkbox"/>		
• Hook depth	<input type="checkbox"/>		
No blank fields	<input type="checkbox"/>		
All forms present:		Numbered correctly?	
• Gear Logs	<input type="checkbox"/>	<input type="checkbox"/>	
• Haul Logs	<input type="checkbox"/>	<input type="checkbox"/>	
• Animal Logs	<input type="checkbox"/>	<input type="checkbox"/>	
Fish weights entered	<input type="checkbox"/>		
Contact fish house – ask to record weights/ carcass tags (if fish shipped/ not weighed at dock)	<input type="checkbox"/>		
Weigh-out Sheet (Observer hand written notes and/or from Fish House)	<input type="checkbox"/>		
Re-supply included (with observer ID)	<input type="checkbox"/>		
Line or hook sample included (specify)	<input type="checkbox"/>		

I agree that I have proofed my data prior to sending it to the POP

Signature

Date

POP Resupply Checklist

OBSERVER ID	
--------------------	--

<u>Expendables</u>	<u>QTY</u>
UPS Labels	
Pencils	
Sharpie Large	
Sharpie Fine	
Sharpie Ultra Fine	
Field Diary Pages	
Plastic Bags (Black/Clear)	
1 gal. Zip Bags	
Quart Zip Bags	
Specimen Labels	
Single use cameras	
Carcass Tags	
Cable Ties	
OTHERS WRITE BELOW	

<u>Forms</u>	
Safety Checklist	
Gear Log	
Distance Calc Table	
Haul Log	
Animal Log	
Turtle Equipment Checklist	
Turtle Life History	
Seabird/Mammal Inc. Take	
Post Trip Checklist	
Photo Log	
Catch Summary	
Weigh Out Sheet	

OTHERS:



The Pelagic Observer Program **Safety Manual**

EMERGENCY CONTACTS:

UNITED STATES COAST GUARD:

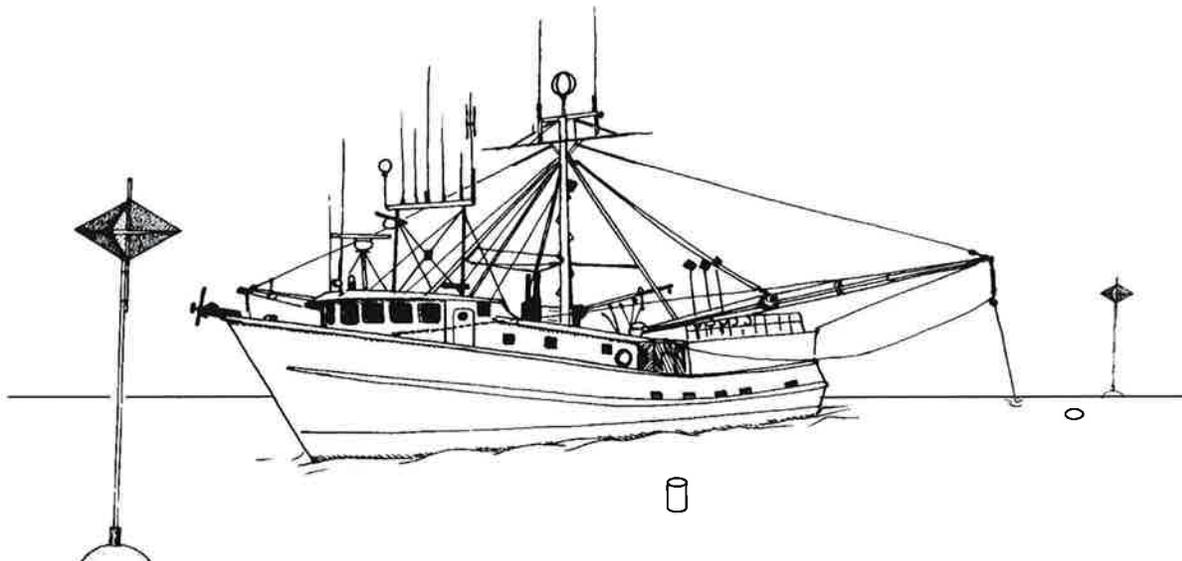
- 1) Channel 16 VHF-FM (156.8 MHZ) or 2182 KHz
- 2) 757-398-6390 from cellular or satellite phone
- 3) 911 from cellular or satellite phone
- 4) Activate personal or boat EPIRB.

Pelagic Observer Program:

- 1) 1-800-858-0624 (landline or cellular only)
- 2) 305-361-4563 (satellite phone)
- 3) 305-361-4200 (SEFSC Main Desk)

IAP World Services:

- 1) 228-549-1662



Pelagic Observer Program Safety Manual

The NOAA Fisheries Pelagic Observer Program (POP) delineates safety as the most important concern for the observer occupation. While your job at sea is to collect data and samples, your first and foremost job is to stay safe and uninjured.

If you at any time feel unsafe on a vessel, either before boarding, or during the trip, do not hesitate to refuse the trip and/or have yourself removed from the vessel.

You must take responsibility for your own safety and learn as much as you can before an emergency threatens your well being. Along with the formal training you have received from the POP, use the knowledge and experience of the vessel's captain and crew for safety guidance aboard their vessel.

This manual was designed to aid in safety training and as a safety reference for observers deployed into the field. The information in this manual is not a complete guide. Observers should seek to obtain as much information as possible from multiple sources regarding personal and vessel safety.

Medical Fitness for Sea

Individuals selected for employment with the Southeast Fisheries Science Center (SEFSC), as fishery observers must be fully qualified to safely and efficiently perform the essential duties and responsibilities of their positions.

Living Conditions

Cleanliness, upkeep, safety, comfort of quarters, quality of food, and general attitude of the vessel personnel vary from vessel to vessel. Observers must be flexible and function professionally under a wide variety of living conditions. Avoid altercations with vessels Captain or crewmembers at all costs. If you feel threatened make contact with the United States Coast Guard (USCG), POP, or IAP to report such. If you are in immediate physical danger you can activate your epi-irb to facilitate a USCG response.

Keep yourself and your personal items and area clean at all times, doing such can help prevent the transmittal of bacteria and germs. If you feel you have come in contact with contaminated items or areas, use the supplied Staph-a-septic© ointment and Hibiclens© cleanser.

Accidents and Illness Aboard

All Accidents and Illness must be Reported within 24 Hours of Occurrence

In the event of an emergency such as an injury or serious illness requiring hospitalization, the captain should be notified, and the USCG should be contacted via radio or satellite phone. The USCG will advise you how to proceed to expedite a safe travel to shore. Do your best to notify the POP as well as a contact at IAP, if at all possible.

If you are injured, regardless of how minor you may perceive the injury to be you must document the incident in your field diary and report it to your supervisor as soon as possible. You must also fill out an IAP Employee Incident Report Form and turn it into IAP (please also copy and send to your Observer Coordinator) even if no medical treatment was/is necessary. These measures are for your protection. Do not neglect your responsibilities to report injuries or illness.

Training

Prior to your first assignment, you will receive training in safety and survival at sea. At a minimum, the training curriculum will include the following subjects:

1. First Aid and CPR Certification
2. Proper use and care of personal flotation devices and immersion suits
3. Abandon vessel and man overboard procedures
4. Life raft deployment and STAY rules; in-water liferaft skills
5. Cold water and hypothermia; in-water survival
6. Familiarity and usage of personal EPIRB
7. Survival skills and kits
8. Use of marine VHF radio, SSB radio, and satellite phone
9. Distress calls and signals; flares
10. Fire safety and prevention
11. Vessel stability and flooding
12. Vessel safety requirements and pre-trip vessel check
13. General safety on small boats
14. At sea personal health and hygiene
15. MRSA Prevention
16. Valise Liferafts

****For any safety questions or concerns contact the POP Safety coordinator or the Program coordinator.****

Included in this Safety Manual are materials used in your safety training and also information on various safety issues.

I. Safety Manual Introduction	2
II. Personal health and hygiene	5
-Sleep Deprivation	5
-Seasickness	6
-First Aid Kit	6
-MRSA Infection	8
III. Pre-Trip Vessel Safety Check	
-Before deployment on a vessel	11
-Pre-Trip Vessel Safety checklist	13
IV. Safety on small boats	
-Safety aboard vessels	18
-7 Ways to be Injured	20
-Types of Emergencies	22
V. Survival Skills	23
VI. Safety Equipment	
-PFD and Immersion Suit Use and Maintenance	25
VII. Distress Calls and Signals	
-Distress Calls and Signals	53
-VHF Channels	60
-EPIRB Use and Maintenance	61
VIII. Man Overboard and Abandon Ship Procedures	
-Man Overboard	64
-Abandon Ship	68
-Coast Guard Rescue	73
-STAY rules	75
IX. Cold water and Hypothermia Survival	76
X. Fire and flood	
-Vessel stability and Flooding	81
-Fire Prevention and Fighting	88
XI. Liferafts	97
-Valise Certification and Procedures	98
XII. Proper Lifting Techniques	102
XII. Quick Reference Guide to Marine Safety	104

Basic Health and Hygiene at Sea

Practice Good Hygiene

- Keep your hands clean by washing them frequently and thoroughly with soap and warm water or using an alcohol-based hand sanitizer. Hand-washing is the best way to avoid spreading germs.
- Keep cuts and scrapes clean and covered with a bandage and avoid contact with other people's wounds or bandages. Make sure cuts and scrapes stay as dry as possible.
- Do not share personal items such as washcloths, towels, or razors.

Antibiotics

- Be aware of proper use of antibiotics. Antibiotics **can** help treat bacterial infections but they **cannot** cure viral infections. Always ask your doctor if antibiotics are the best treatment.
- Always take all your antibiotic medicine as prescribed by your doctor. Using only part of the medicine can cause the infection to remain but it can also cause antibiotic-resistant bacteria to develop.
- Do not save any antibiotics and do not use antibiotics that were prescribed for someone else.

Sleep Deprivation

- Sleep deprivation is inevitable while working out at sea. Signs of sleep deprivation include:
 - Increased sleepiness and fatigue and weariness
 - Poor attention span and motivation, especially for boring tasks requiring sustained concentration (i.e.: tallying fish/hooks on a longline vessel)
 - Memory Lapses
 - Decreased initiative, judgment ability and decision making
 - Increased irritability
- Suggestions for Dealing with Sleep Deprivation:
 - Allow at least 4 hours of uninterrupted sleep each day to maintain minimal performance
 - Attempt frequent “power” naps - 20 or 90 minutes in length
 - Cover your eyes from natural light when attempting to rest
 - Avoid use of antihistamines, motion sickness medication, and all other drugs that will sedate (if possible)
 - Don't abuse caffeine – it will lead to an unavoidable “crash” later in the day
 - Eat small snacks of high carbohydrate foods (breads, rice, cereals, potatoes, some baked goods and apples). The carbohydrates will provide energy to fuel body function and prevent drowsiness.

- Avoid large amounts of protein (meat, dairy items, eggs, fish, legumes). The body has to expend energy to break protein down.

Seasickness

- Seasickness often hampers observers at the beginning of a trip, but most effects of seasickness disappear after a few days.
- Vessel motion, indigestible stomach contents, unpleasant fumes or cooking smells, and anticipatory fear will trigger seasickness.
- The symptoms are nausea, headache, drowsiness, and depression. This is normal; it's just difficult to live with.
- Typically, serious cases can cause severe dehydration and weakness.
- To prevent this make yourself drink water or some non-acidic juice and try to eat some mild food (soda crackers are often recommended).
- Take some seasickness medication along even if you don't plan to use it.
- Scopolamine works very well for many people. Scopolamine is currently sold under two trade names, Transderm Scop (the "ear patches") and Scopace (pill) available only with a prescription.. NASA found scopolamine to be the most effective treatment/preventative for spacesickness (aform of motion sickness).
 - Some people cannot tolerate scopolamine's side effects, which include drowsiness, dry mouth, and headache.
- Dramamine (the trade name of Meclizine), Bonine and Cyclizine (trade name is Marezine) are the usual over-the-counter drugs which will inhibit vomiting.
- The USCG formerly used Meclizine with moderate success. USCG research found that a combination of two drugs, promethazine hydrochloride (an antihistamine, trade name Phenergan), and ephedrine sulfate (a decongestant), was by far the most effective treatment available. Similar tests on Navy and Air Force personnel corroborated the Coast Guard's results.
- The recommended dosage is 25 mg of each drug one to two hours prior to motion stress and at six-hour intervals as needed thereafter.
- This combination of Promethazine hydrochloride and ephedrine sulfate is also known as the "Coast Guard Cocktail". Promethazine hydrochloride is a prescription drug, may cause drowsiness, and ephedrine sulfate may aggravate existing cases of hypertension.
- Neither drug can be taken within 12 hours after ingesting alcohol.
- None of the drugs mentioned here can be taken during pregnancy, and you should consult with your physician prior to taking any of these medications.
- It is recommended that you take one dose of a motion sickness medication as directed before you leave the dock since taking medication afterward will delay or nullify effectiveness.

First Aid Kits

- You are issued First Aid Kits that includes items to treat injuries and those for hygiene. First Aid Kits should ALWAYS be brought with you on the boat.

- Please add any personal items that you may need (prescriptions, extra seasickness medication, etc).
- Inform your coordinator if you run out of anything. It is suggested you add items to personalize your First Aid Kits
- Potential Items to add, or add more of, include:
 - Bandages
 - Gauze
 - Medical tape
 - Band-Aids
 - CPR face shields
 - To be used when giving mouth to mouth
 - Iodine packs
 - Disinfectant, to clean wounds before bandaging
 - Alcohol wipes
 - Disinfectant, to clean wounds before bandaging
 - Triple antibiotic ointment
 - To minimize infection of wounds, treat before bandaging
 - Hydrocortizone cream
 - Anti-itch topical
 - Dramamine
 - Seasickness medication
 - Benadryl
 - For allergic reactions
 - Sting relief
 - Topical sting relief
 - Instant cold pack
 - For heat stroke, sprained joints
 - Water-free hand sanitizer
 - If fresh water isn't available
 - Baby wipes
 - If fresh water isn't available

MRSA Prevention and Treatment

What is MRSA?

MRSA, sometimes called fish poisoning amongst vessels, is Methicillin-resistant *Staphylococcus aureus*. In other words it is a staph infection of the skin that is resistant to various antibiotics (but not all antibiotics). Approximately 25-30% of the US population is colonized with staph (meaning the bacteria is present, but not causing an infection), approximately 1% is colonized with MRSA.

What is CA-MRSA?

CA-MRSA is known as **community associated MRSA**. Since most cases of MRSA occur within healthcare facilities (HA-MRSA), those cases of MRSA occurring outside of such facilities are coined as community associated. Staph or MRSA infections amongst the general community (outside healthcare facilities), usually manifest themselves as skin infections that look like pimples or boils and can come about on healthy people. In healthcare facilities, people with weakened immune systems can manifest pneumonia, blood infections, and wound infections as a result of staph or MRSA.

Can I get MRSA on a fishing vessel?

MRSA is transmitted most frequently by skin-to-skin contact or contact with shared items or surfaces that have been contaminated by someone with the infection (i.e. galley tables, bed linens, towels, bandages, boots, gloves, foul weather gear, etc.)

The National Institute for Occupational Health and Safety (NIOSH) states that MRSA skin infections can occur anywhere, however, some settings have factors that make easier for MRSA to be transmitted. These factors can be bundled into the 5 **C**'s, and are: **C**rowding, skin-to-skin **C**ontact, **C**ompromised skin (cuts or abrasions), **C**ontaminated items and surfaces, and lack of **C**leanliness. These factors can be readily apparent on some fishing vessels.

What does a staph or MRSA infection look like?

These infections manifest themselves as pimples or boils and can be red, swollen, painful, and/or can have pus or drainage.



Photo 1 from CDC/PHIL: Bruno Coignard, Jeff Hageman Photo 2 Copyright Dermatlas, Johns Hopkins University

What are the possible symptoms?

Staph skin infections normally cause a red, swollen, and painful area on the skin. Other symptoms may include:

- A skin abscess
- Drainage of pus or other fluids from the site
- Fever
- Warmth around the infected area

Symptoms of a more serious staph infection may include:

- Pain around the infected site
- Rash
- Shortness of breath
- Fever
- Chills
- Chest pain
- Fatigue
- Muscle aches
- Malaise (general feeling of illness)
- Headache

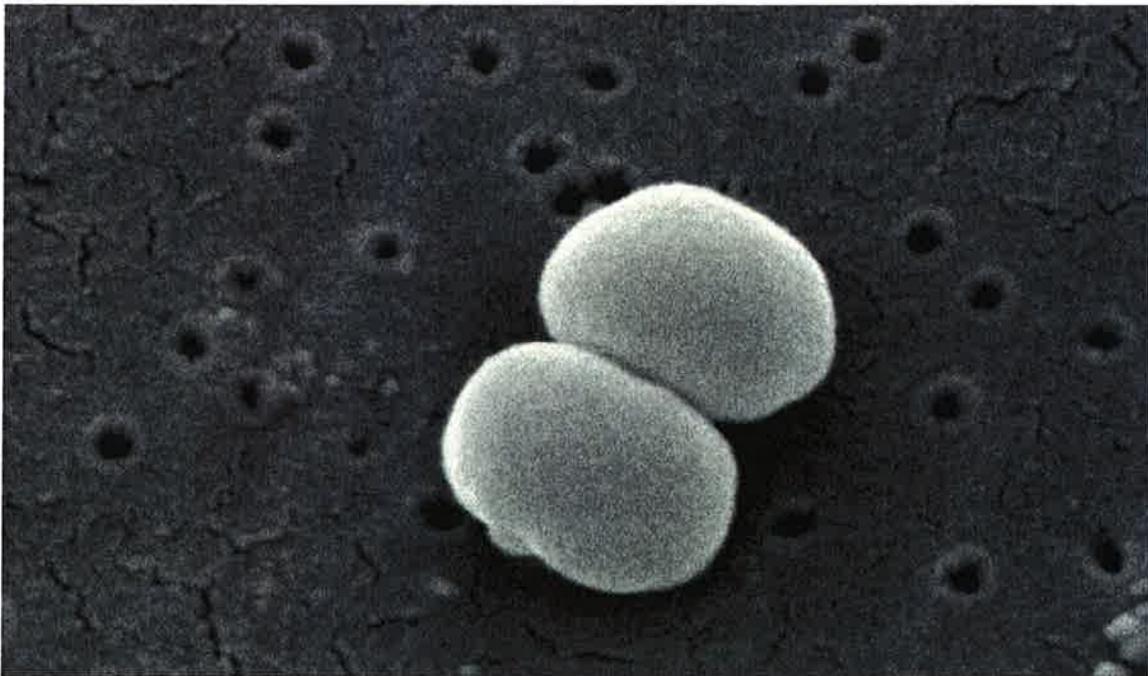


Photo courteous of CDC.

MRSA Personal Prevention

Hygiene:

Practice good hygiene. This doesn't mean dirty people get MRSA or staph, and it doesn't mean because you got MRSA you are "dirty", this means being more cautious will help prevention.

- ✓ Keep hands clean by washing with anti-bacterial soap or Hibiclens© provided by the POP.
 - Wash thoroughly, sing "Happy Birthday" to yourself to allow adequate time. Rinse with fresh water.
 - Alcohol based hand sanitizer works well, but only if used correctly. Use enough to cover hands completely. Rub hands to dry. If your hands are dry before 15 seconds, you didn't use enough gel. Be aware that gels in the 60% alcohol are the most effective. High concentrations are less potent, because proteins are not denatured easily without water.
 - Hand sanitizers should primarily be used only as an optional follow-up to traditional hand washing with soap and water, except in situations where soap and water are not available. In those instances, use of an alcohol gel is certainly better than nothing at all.

- ✓ Keep cuts and scrapes cleaned and bandaged. Use Staphaseptic© as a topical on suspicious boils or cuts.

Contact:

Refrain from sharing personal items with others. Protective equipment, clothing, towels, razors, etc. can carry staph infections. **KEEP YOUR PERSONAL ITEMS PERSONAL.**

- ✓ **BE AWARE!** If you notice a person on board a vessel has oozing wounds or bandages on their body, make special effort to limit contact with that person or their belongings.

- ✓ Ask questions. Most fisherman I have spoken to about MRSA, call it 'Fish Poisoning.', and they have had no problem giving me their "sea-story", regarding it.

- ✓ Limit contact with communal locations on board. For example; if every person on the boat puts their arms on the galley table edge, maybe you should avoid or clean before you do the same.

**** I recommend researching MRSA personally. Typing MRSA into an internet search engine (Yahoo, Google, MSN), will yield many results, but be careful of the accuracy of the articles, blogs, etc. Talking with your primary care physician could yield a plethora of information as well.**

Before Deployment on Vessel

The Commercial Industry Vessel Safety Act of 1988 required the U.S. Coast Guard (USCG) to issue regulations that require certain equipment, instructions and drills aboard vessels that operate beyond the boundary line (COLREGS = Coast Guard Collision Regulations) or carry more than sixteen individuals. Equipment, instructions and drills all increase your safety. All Pelagic Long-line Vessels operate, by definition, beyond the COLREGS demarcation.. These regulations are published in the Code of Federal Regulations (CFR), with most contained in 46 CRR. These safety regulations are outlined in the publication Federal Requirements for Commercial Fishing Industry Vessels. Specific regulations vary, depending on the type and length of vessel, location of fishing operations, seasonal conditions and other factors.

When you board a vessel, safety regulations mandate the captain to make sure you receive a safety orientation. This may be as simple as showing you around, but may include watching videos, or conducting drills. There are some important items that you need to be familiar with while on board any vessel. Check these things before you leave the dock. Aboard fishing vessels, a life-threatening emergency is possible at any time.

By law, vessels selected for participation in fishery evaluations projects that carry observers must have a current USCG safety inspection decal. The policy regarding vessel selection or rejection for participation in the observer program, whether the program is mandatory or voluntary, is as follows:

1. **You will not sail aboard a vessel, unless a current USCG safety decal** is displayed in the starboard window of the wheelhouse of the vessel. This is the law. Occasionally, window replacement may result in a vessel with a current inspection not having a decal to display; in this case you must contact the POP staff who should be able to verify with USCG that the vessel has met the requirements. This is the only exception to the rule regarding safety decals, and it *must* be cleared by POP staff prior to departure. If POP staff is unavailable, when in doubt, don't go.

2. **Before** the vessel leaves the dock, you need to fill out the safety check off list to determine whether the minimum safety equipment is onboard. Do this before the vessel gets underway because you could find yourself the fifth person on a vessel with a four-man life raft.

If you determine that the vessel does not comply with the minimum safety equipment requirements, or for any other reason consider the vessel unsafe in a pre-boarding survey, do not board, and immediately contact the POP.

3. Once you have completed your check off list, orient yourself with the vessel. Become familiar with other safety features of the vessel such as the station bill, and location of any other safety equipment (radio, first aid kit). Identify any potential hazards before the vessel departs. Memorize the exit route from your cabin, the galley, and other locations where you may spend a fair amount of time.

*** The following are examples of things that you should/could check while doing a vessel walk through. They are listed here to assist you when determining the relative safety of a particular vessel. It is not a comprehensive list but one that is intended to start you thinking***

- Does the vessel seem well maintained? Is it neat, clean and being run by a crew that is careful and prepared?
 - Any visible hydraulic leaks?
 - Is the vessel being used for the purpose it was originally designed? Have significant changes been made?
 - Do obvious hazards exist? Note potentially hazardous areas/conditions.
 - Identify the watertight doors (interior and exterior). Can they be secured in case of heavy weather or emergencies?
 - Are any hatches or passageways blocked or difficult to get to?
 - Does deck gear appear to be in good working order and are there safety concerns with the setup? Are there wires that run overhead? Are shackles and blocks worn excessively?
 - Is vessel overdue for a haul-out (excessive growth at waterline or hull paint in poor condition)?
 - How often is the bilge pump going on?
 - How high off of the deck is the fish hold hatch and is it in good condition? Are there any other openings on deck and are they covered with hatches?
 - Would anything prevent you from abandoning ship from the living quarters?
 - What are the escape routes from every part of the vessel you might find yourself? Visualize egress for all possible scenarios (fire, flooding, capsized, dark, etc.) and mentally note landmarks.
 - What are the most combustible items on board and where are they stored?
 - Are there any exposed exhaust pipes/manifolds that might pose burn hazards?
 - While you are at sea note the roll period. Generally a boat with a quick, snappy roll is more stable than a boat that has a slow or sluggish roll period. A boat that seems to hesitate on its side before righting could be unstable.
 - Does the vessel list excessively?
 - Is there heavy equipment on deck that is not lashed down?
 - Are there any exposed drive chains, pulleys or belts?
 - Where is the life raft located? Would it be hard to get to if conditions were icy or the house was on fire?
 - Are there safety issues involved with boarding?
 - Is there a sufficient amount of scuppers and are they large enough to be effective? Do they become plugged during fishing operations?
 - Is there a station bill posted and is your role clear during all shipboard emergencies?
- Did the captain give a safety orientation, explaining:
- Survival craft embarkation stations and assignments
 - Fire/emergency/abandon ship signals
 - Procedures for rough weather/sea
 - Procedures for recovering person overboard
 - Procedures for fighting a fire
 - Essential actions required of each person in an emergency?

WHEN WAS THE LAST TIME YOU CHECKED YOUR PERSONAL SAFETY EQUIPMENT ??????

Instructions for the Pelagic Observer Program's Vessel Safety Checklist

The safety checklist provided by the NOAA Pelagic Observer Program (POP) in Miami, FL is mandatory to be completed prior to each trip made by a fisheries observer. The checklist is important to assure not only the safety of the observer, but can bring attention to the captain or crew of safety deficiencies they may not have been aware of. The following set of instructions should be coupled with the following two pages of a mock checklist. If you have any questions about the safety checklist, you can contact the safety coordinator or call the POP 800 number.

The following numbered instructions parallel the yellow boxes on the mock safety checklist:

#

- 1) Trip number: record the six character observer/trip identifier. This should be used on all data forms and field notes for a single trip.
 - 2) Vessel Name: record the vessel name. Take care with spelling and F/V is not necessary.
 - 3) Vessel Number: record the 6-7 digit USCG documentation number. If the vessel does not have a USCG number, record the state registration number and include the two letter state abbreviation prefix.
- EPIRB: (do not handle the EPIRB, ask captain or crew to handle it for inspection)**
- 4) EPIRB Category 1 Present: if there is a Category 1 EPIRB present onboard circle "YES". If no Category 1 EPIRB is present circle "NO". This would be an opportune time to judge the effectiveness of such an EPIRB in case of an emergency. BE SURE IT IS IN A FLOAT FREE ARRANGEMENT.
 - 5) Location: record the location of the EPIRB on the vessel. (starboard house, etc)
 - 6) Battery Expiration: record the expiration on the EPIRB. This is found in various location for various brands. The battery expires on date displayed. If the battery expiration cannot be read or is missing, request captain/crew to test the EPIRB. Note the Result in section 24.
 - 7) Hydrostatic Release Expiration: the hydrostatic release for an EPIRB should have an expiration displayed. Record the date. The release expires on date displayed.
 - 8) NOAA Registration Expiration: record the NOAA registration expiration date. An

example of this sticker with the information will appear like number 17 on this form.

LIFE RAFT:

- 9) Life Raft Manufacturer: write in the manufacturer of the life raft. (i.e. Viking, Switlik, Revere, etc.)
- 10) Is liferaft release properly setup: if the release is set up properly as seen in #18, circle "YES". If not properly set up circle "NO".
- 11) Number of Type 1 PFD's: Record the number of type one PFD's on board the vessel. Include your POP issued Type II.
- 12) Number of Throwable PFD's (rings or lifesling typically): Record the number of throwable PFD's on the vessel. The throwable PFD's must be 24 inches and have adequate rope based on the size of the vessel. Be sure the throwable is accessible and usable in an emergency situation.
- 13) Number of Immersion Suits: Record the number of immersion suits aboard the vessel. Typically there will only be immersion suits above 32' 00 N Latitude. Always include your POP issued suit.
- 14) USCG CFVS Decal Number: Record the number issued by the USCG on the safety decal. This is found on the center bottom of the sticker.
- 15) Date of Expiration: Record the date of the issuance or expiration, depending on the version of the sticker present, on the USCG CFVS decal. This appears on the right side of the sticker.
- 16) Picture of USCG CFVS Decal: Mark the example sticker to reflect the information **exactly as it is** on the vessels decal.
- 17) Example of NOAA/SARSAT EPIRB registration decal. Information is used for #8.
- 18) Example of proper weak link setup for a liferaft.
- 19) Total Number of Fire Extinguishers: On first line write in the number of working available fire extinguishers onboard. On the "Location" lines, write in location where the fire extinguishers can be found. Make sure extinguishers are charged and circle "YES" or "NO" on the checklist. Check for expiration on the extinguishers and record on the sheet.
- 20) Flares: Record the number of individual types of flares and record. There should be at least 3 parachute flares, 6 hand flares, and 3 smoke flares. Record the location

where the flares are found, and CHECK the expiration dates.

- 21) First Aid Kit Location: Record the location of the first aid kit.
- 22) CPR/First Aid Trained Capt/Crew: Record the name of the Captain or crew member who is certified in CPR and First Aid.
- 23) After completing this form, complete a thorough vessel check to your personal standards. Record any concerns below. If any concerns will delay the departure of the trip, contact the POP office immediately.
- 24) Record any notes relevant to the safety checklist or your personal safety check (i.e. added POP Valise raft).
- 25) Signatures: Be sure that you (the observer) and the captain or the owner sign and date the safety checklist.

Safety is priority number one. If for any reason you do not feel comfortable to go on a vessel because of safety concerns, the POP will back your decision 100%. If there are any questions concerning this list or other safety related information contact Ken Keene at 305-361-4275, or the POP number 1-800-858-0624 for further assistance.

BE SAFE!!

****FYI: Safety equipment expires on the date displayed on the equipment. For equipment that only displays a month and year as an expiration date, the expiration is on the lat day of that month of the year displayed.****



SEFSC Pelagic Observer Program Vessel Safety Checklist

1 Trip Number:

2 Vessel Name:

3 Vessel Number:

Persons on Board for trip:

**Include Observer, captain, and crew.*

4 EPIRB Cat 1 Present: YES NO

**Visually inspect, only captain or crew are to handle epiwb or housing.*

5 Location:

6 Battery Expiration:
Expires on date displayed.

7 Hydrostatic Release Expiration:
Expires on date displayed.

8 NOAA Registration Expiration:
Expires on date displayed. See middle diagram on right.

9 Life Raft Manufacturer:

Capacity:

Location:

SOLAS A Rated: YES NO

Hydrostatic Release Expiration:

Expires on date displayed.

Service Date:

Expires on date displayed.

10 Is release properly set up? YES NO

See diagram to the right.

11 Number of Type I PFD's:

Include POP issued PFD.

12 Number of Throwable PFD's:

**24 inch ring bouy or Lifesling. 1 with 60 ft of line for vessels 26-65 ft in length. 3 devices for vessels >65ft, with at least one of them with 90 ft of line.*

13 Number of Immersion Suits:

Include POP issued Immersion Suit. Only above 32' 00 N Latitude.

14 USCG CFVS Decal Number:

15 Date of Issuance/Expiration:
**Circle one of the above.*

Is Decal Current: YES NO

**Is it marked correctly for pelagic fishing? Mark the sticker below to resemble the one on the vessel.*

16

Commercial Fishing Vessel Safety EXAMINATION

VESSEL
 Documented
 Undocumented

OPERATIONS
 Cold Waters
 Warm Waters
 Inside Boundary Line
 Beyond Boundary Line

FROM COASTLINE
 < 3 NM
 < 12 NM
 < 20 NM
 < 50 NM
 > 50 NM
 > 100 NM

EXPIRES
 2009
 2010
 2011
 2012

JAN	JUL
FEB	AUG
MAR	SEP
APR	OCT
MAY	NOV
JUN	DEC

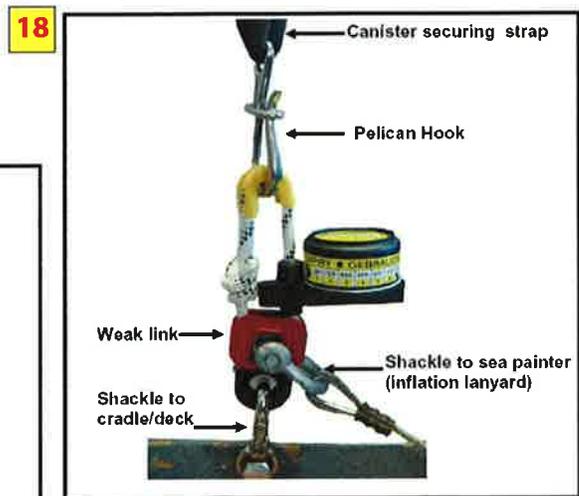
THIS VESSEL MEETS ALL USCG COMMERCIAL FISHING INDUSTRY VESSEL REGULATIONS FOR OPERATING AREAS AS MARKED

NO. 155401

CG-5587A (Rev. 8/08)
U.S. Department of Homeland Security

17

COSPAS-SARSAT
 PROOF OF REGISTRATION
 EXP. DATE: 06/22/2009
 2DCE4E5312FFBFF
 OWNER:
 VESSEL NAME



****Turn Over****

19 **Total Number of Fire Extinguishers:**

Location 1:		
Charged:	YES	NO
Expiration:		
Location 2:		
Charged:	YES	NO
Expiration:		
Location 3:		
Charged:	YES	NO
Expiration:		

20 **Flares: **CHECK EXPIRATION**

Number of Parachute flares: (3)
Number of Hand Flares: (6)
Number of Smoke Flares: (3)
Location:

21 **First Aid Kit Location:**

--

22 **CPR/First Aid Trained Capt/Crew (name):**

--

23 **** After completing this form, complete a thorough vessel check to your personal standards. Record any concerns below. Contact the POP office with all concerns prior to deployment.**

24 **NOTES:**

PAPERWORK REDUCTION ACT STATEMENT: Information collected through the observer program will be used to: (1) monitor catch and bycatch in commercial and recreational fisheries; (2) understand the population status and trends of fish stocks and protected species, as well as the interactions between them; (3) determine the quantity and distribution of net benefits derived from living marine resources; (4) predict the biological, ecological, and economic impacts of existing management action and proposed management options; and (5) ensure that the observer programs can safely and efficiently collect the information required for the previous four uses. In particular, the observer program provides information that is used in analyses that support the conservation and management of living marine resources and that are required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), Executive Order 12866 (EO 12866), and other applicable law. Most of the information collected by observers is obtained through "direct observation by an employee or agent of the sponsoring agency or through non-standardized oral communication in connection with such direct observations". Under the Paperwork Reduction Act (PRA) regulations at 5 C.F.R. 1320.3((h)(3), facts or opinions obtained through such observations and communications are not considered to be "information" subject to the PRA. The public reporting burden for responding to the questions that observers ask and that are subject to the PRA is estimated to average 50 minutes per trip, including the time for hearing and understanding the questions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: National Marine Fisheries Service, F/SF1, 1315 East West Highway, Silver Spring, MD 20910. Providing the requested information is mandatory under regulations at 50 C.F.R. 600.746 for the safety questions and at 50 C.F.R. Part 622.8, 50 CFR 229.7, and 50 CFR 222.401 for the other questions. All information collected by observers will be kept confidential as required under Section 402(b) of the MSA (18 U.S.C. 1881a(b)) and regulations at 50 C.F.R. Part 600, Subpart E. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. This is an approved information collection under OMB Control No. 0648-0593 through 09/30/2012.

25 Observer Signature: _____ Date: _____

Captain/Owner Signature: _____ Date: _____

Safety Aboard Vessels

The following points must be adhered to while on every vessel:

1. A personal flotation device (PFD) is mandatory when out on the deck during operation of the fishing gear, or when alone on deck at any time, regardless of the weather conditions.
2. Don't run aboard ships, particularly up or down stairwells. Slipping, tripping, and falling are the most common sources of observer injury. These accidents often happen when an observer is in a hurry. Specifically watch out for slick spots where the deck is wet or oily, step carefully over the half-foot combing rising from the bottom of metal latch doors and passageways, and look out for low overheads in vessel stairwells and watertight doors. Don't descend ladders as if they were stairs.
2. When rough sea conditions severely limit the effectiveness of sampling, refrain from conducting observations and document the weather and sea conditions during these periods in your logbook. When outside, attempt to remain in view of others. During rough weather, it is important to keep one hand holding on to something secure at all times to prevent you from falling overboard, into the fish hold or slipping and hurting yourself.
3. Never conduct monitoring from an area that you consider unsafe. Always let someone else know that you are going out on deck.
4. Cables and lines that break under strain can be a serious hazard. Whenever a line or cable is subjected to tension, stand in a place where a backlash would not hit you. Watch out for loose or swinging rigging and exposed machinery.

5. Handling fish:

-Be cautious whenever handling fish since fish spines can penetrate boots and gloves and cause a painful wound. Remember that sharks may appear dead, but are still able to bite.

-There may be times when there are many large fish (e.g. swordfish, tunas or sharks) on deck. Large specimens present a danger even when dead. They may slide across the deck in heavy weather and cause serious injuries. Large live fish can cause injury with their teeth, tails and bills. Big tunas have broken boards with a smack of the tail. An ankle or foot bone could easily be broken or injured by such a hit. Experienced fishermen treat certain species (e.g. Shortfin Mako) with a lot of respect, and so should you.

-Be careful not to strain yourself when moving specimens. Ask for help when moving large animals.

-When using a knife on the deck, take care when handling it. Knives on fishing boats are not sterile. Maintain sure footing when using a knife, always cut away from your body and don't leave it lying around on the deck where someone may be injured.

-Treat all minor cuts especially those on hands, with antiseptic to avoid infection. After handling fish, wash hands thoroughly with hot water and soap or an antiseptic such as betadine or providone iodine (1-2 oz. per qt. of water).

6. It is important to keep a clear head at all times on these boats. Keeping a clear head will enable you to foresee potential hazardous situations.

****If you go on deck at night, notify the person on watch****

****When working on the deck, be aware of your surroundings****

****Always keep one hand for yourself and one hand for the ship****

Emergency Drills Requirement

Documented fishing vessels of any crew size beyond the Boundary Line, or vessels with more than sixteen people on board within the Line, are required to conduct monthly emergency drills. Drills must be conducted by a trained Drill Instructor.

What to cover in monthly drills:

1. Abandoning vessel.
2. Fighting a fire.
3. Retrieving person overboard.
4. Minimizing flooding.
5. Launching/recovering lifeboats/rescue craft.
6. Donning immersion suits/PFDs.
7. Donning SCBAs (if so equipped).
8. Giving a mayday and using visual distress signals.
9. Activating the general alarm.
10. Reporting Inoperative alarms.

For Drill Instructor training in your port contact AMSEA at (907) 747-3287 or check out AMSEA's website at www.amsea.org.

Credits:

Alaska Marine Safety Education Association (AMSEA); National Institute of Occupational Safety & Health (NIOSH); U.S. Coast Guard.

Injury data is from the Alaska Trauma Registry 1991-1998. Data from the Alaska Fishermen's Fund is from 1994-1998.

©2002

Alaska Marine Safety Education Association
Printed on recycled paper.

Seven Ways to Get Hurt (or Killed) While Commercial Fishing in Alaska

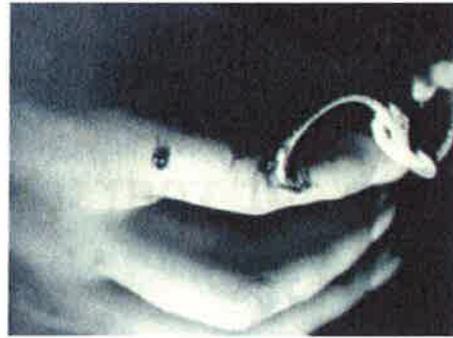


Photo: Art French, M.L.A., USCG

... and ideas from fishermen on how to prevent them

- Commercial fishing can be rewarding and satisfying but it also has hazards. From 1994 to 1998, Fishermen's Fund reported 4,264 injuries and 70 lives lost in Alaska.
- Enclosed are some ways injuries and fatalities can be prevented.
- Review with your crew before and during the season.

1. Strains/Sprains

STATISTIC

Strains and sprains accounted for 47% of all Fishermen's Fund reported injuries.

PREVENTION TIPS

- Use tools to reach and rake in fish. (Petersburg seiner)
- Do stretching exercises in off season and while on watch or off duty.
- Work with fish as much as possible at a level where bending over is not necessary.
- Try to get in shape before the season.
- Use mats or grates to boost you to the right height at cleaning tables so your arms work in a neutral position. (F/V Capt. Cook)
- Get help with items too heavy to lift or move by yourself, especially when underway. Work together. (F/V Ocean Cape)



2. Machinery

STATISTIC

The largest single cause of injuries was machinery (43%).

PREVENTION TIPS

- Shut off engine/motors when working on them to prevent getting snagged.
- Run a line to a kill switch (Henderson line) where it is accessible but out of the way, so anyone on deck can reach it to shut off hydraulics. (F/V Commander)

- Limit hydraulics to safe working loads by installing relief valves. (F/V Commander)
- Don't impulsively grab at lines going out until you're aware of any hazards. (F/V Commander)
- Never use picking hooks in engine control box, as they can jam boat in gear and cause collisions. (F/V Amber J)
- Wear no buckles or buttons to catch on gear. (Bristol Bay fisherman)
- Instead of wearing a net-mending knife on a piece of twine around your neck, tie it off to a belt loop. Better to tear your pants than get lynched by the seine block. (F/V Capt. Cook)

3. Falls

STATISTIC

The second leading cause of injuries was falls (34%).

PREVENTION TIPS

- Use abrasive cleanser on slick engine room surfaces. (F/V Capt. Cook)
- Good housekeeping: keep tarp and slime off decks.
- Use rock grit or coarse sand for hydraulic leaks on deck. (Maine fisherman)
- Use absorbent pads under hydraulic leaks until fixed. (F/V Ocean Cape)
- Hang lines with monkey fists from overheads to hold onto in rough weather. (F/V Coral Lee)
- Renew worn nonskid paint on decks and in skiffs. (Bristol Bay fisherman)
- Put nonskid surface on ladder rungs and steep stairs. Use nonskid grates or mats in high risk areas.

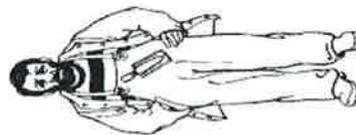
4. Cuts and Punctures

STATISTIC

Cuts and punctures accounted for 26% of all Fishermen's Fund reported injuries.

PREVENTION TIPS

- Wear protective gloves and gear.
- Tape those sharp little Victorinox® knives horizontally to belt, instead of vertically, to prevent leg punctures. (Kodiak fisherman)
- To minimize infections, do dishes and/or soak in hot soapy water several times a day to clean out puncture wounds from fish or shrimp. (F/V Capt. Cook)
- If wound looks infected, wash with Betadine™, soak half hour in hot soapy water as soon as possible, then dry and bandage. Monitor closely for spreading infection.
- Replace any wire rope that develops "fish hooks". (F/V Capt. Cook)
- If you keep getting poked by your net-mending knife, round off the tip. (F/V Capt. Cook)
- Always wear safety glasses when grinding and using power tools. (F/V Pretator)



5. Falling Overboard

STATISTIC

About 25% of fatalities are due to falls overboard.

PREVENTION TIPS

- Wear inflatable suspenders or vest when working on deck. Some inflatables have automatic inflation devices.
- Do not go on deck alone at night or in rough weather. If need arises, have a spotter. Wear a PFD and Man Over-board alarm. (Petersburg fisherman)
- When fishing alone, drag a line behind the boat attached to a kill switch. (F/V Troubadour - S.E. Alaska troller)
- On seiners, leave purse line in net, not on deck where it will run across deck when the net is going out. (F/V Commander)
- Install rear-view mirrors on deck to see people in stern. (S.E. Alaska longliner/gillnetter)
- Rig up man overboard rescue devices ahead of time, using the boat's hydraulics to do heavy lifting. (F/V Amber J)
- Wear an accessible knife to cut yourself from lines/webbing and to cut bottom of waders to empty water when climbing back onboard. (F/V Laconnu)
- Always carry a serrated knife you can access and use with one hand. (F/V Capt. Cook)

6. Struck by Objects

STATISTIC

23% of injuries are due to being struck by objects.

PREVENTION TIPS

- Rig extra safety chains or stays on boom, side stays and power block as preventors
- Keep a sharp knife on a pole to cut hung up lines that are under tension to keep you out of the line of tension. (F/V Trident)
- Avoid pinched toes by painting bright yellow stripes around pot launchers and rigging "preventors" so launchers don't go all the way to the deck. (F/V Ocean Cape)

7. Bruises/Contusions

STATISTIC

Bruises and contusions account for 13% of all Fishermen's Fund reported injuries.

PREVENTION TIPS

- When crabbing, traditional Type III USCG approved lifevests will provide some protection from pots. (Dutch Harbor fisherman)
- Wear hard hats when working with overhead gear.
- Paint hazard areas bright yellow.
- Use duct tape and foam rubber to soften tight quarters or places that cannot be avoided by tall people.

Other Good Practices

- Safety orientations covering emergency gear and procedures should be given to all new crew before leaving harbor.
- Seiners: develop ways to get fish out of net without having to lift entire net. Use wedges, straps, etc., to roll part of the net in to minimize stress on rigging and reduce center of gravity from block to increase stability. (F/V Commander)
- Use double hose clamps on all plumbing, including the deck hose outlet. (F/V Greta)
- Train crew in basic vessel operations such as navigation and anchoring. (F/V Greta)
- Have a sea anchor.
- In a rough anchorage use a fifty pound weight near anchor (a kelleet or sentinel) and a surge buoy fifteen fathoms from bow. (Ketchikan fisherman)
- Keep all work areas well illuminated at night.
- Develop safety procedures and be open to ways to minimize risks.

Got deck safety ideas you'd like to share? Submit them to AMSEA!

Alaska Marine Safety Education Association
www.amsea.org



Types of Emergencies

Drowning

Injuries

Man Overboard

Explosions

Capsizing & Sinking

Collisions

Groundings

Attitude

Immediate Onset:

- 1) Happen suddenly with little or no warning.
- 2) Examples: collision, capsizing, person overboard, etc.

Delayed Onset:

- 1) Start out slowly and accumulate until situation becomes life-threatening.
- 2) Examples: mechanical failures, overloading, leaky vessel, weather conditions, etc.

Survival Skills

The Seven Steps to Survival were assembled by the USCG from personal experiences of those who survived emergency situations. Committing the seven steps to survival to memory should be one of your goals in learning how to survive at sea.

(Modified From: AMSEA, Marine Safety Instructors Manual, 2001)



1. Recognition: You must quickly recognize the seriousness of the situation and that your life is in danger. Hesitation or denial may cost you your life, especially in harsh environments.

2. Inventory: Stop and assess the situation. Decide what you have that will help you survive (Inventory equipment, weather, your skills, injuries, and your mental condition). Doing so will help you make good decisions that will help you survive.

Survival Kits: A personal survival kit can take up very little space in an immersion suit, yet greatly enhance your ability to survive. Think of these seven steps and choose items that can help you with them. Items such as a knife, dental floss (a strong multi-purpose line), plastic garbage bags, matches, signal mirrors, a compass, hard candy, or boullion cubes are small items that can save you life and fit in a zip-lock bag. Vessels may have an emergency bag stored and a person named in the station bill to bring it in case of an emergency.

3. Shelter: Your biggest enemy in winter months is the cold. Shelter can be clothing, an immersion suit, a raft, or an overturned vessel anything that protects you against the loss of your body heat. Because water can take heat away from your body much quicker than air, shelter helps you keep as dry as possible. The high heat loss areas, including the head and neck, need to be protected most. The added buoyancy of a PFD helps to keep the head and neck out of the water, therefore conserving heat. Once you are on shore, shelter is your first priority after you inventory the situation. It takes hours to construct adequate shelter on shore and you should do so as soon as possible

4. Signals: A signal is anything that attracts attention and conveys a message. Radios, EBIRBS, and flares are signals carried by vessels:

Radios: The emergency frequencies are Channel 16 VHF and 2182 KHz or 4125 KHz on single side band radios (SSB). VHF radios are short range and SSB radios are for long-range communications. Near the radios, there will be a placard posted that describes MAYDAY calls. Be familiar with what constitutes a proper MAYDAY call. Vessels are required to monitor the emergency frequencies at all times. If you hear a MAYDAY call on the radio, listen carefully and take notes. Inform the person on watch and be ready to respond to the call if the Coast Guard does not.

Flares: The vessel will have flares and/or smoke signals stored in the life raft and other locations on the vessel (most likely the wheelhouse). Each type, handheld, rocket, smoke flares, etc, will have instructions for use printed on its canister. If you see a flare launched at sea, inform the person on watch immediately.

EPIRB (Emergency Position Indicating Radio Beacon): The vessel will have at least one EPIRB mounted in a float-free bracket that will be automatically activated in the event of sinking. The signal is received by satellite and, in new styles, will identify the sender. In the event of an abandon ship emergency it is an item you want to take with you. Someone will be assigned that duty on the station bill. If not shown by a crewmember, be sure to locate the EPIRB(s) on the vessel and read the directions on how to activate them

Other Signals: Anything that makes you bigger and brighter is a signal. Immersion suits have lights attached. You may have a signal mirror in your personal survival kit. If abandoning ship, anything that can be tossed overboard may help in aircraft spot your position. In a shore survival situation, three of anything (fires, buoys, immersion suits on the beach) is an internationally recognized distress signal.

5. Water: It is recommended that humans drink two liters of water per day to stay healthy. You can live without water for days, but will suffer dehydration from the onset of any abandon ship emergency. Life rafts have limited rations of water, but it is advised to gather as much as possible before abandoning ship, if time permits. Have a strategy for gathering extra water in an emergency. Never drink seawater or urine.

6. Food: A person can go without food much longer than without water. Never eat food without water your body requires water to digest food. Life rafts are supplied with limited food rations.

7. Play: Studies have shown that mental attitude makes a difference in a survival situation. Play can be anything that keeps you occupied and prevents your mind from dwelling on the difficulties you are facing. Play can be reading, telling jokes or stories, completing a task, or improving your shelter anything that keeps you mind active and focused.

Donning Immersion Suits and Personal Flotation Devices

Personal Flotation Devices (PFDs)

No other piece of lifesaving equipment has saved more lives at sea than the personal flotation device, your lifejacket. They are designed to keep you floating face up and should do two things for the survivor: **KEEP YOUR MOUTH AND NOSE ABOVE THE SURFACE AND MAKE YOU CLEARLY VISIBLE TO RESCUERS.** Without flotation in extremely cold water, your ability to tread water or swim is measured in minutes. If you are unconscious or injured, survival time is even less.

There are five types of PFDs that are approved by the U.S. Coast Guard. Selecting a PFD for certain waters has been made easier by classifying them into five different types.

Type I (Offshore Life Jackets)

A Type I has the greatest required buoyancy, 22 lbs, and is designed to turn most unconscious persons in the water from a face down position to a vertical and slightly backwards position. This is known as a **POSITIVE RIGHTING MOMENT.**

This type of PFD is suitable for all waters, especially in waters where rescue may be delayed. Reflective tape is distributed on the front and back for added visibility.

A whistle is required. It is reversible for ease of donning and available in two sizes - Adult (90 lbs or more) and Child (less than 90 lbs).

Anything less than Type I in open water is inadequate.



Type II

This PFD is designed for the recreational boater when rescue can be expected in a short period of time and water conditions are relatively calm. It has no less than 15.5 lbs of buoyancy.

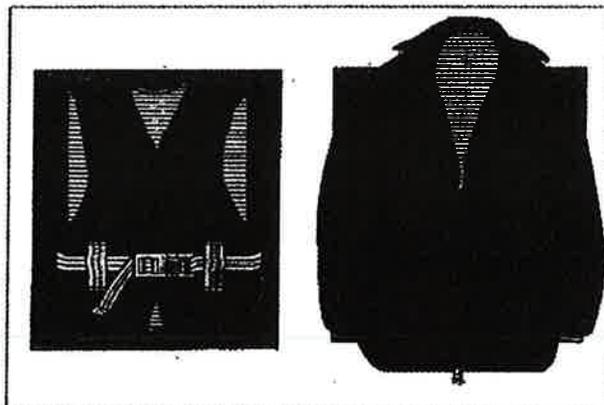
It is also designed to turn the wearer from a face down to a vertical or slightly backward position but not as pronounced as the TYPE I.



Type III

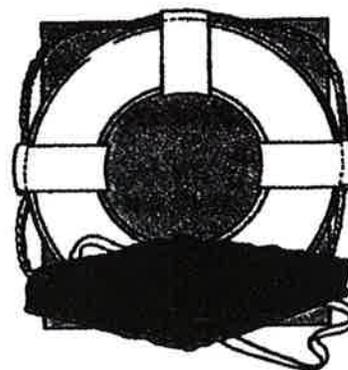
This PFD is designed for the active outdoorsman, with comfort in mind. The TYPE III will maintain the wearer in the position that they assume in the water. Common users are hunters, recreational fisherman, water skiers and canoeist. They are NOT DESIGNED to turn the wearer from a face down position.

Type III includes float coats and vests, which provide flotation and small amounts of hypothermia protection. They have no less than 15.5 lbs of buoyancy.



Type IV

This type of PFD is designed to be THROWN to and grasped by a person in the water. It is designed NOT TO BE WORN! Ring buoys and boat cushions are the most common in the marine industry. They have a minimum of 16.5 lbs of buoyancy.



Type V

This type of PFD is designed to meet a specific need or activity on or over the water. These can be work vests, float suits and immersion suits. They are not designed to turn the wearer from a face down position. They have no less than 15.5 lbs of buoyancy.

Helpful PFD Suggestions

- Try on your PFD and adjust it until it fits comfortably in and out of the water.
- Mark your PFD with your name if you are the only wearer or need a specific size. Always mark it with the name of your boat.
- Do not alter it. If it doesn't fit properly, get one that does. An altered PFD is no longer Coast Guard approved.
- Dry a wet PFD thoroughly before stowage. Store it in a well-ventilated area.
- Do not dry your PFD in front of a radiator or other source of direct heat.
- Make sure there are at least 31 square inches of retro-reflective tape on the PFD to increase your visibility.
- Accessories such as strobes and whistles can be attached to your PFD in a location that will not interfere with your work on deck.

Immersion Suits

Coast Guard approved immersion suits are required for each crew on vessels operating on all U.S. coastal waters above 32 degrees N latitude.

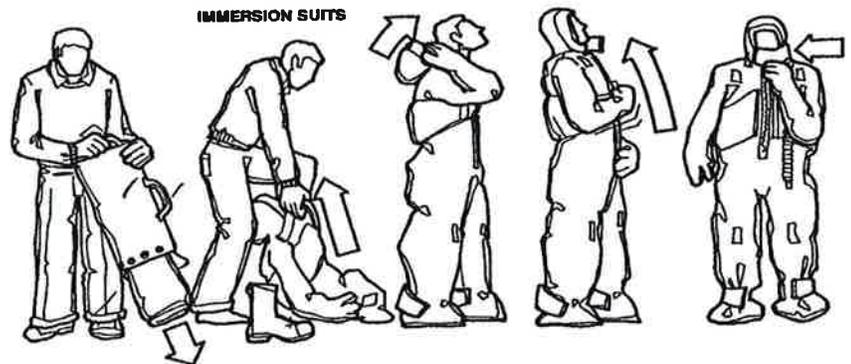
There are many different varieties of immersion suits on the market. Some suits are just big overalls; others have boots, detachable gloves, leg zippers and other features. An immersion suit should be equipped with a whistle; an attached light is required on oceangoing vessels of any size.

It should have an inflatable pillow to keep your head and neck out of the water for better thermal protection and to help eliminate the strain of holding your head up.

Make sure the suit fits you properly; there have been cases of people drowning in suits that were too large for them. The suit should form a tight seal around your face. Mark the suit with your name and the vessel's name with a waterproof marker.

Quick and Safe Donning Procedures

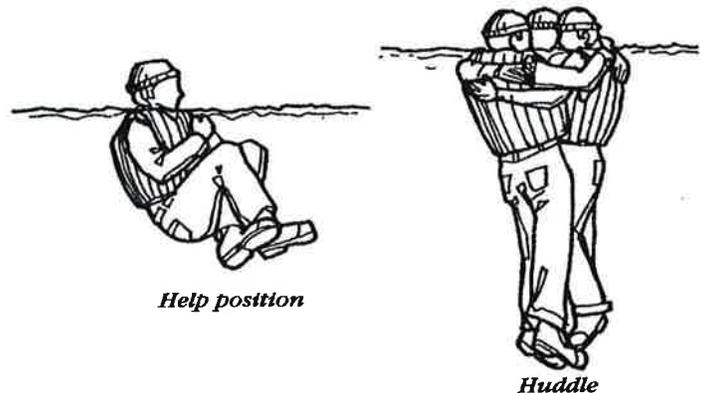
- A sharp jerk on the carrying case will eject the suit.
- Lay the suit out flat to make sure no parts are folded.
- Remove your boots, but leave plenty of warm clothes on.
- Step into legs of suit while in a stable position; if need be, do this in a sitting position or leaning against a support. Put one foot in at a time. With both feet in, pull the suit up to the waist and adjust feet securely.
- Put one arm in at a time and pull the suit up over the shoulders. Squat down a bit to assist yourself in getting the head gear on.
- To avoid problems in zipping the suit, arch your back to remove wrinkles in the fabric. If you have a beard, turn your head to one side, so that facial hair is not caught.
- Secure face flap to reduce incoming water.



Once the suit is completely on, squat down and release some of the air trapped in the suit by lifting a piece of the suit off the face with one hand. Secure the Velcro straps around the feet to make the suit a bit more tailored. Once this is complete, the suit is ready for water entry.

Entering the Water

- Enter the water, protecting your head with one arm and step out to the side.
- Avoid facing the water and jumping forward. A slip is more likely to cause a head injury.
- If possible, avoid submerging your head by gently entering the water to prevent seawater from entering the suit through the face opening.



- Be sure the suit is fully zipped and that all closures are snug. Leave the external bladder deflated until you are in the water.
- Protect your head with one arm, check the area below and jump with feet together.

Stowage and Maintenance

Immersion suits should be stowed in a very accessible, dry place. Aboard fishing vessels, there is a debate whether that means in each crewman's bunk or in the wheelhouse. If you put it in your bunk, you know where it is, but you may not be able to reach it in an emergency. Wheelhouse storage would normally be best, but there may not be adequate space. It is a decision you must make based on the configuration of your boat.

Whatever you decide as a location for all survival gear, especially the immersion suits, know the location and make sure you can reach your suit in a hurry, allowing free access from the working platform.

Immersion suit bags should have sizes marked allowing crew to select the proper suit for them. Zippers and the general condition of materials should be inspected during scheduled monthly emergency drills. PFD's, which are not encased, should be stowed out of direct sunlight to prevent against fabric deterioration and should also be checked during emergency drills.



PFD Maintenance

The following care instructions are provided to help you maintain the condition of your program issued personal flotation device (PFD). It is your responsibility to perform visual inspections of the buoyancy cells and inflation system at least once each quarter and report any maintenance issues to your program manager. Program staff will inspect all safety equipment prior to issuance and will use an authorized Mustang Service Station for all bladder or inflation system repairs.

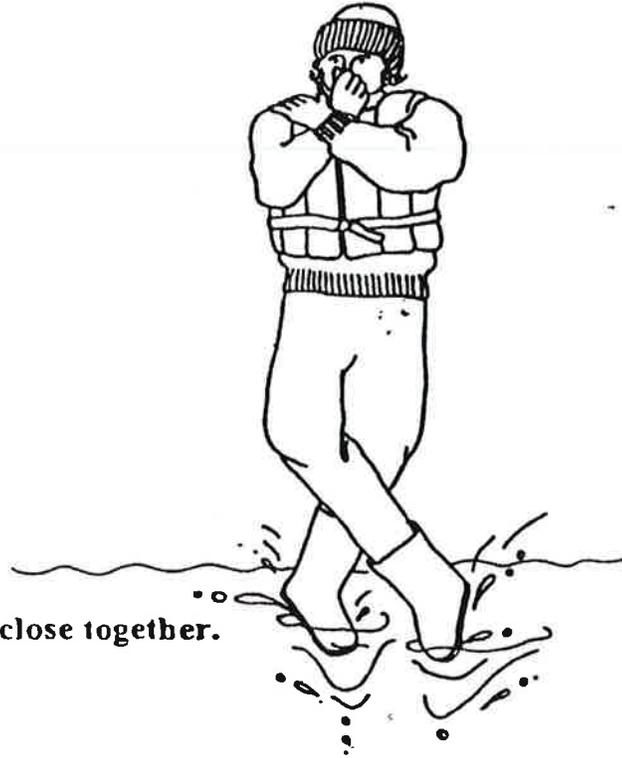
- ✓ Visually examine your PFD for damage or excessive abrasion, wear, tear or to bladder or fabric covering. If in doubt, return it to program for replacement. Test battery on PFD strobe and request replacement if expired.
- ✓ Check the oral inflation valve, fully inflate PFD and hold valve under water. If bubbles appear, deflate and inflate again. Should the leak persist, return to program for replacement.
- ✓ Test for general leaks by orally inflating your PFD until firm and let stand overnight. A leaking PFD will not hold its firmness and should be replaced.
- ✓ Inspect the CO₂ cylinder, if punctured, request a replacement PFD. Apply a pre-wash stainremover to grease or blood and wash with regular detergent. Rinse with fresh water and hang dry. DO NOT USE BLEACH.
- ✓ Repack PFD as outlined in previous instructions and illustrations.
- ✓ Store in warm, dry location.

The following actions should be taken to reduce accidental inflation of your PFD.

- Frequently check the manual lever to ensure it is up in the ready position and the status indicator is green.
- Check status indicator frequently. Request replacement if red and/or year expired.

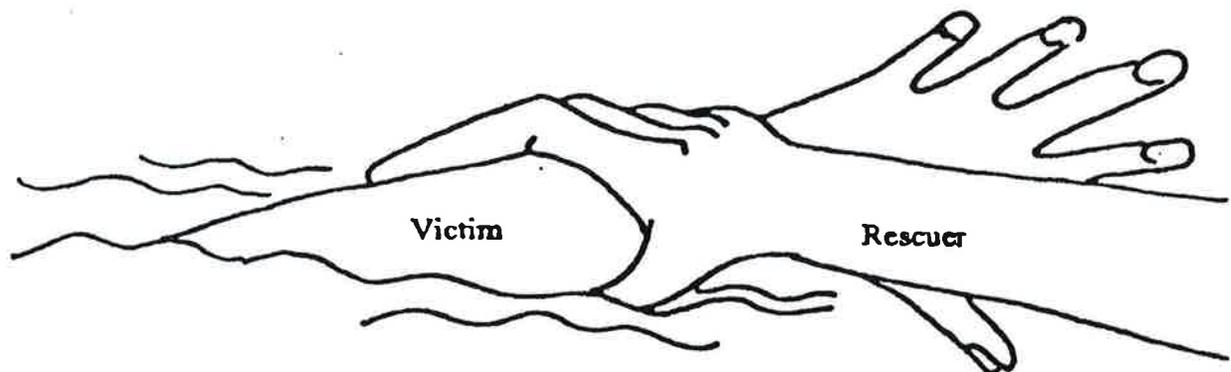
*All PFD's will be marked with the Program and/or number (e.g. POP111). If there is any issue with your PFD, report it to the Safety Coordinator or Program coordinator immediately so it can be replaced. DO NOT ATTEMPT TO FIX A PFD YOURSELF.

JUMPING WITH PFD



Feet should be close together.

CORRECT HAND POSITION FOR RESCUE



CARE & MAINTENANCE OF IMMERSION SUITS

Your immersion suit's life span—or your own, if you find yourself in the water—depends greatly on how you care for and maintain your immersion suit. Your immersion suit is only as good as your care of it. Here are some points that should be checked whenever you inspect your suit (at least once a month).

Zipper:

Inspect closely for missing teeth and signs of corrosion. Lubricate teeth on the outside and inside of zipper with product recommended by the manufacturer. Do not use oil-based greases. Scrub zipper with a tooth brush to remove build up of residues. Run zipper up and down to check for smoothness.

Inflation Hose & Bladder:

Pull gently on tube to make sure the tip of tube or its attachment point on the bladder do not separate. Use plastic wire ties at these points if not present. Leave the silver knurled knob below mouth piece in the down position, ready for use (see figure 1). Once a year remove bladder, inflate overnight or soak under water to check for leaks. Make sure to reattach to suit when dry!

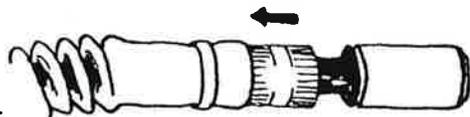


Figure 1.

Material:

Inspect closely for small holes, tears and compression wrinkles in suit. If dirty or used in pool or salt water, rinse thoroughly inside and out with fresh water. Turn suit completely inside out to dry in a well ventilated space. Do not dry in direct sun. One or two days later it will be ready to dry on the outside. If dirt or oil is present, wash with a mild soap and rinse. Do not dry clean.

Markings:

All immersion suits are required to be marked with the owner's name, vessel's name or the name of the person to whom the suit is assigned. (BEWARE—Paint may damage the material.)

Practice:

Don your suit. How long does it take? How well does your suit fit? With foul-weather gear on can it still be zipped up?

Stowage:

Leave the zipper open, but zipped up one-inch up from the bottom. Roll the suit legs up first, followed by hood and finally place arms over and place in bag (see figures 2 and 3). Make sure the neoprene flapper valve in foot



Figure 2.

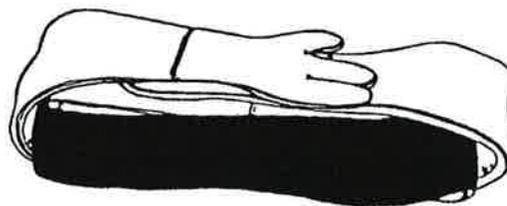


Figure 3.

is not creased. Otherwise, follow the manufacturers stowage recommendation. Lubricate snaps on bag. Store suits in their bags, not against each other without bags. Do not place heavy weights on bag as suit material will compress and may puncture or weaken. Place in an accessible location so it can be retrieved quickly in an emergency. Plastic bags kept with suit can be worn over shoes/boots to make donning quicker. For long term, off-season stowage, hang the suit in a dry place on a thick, padded hanger (like one designed for a dive suit—do not use wire hangers).

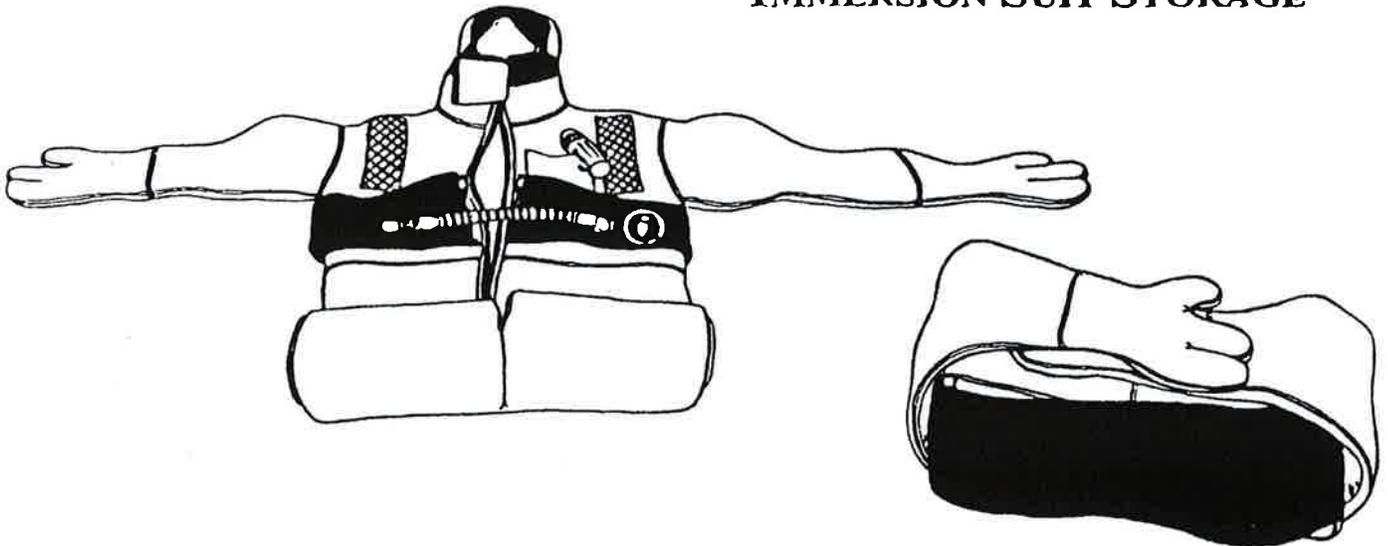
Accessories:

Suit should have 31 square inches of retro-reflective tape visible above the water in any stable position (as req'd by the F/V Safety Act), a zipper tab for ease in gripping with suit gloves on, a whistle, and USCG approved light. Additional recommendations include a personal survival kit, hand-held VHF radio, and personal EPIRB.

JUMPING IN AN IMMERSION SUIT



IMMERSION SUIT STORAGE





Owner's Manual

MD3183 Inflatable PFD

Hydrostatic Inflation Model - Manual with Automatic Backup

Recreational: USCG Approved Type II

Uninspected Commercial Vessels: USCG Approved Type V

MD3184 Inflatable PFD

Hydrostatic Inflation Model - Manual with Automatic Backup
with Harness

Recreational: USCG Approved Type V

DO NOT REMOVE PRIOR TO SALE



CONTENTS

Page	1 Approval Conditions and Carriage Requirements
	2 Note to Uninspected Commercial Vessel Operators
	2 Why are PFDs Required Safety Equipment?
	2 What is an Inflatable PFD?
	3 Instructions for Use
	4 Uninspected Commercial Vessel Use
	4 Component Inspection Instructions
	4 Readiness Checklist
	5 Sizing and Fit
	5 Donning Instructions
	5 Inflating Your Inflatable PFD
	7 Special Considerations for Inflatable Devices
	8 Deflating the Inflatable PFD
	8 Usage Below Freezing
	9 Re-arming Your PFD
	13 Repacking
	16 Sailing Harness
	17 Is Your PFD in Good and Servicable Condition?
	17 Care and Maintenance Instructions
	19 Cleaning and Storing of Your Inflatable PFD
	19 How and Why to Test Your PFD
	20 How Do You Test Your PFD Using the Automatic Inflator?
	21 How Do You Test Your PFD Using the Manual Inflator?
	21 How Do You Test Your PFD Using the Oral Inflator?
	22 Wear Your PFD
	22 Hypothermia
	24 Each of These Devices is Intended to Help You Save Your Own Life
	25 Inflatable PFD Safety Accessories
	25 Additional Information
	25 Airline Operator Policy on Carriage of Inflatable PFDs and CO ₂ Cartridges

APPROVAL CONDITIONS AND CARRIAGE REQUIREMENTS

Recreational - Approved for recreational use by the U.S. Coast Guard (USCG) as a Type II (Model MD3183), or Type V (Model MD3184) Personal Flotation Device (PFD). Neither are approved for water skiing or other high impact, high-speed activities. Model MD3184 has Type II performance but is approved as a Type V PFD because it has a built-in sailing harness that can cause injury if not properly used. A separate section titled "SAILING HARNESS" (p. 16) discusses requirements and features on the MD3184 only. USCG approval does not apply to the sailing harness because some of the risks associated with its use have not been evaluated.

Commercial - Model MD3183 is a U.S. Coast Guard approved Type V inflatable PFD, approved **ONLY WHEN WORN** for use on uninspected commercial vessels less than 40 feet in length not carrying passengers for hire as a substitute for a Type II PFD when used in accordance with this owner's manual.

NOTE: MD3184 is not USCG approved for Uninspected Commercial Vessels.

Conditions for Type V Approval in commercial applications:

1. The MD3183 must be worn before getting underway and whenever above deck and not within an enclosed space to meet the carriage requirement.
2. The operator of an uninspected commercial vessel is responsible for servicing and maintaining the MD3183 in good serviceable condition in accordance with this owner's manual. See Care and Maintenance Instructions (p. 17) for servicing information.
3. The operator of an uninspected commercial vessel is responsible for providing each person onboard with the safety information required for use of the MD3183. See page 2 for information.

General - When fully inflated, this Inflatable PFD will provide Type II in-water performance. This Inflatable PFD will turn most wearers from a face down to a face up position and provide support suitable for offshore conditions. See page 9 for re-arming instructions.

Inflatable PFDs are not approved for water skiing or other high-speed

activities. This Inflatable PFD was designed to be more comfortable and less restrictive to wear than inherently buoyant PFDs. When worn, used and serviced according to this owner's manual, this PFD can greatly increase your chances of survival in the water. **Not recommended for non-swimmers or weak swimmers.** Users of inflatable PFDs must be at least 16 years old.

NOTE TO UNINSPECTED COMMERCIAL VESSEL OPERATORS

The operator of the vessel is required to provide the following user information to each person on board.

Inflatable PFDs will not provide any buoyancy without being inflated. Follow these instructions to be sure your PFD is armed and donned correctly, and that you understand how to inflate the device.

Basic visual inspection for readiness, see p. 4

Inflation system status check, see p. 4

Donning, see p. 5

Inflation, see p. 6

WHY ARE PFDs REQUIRED SAFETY EQUIPMENT?

Drownings are the leading cause of fatalities involving recreational and commercial vessels. A PFD provides flotation to help keep your head above water, help you to stay face up in the water, and increase your chances for survival and rescue. Most adults only need an extra 7 to 12 kg (15.4 to 26.4 pounds) of flotation to keep their heads above water. The proper size PFD will properly support the weight of the wearer.

Since this Inflatable PFD does not have inherent buoyancy, it provides flotation only when inflated. Familiarize yourself with the use of this Inflatable PFD so you know what to do in an emergency.

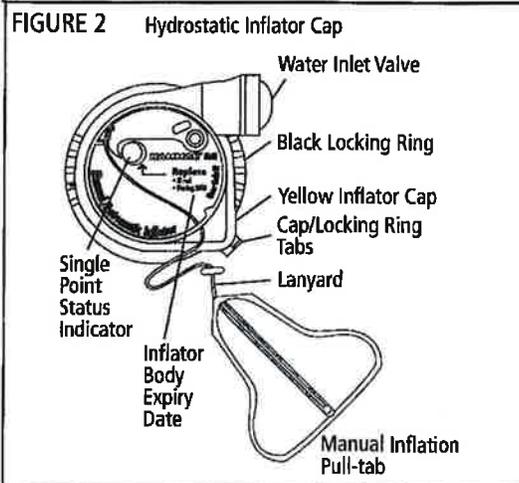
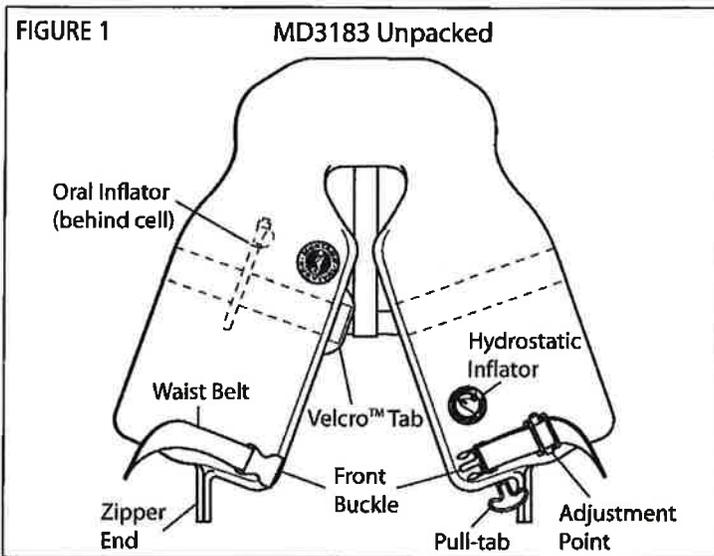
WHAT IS AN INFLATABLE PFD?

While traditional PFDs are inherently buoyant, inflatable PFDs, rely entirely on inflation for buoyancy. Uninflated, the Inflatable PFD is a

comfortable slim collar that can be inflated at any time with a 33-gram CO₂ gas cylinder. The Inflatable PFD is designed to offer maximum mobility with minimum bulk. The Inflatable PFD can be inflated either automatically by water immersion, manually by jerking a pull-tab, or orally by mouth. It is recommended that you familiarize yourself with the procedures outlined in INSTRUCTIONS FOR USE (p. 3).

INSTRUCTIONS FOR USE

This manual supplies instructional, maintenance and safety information for both models (MD3183, MD3184). The model number is listed on the underside label.



Uninspected Commercial Vessel Use

This Inflatable PFD is not approved for "hot work" and care must be taken to avoid damage from abrasion and sharp objects.

Component Inspection Instructions

- 1) Examine the single point status indicator through the window panel (Fig. 1). Ensure the indicator is green. If the indicator is red, the mechanism has been fired or is incorrectly fitted (see Re-arming Your PFD, p. 9).

NOTE: The single point status indicator must be green before proceeding.

- 2) Undo the zipper on the wearer's left side, exposing the oral inflator.
- 3) Ensure the oral-inflation dust cap is in the stowed position (Fig. 6).
- 4) Ensure the single point status indicator is green and the pull-tab lanyard is hanging on the outside; secure the zippers on the Inflatable PFD (see Repacking, p.13).
- 5) Ensure the current date is not past the date on the inflator. If it is, replace the inflator (see Re-arming Your PFD, p. 9).

Readiness Checklist

Check your Inflatable PFD and ensure all of the checkpoints listed below are true before use.

- Single point status indicator is green (Fig. 1 and 2).
- Ensure the current date is not past the date on the inflator. If it is, replace the inflator (see Re-arming Your PFD, p. 9).
- All zippers, Velcro™ and waist buckle are securely fastened.
- Oral-inflation dust cap is in the stowed position (Fig. 7).
- Inflatable PFD is not twisted.
- Ensure the inflation pull-tab is hanging on the outside (Fig. 30).
- No rips, tears, excessive abrasion or holes; all seams are securely sewn; and the cover, straps and hardware are still strong.

Your Inflatable PFD is ready for use if all applicable boxes are checked.

NOTE: Contact your Mustang Dealer if you have any concerns

about the readiness of your Inflatable PFD.

Sizing and Fit

This PFD provides a minimum of 33.7 lbs of buoyancy when inflated and is designed for wearers over 16 years of age, with a chest range of 30-52 inches (76-132 cm) weighing over 80 pounds (36 kg).

Donning Instructions

It is important that the Inflatable PFD is properly adjusted to fit the person wearing it. An incorrect fit or improper fastening of attachments could impede its effectiveness.

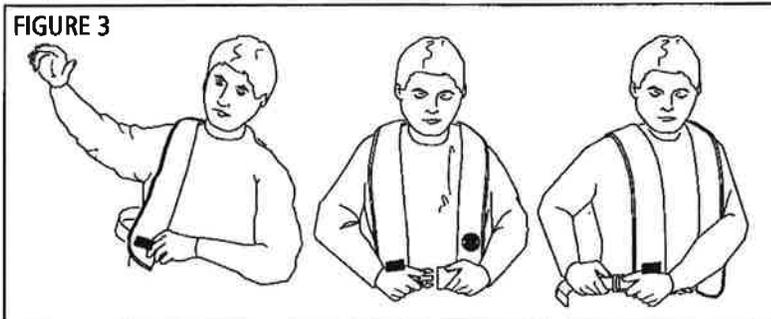
- 1) All belts and straps are already threaded correctly and only need to be adjusted for fit.

For the non-harness model MD3183, the belt should fit below your rib cage adjusted to a tight personal fit.

For the harness model MD3184, the bottom of the belt must always be worn at least 2 inches (5 cm) above the lowest rib and adjusted to a tight personal fit.

- 2) Put the Inflatable PFD on just like a jacket (Fig. 3) and fasten the front buckle. Adjust the waist belt using the side buckle on the belt and secure the belt's loose end in the belt loop.

WARNING: Do not wear Inflatable PFDs under clothing as the inflation could be restricted or you could be injured.

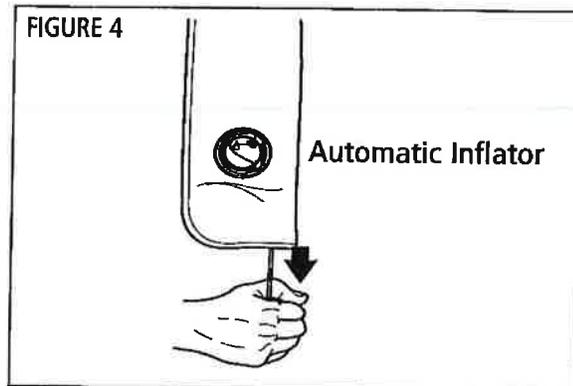


Inflating Your Inflatable PFD

It is recommended that the following procedures be followed to inflate your Inflatable PFD:

1) Manual Inflation

Activate the inflation system by jerking firmly downward on the pull-tab (Fig. 4). The Inflatable PFD should fully inflate within 5 seconds.



2) Automatic Backup Inflation

When the inflator is lowered more than about 4 inches in the water, then the hydrostatic valve opens and lets the water meet the water sensitive element that in turn releases a stainless steel coil spring. The spring then drives a needle into the end of the gas cylinder, which is now punctured so that the gas instantly fills the life jacket. Total buoyancy is normally reached within 4 – 5 seconds.

Information

When inflated, the carbon dioxide (CO₂ gas) used to inflate the PFD will slowly escape through the fabric over time. A slight reduction of pressure will be observed after several hours of inflation. Topping up by oral inflation may be required in the event of very prolonged immersion.

IMPORTANT: See Special Considerations for Inflatable Devices

3) Oral Inflation

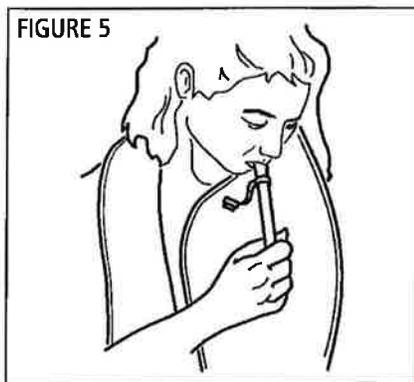
Properly armed and inspected Inflatable PFDs will inflate when manually or automatically activated. However, you can fully inflate the Inflatable PFD by mouth (Fig. 5) should inflation not occur, or if you are in a non-emergency situation.

- i. To orally inflate the Inflatable PFD, first ensure that each of the zippers (2) are completely opened.

NOTE: Oral inflation may cause the Inflatable PFD to break-out suddenly (loudly) if any of the zippers are closed.

ii. Locate the oral inflation tube by opening the wearer's left front panel of the Inflatable PFD. Remove the dust cap from the end of the oral tube and blow into the tube until the Inflatable PFD is fully inflated.

WARNING: Avoid double inflation (CO₂ cylinder inflation after full oral inflation) as it could damage the PFD.



Special Considerations for Inflatable Devices

The Inflatable PFD might not be armed when needed, either knowingly or unknowingly. Inadvertant inflation causes several risks that you must address to avoid drowning. Much less common but also important are:

- 1) Double inflation (CO₂ cylinder inflation after full oral inflation) could damage the Inflatable PFD,
- 2) Inflation when stored in a tight space could damage the Inflatable PFD, and
- 3) The Inflatable PFD could inflate when you are in an awkward place or position.

If this Inflatable PFD should inflate inadvertently, a re-arm kit (MA7214) is required to re-arm the device.

IMPORTANT: The Inflatable PFD should be re-armed according to the instructions (Re-arming Your PFD, p. 9).

Deflating the Inflatable PFD

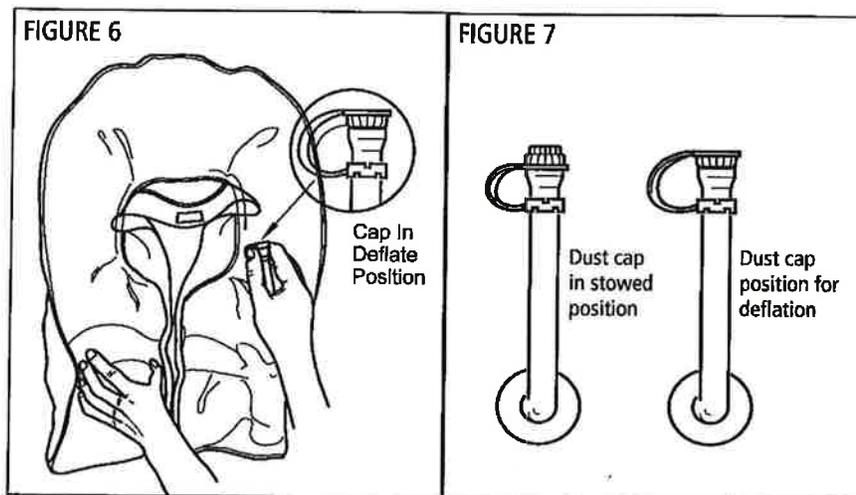
- 1) To deflate the Inflatable PFD, reverse the oral-inflation tube dust cap and insert it into the valve or depress valve with fingertip. The dust cap will not lock in the deflate position so it is necessary to hold it in place (Fig. 5).
- 2) Gently squeeze the Inflatable PFD until all air or gas has been expelled. To avoid damage; do not wring or twist the Inflatable PFD. Put the inflation tube dust cap back in its stowed position on the oral inflation tube (Fig. 6).

IMPORTANT: Ensure all air has been removed from the PFD.

- 3) Examine the single point status indicator (Fig. 1). If the indicator is red, the mechanism has been fired and the inflator requires service (see Re-arming your PFD, p. 9).

IMPORTANT: The single point status indicator must be green before proceeding.

- 4) Your device is ready to be repacked (see Repacking p. 13).



Usage Below Freezing

When the temperature is below freezing, the Inflatable PFD should be worn partially inflated because a fully discharged cylinder may not quickly or adequately inflate your Inflatable PFD. Under these conditions use the oral inflator to adequately top-up the PFD, after CO₂ inflation.

1) **Before Each Use:**

- i) Examine the single point status indicator through the window panel, ensuring it is green. If the indicator is red, the mechanism requires service. See Re-arming Your PFD, p. 9.
- ii) Ensure the manual pull-tab is accessible.
- iii) Visually examine your Inflatable PFD for damage or excessive abrasion, wear, tear or contamination. Particular attention must be paid to the stitching, straps and hardware. If in doubt, send it to your Mustang dealer for evaluation and/or servicing.

2) **Every Two (2) Months:**

- i) **Leak Test:** The Inflatable PFD should be tested for general leakage by orally inflating your Inflatable PFD until firm and let stand 16 hours. A leaking Inflatable PFD will not hold its firmness and should be replaced. If your Inflatable PFD leaks, take it to your Mustang dealer for evaluation and/or servicing. Repack the Inflatable PFD as outlined in the Repacking section (p. 13).
- ii) **Oral Inflation Valve Test:** To check the oral inflation valve, fully inflate the Inflatable PFD using the oral inflator and hold valve under water. If bubbles appear, deflate and re-inflate to test again. Should the leak persist, take your Inflatable PFD to your Mustang dealer for evaluation and/or servicing.

CAUTION: To avoid accidental inflation, don't allow the water to contact the hydrostatic inflator.

- iii) Perform a thorough visual examination. See **Readiness Checklist** (p. 3).

Perform these tests more often if exposed to potential damage or used in extreme conditions.

3) **After Each Inflation** - Re-arm the Inflatable PFD. See Re-arming Your PFD, p. 9.

4) **Annually** - Perform the following at the beginning of each boating season, after inflation, or whenever the integrity of the Inflatable PFD is in doubt:

- i) Check all components for dirt or corrosion. Clean or replace, as necessary. See **Readiness Checklist** (p. 3).

- ii) Visually examine your Inflatable PFD for damage or excessive abrasion, wear, tear or contamination. Particular attention must be paid to the stitching, straps and hardware. If in doubt, send it to your Mustang dealer for evaluation and/or servicing.
- iii) Perform the Oral Inflation Valve Test: See the Oral Inflation Valve Test in the Every Two (2) Months Care and Maintenance Instructions section.
- iv) Perform the Leak Test. See the Leak Test in the Every Two (2) Months Care and Maintenance Instructions section.
- v) Ensure the current date is not past the date on the inflator. If it is, replace the inflator (see Re-arming Your PFD, p. 9).
- vi) Ensure the single point status indicator is green (Fig. 1).
- vii) Record as an "Annual" inspection in permanent ink on the Care and Storage label, in the Date Maintained column.

Repack the Inflatable PFD as outlined in the Repacking section (p. 13).

WARNING: If you are not confident in the self-inspection and servicing of your Inflatable PFD in accordance with these instructions, take your Inflatable PFD to a Mustang dealer for professional servicing or contact Mustang Survival (see contact information on back of manual).

Cleaning and Storing of Your Inflatable PFD

To avoid inflation, do not submerge the Inflatable PFD or directly spray the inflator. Hand wash or sponge down the Inflatable PFD in warm, soapy water. Rinse the PFD and inflator with clean water, using a clean rinse cloth. Hang the Inflatable PFD to dry on a plastic coat hanger. Do not dry clean.

Always store your Inflatable PFD in a warm, dry place out of direct sunlight.

HOW AND WHY TO TEST YOUR PFD

Inflate your Inflatable PFD and try it out in the water to:

- Make sure it floats you:
 - Comfortably (when worn properly)

- Adequately for expected wave conditions (body shapes/ densities affect performance)
- Make sure it works:
 - A flow of bubbles should not appear (see CARE AND MAINTENANCE INSTRUCTIONS for leak tests p. 17). It should inflate quick and easily.
- Learn how it works by:
 - Activating the CO₂ inflation system
 - Re-arming the CO₂ inflation system
 - Using the oral inflator tube

HOW DO YOU TEST YOUR PFD USING THE AUTOMATIC INFLATOR?

The U.S.Coast Guard recommends that you purchase at least two spare re-arming kits (MA7214).

- 1) To test your Inflatable PFD, you will need your fully armed Inflatable PFD, and re-arming kit (MA7214) approved for your Inflatable PFD
- 2) Put on the Inflatable PFD.
- 3) Get into shallow water, just deep enough that you can stand with your head above the surface. Once the inflator is underwater, 4 inches or so, the Inflatable PFD should fully inflate automatically within 5 seconds.
- 4) See if the Inflatable PFD will float you on your back or just slightly back of vertical. In a relaxed floating position, verify that your mouth is well above the water's surface. Note the effect of where you hold your legs on how you float.
- 5) Get out of the water and remove the Inflatable PFD.
- 6) Deflate the Inflatable PFD by depressing the oral inflator valve (see Deflating the Inflatable PFD p. 7). Remove the used inflator.
- 7) Let the Inflatable PFD dry thoroughly. Re-arm (p. 9) and Repack the PFD (p. 13).

HOW DO YOU TEST YOUR PFD USING THE MANUAL INFLATOR?

The U.S.Coast Guard recommends that you purchase at least two spare re-arming kits (MA7214).

- 1) To test your Inflatable PFD, you will need your fully armed Inflatable PFD, and re-arming kit approved for your Inflatable PFD: MA7214.
- 2) Put on the Inflatable PFD.
- 3) Actuate the inflation system by jerking firmly downward on the pull-tab. The Inflatable PFD should fully inflate within 5 seconds.
- 4) Get into shallow water, just deep enough that you can stand with your head above the surface.
- 5) See if the Inflatable PFD will float you on your back or just slightly back of vertical. In a relaxed floating position, verify that your mouth is well above the water's surface. Note the effect of where you hold your legs and how you float.
- 6) Get out of the water and remove the Inflatable PFD. Completely deflate the Inflatable PFD using the oral inflator (see Deflating the Inflatable PFD p. 7).
- 7) Let the Inflatable PFD dry thoroughly. Re-arm (p. 9) and Repack the PFD (p. 13).

HOW DO YOU TEST YOUR PFD USING THE ORAL INFLATOR?

This test is not mandatory, however may be conducted using the following procedure.

WARNING: Use only a previously fired hydrostatic inflator to perform this test . DO NOT test with a fully armed hydrostatic inflator as double inflation may occur, possibly resulting in cell damage.

- 1) No spare parts or re-arming kits are needed to test your Inflatable PFD.
- 2) Put on the Inflatable PFD.

- 3) Get into shallow water, just deep enough that you can stand with your head above the surface.
- 4) If you are a weak swimmer or non-swimmer, inflate the Inflatable PFD partially so that you are supported well enough to be able to complete inflation without touching bottom, either orally or manually. Note this level of inflation because it is the minimum needed for you to safely use this Inflatable PFD.
- 5) Fully inflate the Inflatable PFD using the oral inflator.
- 6) See if the Inflatable PFD will float you on your back or just slightly back of vertical. In a relaxed floating position, verify that your mouth is well above the water's surface. Note the effect of where you hold your legs and how you float.
- 7) Get out of the water and remove the Inflatable PFD. Completely deflate the Inflatable PFD using the oral inflator (see Deflating the Inflatable PFD p. 7).
- 8) Let the Inflatable PFD dry thoroughly. Re-arm (p. 9) and Repack the PFD (p. 13).

WEAR YOUR PFD

In approximately 80 percent of all boating fatalities, the victims were not wearing a PFD. Most fatal accidents happen on calm sunny days. This Inflatable PFD is much more comfortable to wear than other PFD types. Get into the habit of wearing this Inflatable PFD.

Non-swimmers and children especially should wear a hybrid or non-inflatable PFD at all times when on or near the water.

HYPOTHERMIA

Prolonged exposure to cold water causes a condition known as hypothermia - a substantial loss of body heat, which leads to exhaustion and unconsciousness. Most drowning victims first suffer from hypothermia. The following chart shows the effects of hypothermia: how hypothermia affects most adults.

How hypothermia affects most adults

Water Temperature °C (°F)	Exhaustion or Unconsciousness	Expected Time of Survival
0.3 (32.5)	Under 15 min.	Under 15–45 min.
0.3–4 (32.5–40)	15–30 min.	30–90 min.
4–10 (40–50)	30–60 min.	1–3 hrs
10–16 (50–60)	1–2 hrs.	1–6 hrs.
16–21 (60–70)	2–7 hrs.	2–40 hrs.
21–27 (70–80)	2–12 hrs.	3 hrs. to Indefinite
over 27 (over 80)	Indefinite	Indefinite

PFDs can increase survival time because they allow you to float without using energy treading water and because of their insulating properties. Naturally, the warmer the water, the less insulation you will require. When operating in cold waters [below 60°F (15.6°C)] you should consider using a coat or jacket style PFD or a Type V Thermal Protective PFD as they cover more of the body than the vest or belt style PFDs.

Some Points to Remember About Hypothermia Protection:

- 1) Always wear your Inflatable PFD. Even if you become incapacitated due to hypothermia, the Inflatable PFD will keep you afloat and greatly improve your chances of rescue.
- 2) Do not attempt to swim unless it is to reach a nearby craft, fellow survivor, or a floating object on which you can lean or climb. Swimming increases the rate of body heat loss. In cold water, drown-proofing methods that require putting your head in the water are not recommended. Keep your head out of the water. This will greatly lessen heat loss and increase your survival time.
- 3) Use the standard H.E.L.P. position when wearing an Inflatable PFD, drawing the legs up to a seated position, because doing so will help you conserve body heat (Fig. 32).
- 4) Keep a positive attitude about your survival and rescue. This will improve your chances of extending your survival time until rescued. Your will-to-live does make a difference!
- 5) If there is more than one person in the water, huddling is recommended while waiting to be rescued. This action tends to

reduce the rate of heat loss and thus increase the survival time.



EACH OF THESE DEVICES IS INTENDED TO HELP YOU SAVE YOUR OWN LIFE

For your Inflatable PFD to function properly, follow these suggestions to verify that it fits, floats, and remains in good condition.

- 1) Check the single point status indicator before each use.
- 2) Get in the habit of re-arming the inflation mechanism right after each inflation.
- 3) Try your wearable Inflatable PFD on and adjust it until it fits comfortably in and out of the water.
- 4) Mark your Inflatable PFD with your name if you are the only wearer.
- 5) Do not alter your Inflatable PFD. If it doesn't fit properly, get one that does. An altered device is no longer Coast Guard approved.
- 6) Your Inflatable PFD is not intended for use as a fender or kneeling pad.
- 7) If your Inflatable PFD is wet, allow it to dry thoroughly before storing it. Store it in a well-ventilated area.
- 8) Do not dry your Inflatable PFD in front of a radiator or other source of direct heat.

Inflatable PFD Safety Accessories

MA7214 Re-arm Kit contains 33-gram replacement CO₂ cylinder inflator.

ADDITIONAL INFORMATION

If you need more information about PFDs and safe recreational boating, contact your state boating authority, U.S. Coast Guard Auxiliary, U.S. Power Squadron, Red Cross, or your nearest unit of the U.S. Coast Guard; or call the CG Customer InfoLine at 1-800-368-5647 or the free boating course number 1-800-336-BOAT (in VA, 1-800-245-BOAT).

DO NOT ATTACH PFD'S TO YOUR BOAT

Each PFD has straps, hooks, buckles, or other means for securing the device in place on the wearer. Some PFDs also incorporate decorative d-rings or tabs. Such items are not to be used to attach the device to the boat. Attaching the device to the boat will not permit it to perform as intended.

NOTE: Model MD3184 has a built-in sailing harnesses intended for attaching to boats with quick-release under-load tethers secured to both d-rings (see Sailing Harness p. 16). Do not attach the MD3184 to boats using any other means.

AIRLINE OPERATOR POLICY ON CARRIAGE OF INFLATABLE PFDS AND CO₂ CARTRIDGES

Please be aware that the following regulations apply to the air transport of this product. According to U.S. Research and Special Programs Administration Regulations Title 49 CFR 75.10(a)(25): With the approval of the aircraft operator, one small carbon dioxide cylinder fitted into a self-inflating jacket, plus one spare cartridge, may be carried by a passenger or crew in checked or carry-on baggage.

Please refer to the governing body's documentation, found online at <http://hazmat.dot.gov>.



3425 16th Avenue West • Seattle, WA 98119
(206) 783-5512 • Fax (206) 783-5361
1-800-592-6255
email: kari@imperialsuit.com
Web Site: www.imperialsuit.com

IMPERIAL IMMERSION SUIT INSPECTION GUIDELINES

Your Imperial immersion suit is manufactured to strict compliance standards. This does not excuse the importance of at least quarterly inspections. The following are suggested visual points to consider. Imperial recommends Service Station inspections at two years, four years, and every one-year thereafter from the date of manufacture. Failure to adhere to manufacturer's guidelines may lead to injury or death on part of the end user. At ten years of age, the suit **must** be inspected by a recognized Imperial Service Station on an annual basis or replaced.

- Examine for rips, tears, and punctures to suit
- Ensure zipper for ease in closure. Wax front and back of zipper with bee's or paraffin wax. Examine for obstructions in slider. Ensure all zipper teeth are in place. If zipper fails to close, return to manufacturer immediately.
- Ensure black high rider ring is in place. Check by inflating and submerging in water or let stand 24 hours to detect leaks.
- Ensure retroreflective tape is in place. Requirements call for 31 sq. inches on front and back. Replace where necessary.
- Ensure two-tone whistle is attached to suit.
- Ensure PFD light is attached and power source is USCG approved. Power source must be replaced on or before manufacturer's expiration date.
- Check toe valves for proper operation. Submerge foot of suit in water for one minute placing a hand under toe valve and feel for leaks. If leaks are detected, contact manufacturer immediately.
- Ensure suit is stenciled with USCG approval number & owner's or vessel's name.
- Do not dry clean or use solvents or cleaners on suit. Suit may be washed by hand with mild detergent and rinsed with fresh water. Ensure suit is thoroughly air dried before storage.
- To store, lay on flat surface with zipper in open position one inch from bottom and roll up to chest feet first. Fold arms over ends and hood folded over arms. Place into appropriate sized bag.
- When able, store flat or hang on broad hanger.

"Imperial Suits Me Best"

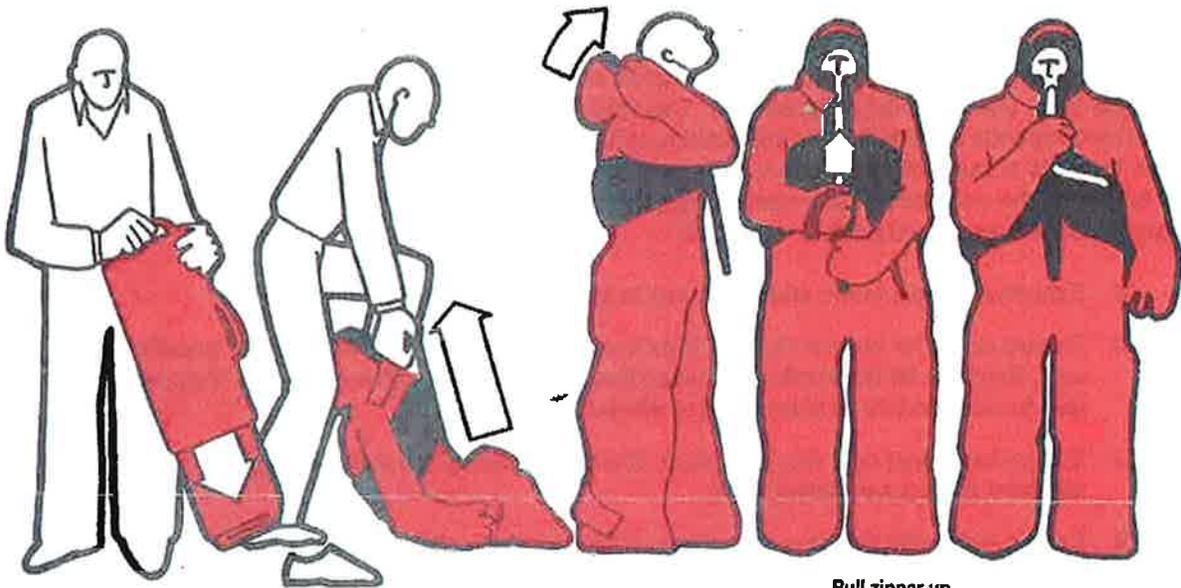
IMMERSION SUIT

COMPLIES WITH S.O.L.A.S. 74/83

USCG Approval Nos.

ADULT - 160.171/2/0, JUMBO - 160.171/3/0, CHILD - 160.171/4/0, INTERMEDIATE - 160.171/21/0

DONNING INSTRUCTIONS



1. If time permits, remove shoes

2. Insert Legs and tighten ankle straps

3. Put non-dominant arm in, then the hood, then the other arm in.

4. Pull zipper up taking care that clothing is not caught in zipper. Fasten flap.

5. Inflate ring after entry into water

Care and Maintenance

Do not dry clean - buoyant material is closed cell neoprene

1. After use rinse with cool or luke warm fresh water
2. Allow to drip dry
3. Lubricate zipper with bees wax
4. Glue tears with neoprene contact cement
5. Store with zipper in open position
6. Lay suit flat and roll from feet to head, cross arms, return bag
7. Store in cool, dry area
8. See reverse side for full inspection guidelines



WARNING!

There is a risk of entrapment in a submerged compartment due to the buoyancy of the suit.



3425 16th Ave. West • Seattle, WA 98119
(206) 783-5512 • (206) 783-5361
(800) 592-6255

Web Site: www.imperialinc.com

RELAX!

This suit will float you and protect you from the cold; whether it's full of water or not. Even if the suit gets torn, it will NOT lose its flotation qualities. If necessary, you can put on the suit in the water (with help) but it is not recommended.

THIS VESSEL IS EQUIPPED WITH _____ IMMERSION SUITS, LOCATED IN _____

Printed in USA

Making a Voice Radio Distress Call and Using Visual Distress Signals

Location Aids for the Mariner

The key to being rescued quickly is to let people know where you can be found. By using the four detection factors: light, color, sound and movement, you will gain attention.

Your most powerful distress tool is your radio. In the event of an emergency, it is extremely important to establish radio communication immediately with the Coast Guard or another vessel.

DO NOT WAIT UNTIL THE SITUATION IS OUT OF CONTROL. At that point, there may be no power to the radio or it may be too late for rescue units to respond.

Having and using marine radios is an integral part of fishing and a valuable aid in an emergency. It is also a privilege granted by the agency that issues the licenses — the Federal Communications Commission (FCC). Emergency marine radio calls are made on VHF channel 16 (156.8 MHz) or SSB 2182 kHz.

Emergency Calls

There are three internationally recognized radio signals used for marine emergencies. MAYDAY, PAN-PAN, and SECURITY. All three have priority over other radio traffic.

MAYDAY calls also have priority over all other emergency signals. They are to be used only when a vessel or life is threatened by grave and imminent danger and a request is made for immediate assistance.

If you hear a MAYDAY call and it is not answered, you must answer it and log the details of the call. When you can be reasonably sure you will not interfere with other distress-related communications, advise the vessel in distress what assistance you can offer.

MAYDAY RELAY: All vessels that are required to have radios are required to relay Maydays that are heard but go unanswered.

To relay an unanswered Mayday, make sure your radio is on and you transmit on channel 16 VHF. Then state:

1. Mayday relay, Mayday relay, Mayday relay.
2. YOUR vessel's name and call sign.
3. Name and call sign of vessel in distress.
4. Location of vessel in distress.
5. Nature of problem with vessel in distress.
6. Degree of assistance needed.
7. Listen for acknowledgement.
8. Transmit additional requested information.

PAN-PAN (pronounced pahn-pahn) calls are for very urgent messages concerning the safety of a boat or persons. Examples include urgent storm warnings by an authorized station and/or loss of steering or power in a shipping lane. To transmit a PAN-PAN message, make sure your radio is on and you transmit on channel 16 VHF. Then state:

1. PAN-PAN, PAN-PAN, PAN-PAN all stations.
2. Your vessel name and call sign three times.

3. Nature of urgent message.
4. Position (latitude and longitude and LORAN are preferred).
5. Total number of people on board.
6. Vessel description (length, color, type, etc.).

SECURITY (pronounced say-cure-i-tay) calls are the lowest priority emergency calls and are used to alert vessel operators to turn to another station to receive a safety message. SECURITY warns nearby vessels of a possible hazard.

Emergency Position-indicating Radio Beacons (EPIRBs)

Vessels that are operating beyond the “three-mile line” and are greater than 36’ in length are required to have an FCC type Coast Guard accepted Category 1 406 MHz EPIRB (float free). Vessels less than 36’ in length beyond the “three mile line” are required to have a Category 2 406 MHz EPIRB.

Drills are to include demonstration of proper use including arming. If you have an EPIRB, turn it on as soon as possible and leave it on. A continuous transmission provides the best hope for rescue. The lanyard attached to the unit should be fastened to the raft or to an individual in the water. Most EPIRB’s operate best when floating with the ANTENNA VERTICAL.

Visual Distress Signals

A visual distress signal is anything that makes you BIGGER, BRIGHTER OR DIFFERENT. By yourself, you are a small target; anything you do to make yourself more visible will help rescuers find you.

Visual distress signals are included in the emergency equipment pack aboard your life raft. They include both pyrotechnics and devices such as flashlights, portable strobe lights, mirrors and distress flags. All have advantages and disadvantages and all are of value only if they are used effectively.

READ THE INSTRUCTIONS — Whatever the signals, always carefully read and follow the affixed instructions. The signals are very powerful and can cause injury and even worse if not treated with respect.

Types of and Use of Visual Distress Signals

Parachute Flare

Contained in a plastic canister, the parachute flare produces a bright red flare suspended by a parachute. This flare is activated when you have reason to believe that a rescue craft is in your area. To activate:

- Hold flare vertically, rocket end up.
- Remove the top and bottom caps, holding flare firmly.
- Remove the safety pin from bottom. This allows the firing trigger to be lowered into the ready-to-launch position.
- Aim slightly downwind and squeeze the trigger up into the canister. **BE READY FOR A KICK, AS THE ROCKET WILL GO TO 1000’.**
- The flare will burn for 30-60 seconds. Under ideal conditions the flare is visible up to 30 miles.

Pistol Launch Flares

To use this type of flare, load the cartridge into the barrel of the pistol. Aim downwind and pull the trigger. This will activate the signal. It will reach an altitude of 30-50 feet and burn for 8-12 seconds.

Hand-Held Flares

The hand-held flare is designed to produce a bright red distress signal when activated. There are two types.

One type has an arrow on the handle and an arrow on the metal flare. To activate:

- Pull the handle down and rotate until the two arrows line up.
- Apply upward force to the handle to activate.
- DO NOT hold onto the flare itself as it becomes very hot.
- If it does not activate after the initial striking, attempt another strike. If it still does not activate, throw it in the water.
- Activate downwind.

The other style of hand held flare requires:

- Lift up on the tape that goes the length of the flare. By doing this, the top side (striker) is exposed.
- To remove the cap, twist it. Hold it out and away from the raft.
- Strike the topside of the cap on the flare end.
- Be careful of the "slag" that will drip, it is extremely hot and dangerous to human skin contact.

Strobe Light

The strobe light is a compact, high-intensity light that is capable of operating continuously for 12 hours. It is activated by a "push-on / push-off" button located at the base of the unit.

Signaling Mirror

The signal mirror is one of the best daytime signals available. Aim the mirror into the sun locating the beam on your hand or a nearby surface. Look through the aiming hole in the center of the mirror at the beam. A bright dot should appear. Place the dot toward the rescue craft. Survivors should practice with mirrors constantly since the reflected light signal could possibly be seen by rescue craft out of the victim's sight or hearing range.

Sea Dye

Sea dye marker consists of a chemical which, when immersed in water, produces a bright greenish-yellow color that is highly visible. To use the dye marker, open the container and swirl it around in the water. Drift about 20 yards and lower the dye back into the water and create another slick. Continue to do this and you will create a trail for rescue craft to follow. The duration of the sea dye will vary from 20 minutes in rough seas to 2 hours in calm sea. Keep the container outside of your survival craft, as the dye will spill inside the raft creating a mess.

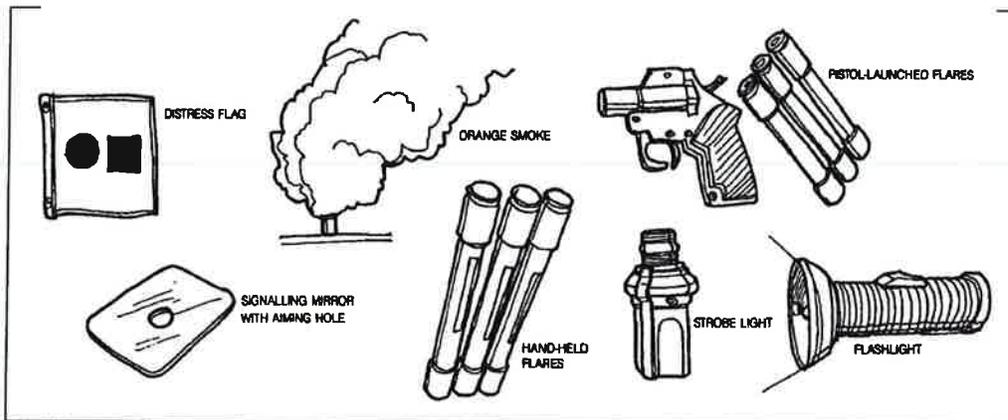
Floating Smoke Signal

Best seen during the day, the floating orange smoke signal is contained in a waterproof canister.

To operate:

- Remove plastic cover.
- Locate activating cord and pull firmly.

- Throw it into the water immediately.
- Within 3-4 seconds, a popping sound will occur and the smoke will be visible. The activation time is 3 minutes.
- Activate downwind, as the smoke will be very pungent.



Stowage and Maintenance

Store pyrotechnics in a cool, dry, readily accessible place. Each crewmember on board should know where visual distress signals are stowed. One crewmember should be assigned to bring the signals in an emergency. It is advisable to store a pair of gloves along with pyrotechnics.

Pyrotechnics have an expiration date and need replacement once expired to ensure proper functioning.

Never aim pyrotechnics directly at rescue craft. This does not encourage good relations with the rescue team members.

Points to Remember

- Hold flare downwind.
- Read instructions PRIOR to rescue arriving on scene.
- Use them wisely — They are limited in quantity.
- Many flares are packed in plastic bags for waterproofing.

Distress Communications Form

Instructions: Complete this form now (except for items 7-10) and post near your radio or radiotelephone.

Speak SLOWLY - CLEARLY - CALMLY

1. Make sure your radio or radiotelephone is on.
2. Select 156.8 MHz (channel 16 VHF) or 2182 KHz.
3. Press microphone button and say "MAYDAY, MAYDAY, MAYDAY!!"
4. Say: "THIS IS ___(your boat name)___, ___(your boat name)___, ___(your call sign)___, OVER"
5. Release this microphone button briefly and listen for acknowledgement. If no one answers, repeat steps 3 & 4. If there is acknowledgement, or if the Coast Guard or another vessel responds:
6. Say: "MAYDAY" _____(your boat name)_____.
7. DESCRIBE YOUR POSITION in lat/long coordinates, LORAN-C coordinates or range and bearing from a known point.
8. STATE THE NATURE OF YOUR DISTRESS.
9. GIVE NUMBER OF PERSONS ABOARD AND THE NATURE OF ANY INJURIES.
10. ESTIMATE THE PRESENT SEAWORTHINESS OF YOUR BOAT.
11. BRIEFLY DESCRIBE YOUR BOAT, length _____, color _____, hull type _____, trim _____, masts _____, power _____, any additional distinguishing features _____.
12. Say: "I WILL BE LISTENING ON CHANNEL 16 / 2182" (cross out channel that does not apply).
13. End message by saying "THIS IS _____(your boat name and call sign)_____, OVER."
14. If your situation permits, stand by the radio to await further communication with the Coast Guard or another vessel.

Emergency Instructions

F/V _____

General Instructions

1. All crew members and passengers are responsible for knowing their assigned emergency duties and stations.
2. All crew members are responsible for knowing the location of the ship's lifesaving and emergency equipment.
3. All crew members and passengers shall participate in all emergency drills and training sessions.
4. Newly reported personnel should report to _____ for safety emergency or orientation.
5. If you are in doubt as to any of your responsibilities as specified in this bill, ASK THE CAPTAIN for clarification.

Emergency Signals

Fire and Emergency Signal (_____)

The Fire and Emergency Signal shall be a continuous blast on the ships whistle with the same signal sounded simultaneously on the General Alarm for a period of not less than 10 seconds.

Man Overboard Signal (____)

The Man Overboard Signal shall be 3 Long Blasts of the ship's whistle with the same signal sounded simultaneously on the General Alarm, with the signal to be sounded a minimum of four times.

Abandon Ship Signal (***** _____)

The Abandon Ship Signal shall be at least seven (7) short blasts followed by one (1) long blast on the ships whistle, with the same signal sounded simultaneously on the General Alarm.

Radio Call	Frequency:	High Site:	DF Bearing:
Type of Comms:		Original <input type="checkbox"/> Relay <input type="checkbox"/> Call Back Number:	
Time:	Date:	UCN:	OUC:

-- Initial SAR Check Sheet --

ELECTRONIC FORM

1. Position	<i>Type of Position:</i> <input type="checkbox"/> Lat/Long <input type="checkbox"/> Loran Lines <input type="checkbox"/> Geographic Reference		
How determined?			
2. Number of Persons On Board	Adults:	Children:	Total: 0.00
3. Nature of Distress (Any Medical Conditions?)			
4. Description of Vessel Name: _____ Length _____ Doc/Reg: _____ Anchored?.....Make: _____ Color: _____			
5. Have all persons on board the vessel put on Personal Flotation Devices / adequate number of PFD's available?			

**** ADVISE REPORTING SOURCE OF INTENDED ACTIONS AT THIS TIME ****

6. Determine Initial Severity / Emergency Phase	
<input type="checkbox"/> Distress <input type="checkbox"/> Dispatch Resources / Activate SAR Alarm <input type="checkbox"/> Advise reporting source of Coast Guard's Actions <input type="checkbox"/> Issue Urgent Marine Information Broadcast (UMIB) <input type="checkbox"/> Brief Sector / District <input type="checkbox"/> Provide emergency instructions to vessel in distress <input type="checkbox"/> Complete additional check-sheets as situation dictates <input type="checkbox"/> Refer to CG Addendum/Sector Mobile & D8 OPLAN	<input type="checkbox"/> Uncertainty <input type="checkbox"/> Alert <p align="center"><i>Additional information is needed Complete one or more of the following:</i></p> <input type="checkbox"/> Supplemental Check-sheet <input type="checkbox"/> Overdue Check-sheet <input type="checkbox"/> Flare Sighting Check-sheet <input type="checkbox"/> MEDEVAC/MEDICO Check-sheet <input type="checkbox"/> Grounding Check-sheet

Persons in the Water		
Number:	Description:	<input type="checkbox"/> PFD - type/color:
Time:		<input type="checkbox"/> Exposure Suit
Confirmed?		<input type="checkbox"/> Light

**** Complete all of the above before shifting frequency; Complete below before hanging up phone ****

Reporting Source	
Name:	
Vessel Name:	
Call back number (with area code):	
cell phone _____	_____
radio / call sign: _____	/ MMSI: _____
Address:	

On Scene Weather			
Wind	Seas	Swells	Visibility
Weather Type			

VHF Marine Radio Channels

The chart below contains a partial listing of channels boaters should be familiar with:

Channel	Type of Message and Use
06	Intership Safety: Used for ship-to-ship safety messages and search messages and ships and aircraft of the Coast Guard.
09	Boater Calling: FCC has established this channel as a supplementary calling channel for recreational boaters in order to relieve congestion on VHF Channel 16.
13, 67	Navigation Safety (Also known as the Bridge-to-Bridge channel): Ships greater than 20 meters in length maintain a listening watch on this channel in US waters. This channel is available to all ships. Messages must be about ship navigation (i.e. passing or meeting other ships). You must keep your messages short. Your power output must not be more than one watt. This is also the main working channel at most locks and drawbridges. Channel 67 is for lower Mississippi River only.
16	International Distress, Safety and Calling: Use this channel to get the attention of another station (calling) or in emergencies. Ships required to carry a radio maintain a listening watch on this channel. USCG and most coast stations also maintain a listening watch on this channel.
21A, 23A, 83A	U.S. Coast Guard only
22A	Coast Guard Liaison and Maritime Safety Information Broadcasts: Announcements of urgent marine information broadcasts and storm warnings on Channel 16.
24, 25, 26, 27, 28, 84, 85, 85, 87	Public Correspondence (Marine Operator): Use these channels to call the marine operator at a public station. By contacting a public coast station, you can make and receive calls from telephones on shore. Except for dis-tress calls, public stations usually charge for this service.
70	Digital Selective Calling: Use this channel for distress and safety calling and for general purpose calling using only digital selective calling (DSC) techniques. Note: The U.S. Coast Guard will not be equipped to respond to DSC distress calls on Channel 70 until 2006—use Channel 16.

ACR AQUAFIX P-EPIRB

SECTION 4 - OPERATION

4.1 General

The AquaFix™ 406 GPS P-EPIRB models are designed to be manually deployed and activated. It is only to be activated when all other means of self-rescue have been exhausted. Activation of the P-EPIRB tells Search and Rescue who you are, where you are, and that you are facing a life threatening situation.

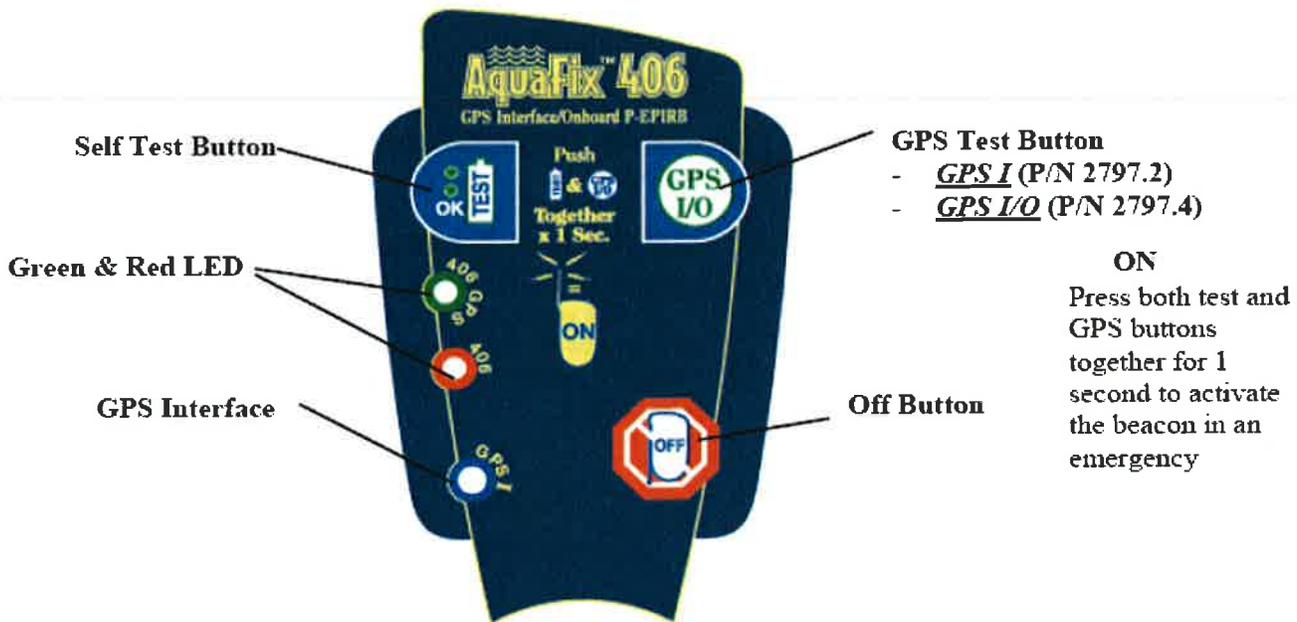


Figure 1. Key Pad Functions
(P/N 2797.4 shown)

4.2 AquaFix™ 406 GPS P-EPIRB Emergency Activation

4.2.1 Activation

To activate your P-EPIRB in an emergency situation, unfasten the antenna from the case or holster and move it into the upright position (See figure 2). Lift the holster cover revealing the P-EPIRB keypad (see figure 3). Depress the “self-test” and “GPS I” or “GPS I/O” buttons simultaneously for at least 1/2 second and less than 5 seconds (see figure 4). Your P-EPIRB is now activated. While transmitting your emergency signal, the red LED will flash once every 2 seconds alerting you that your P-EPIRB is activated. If GPS data is present in the P-EPIRB via the GPS I or GPS O the red LED will turn off and the green LED will take over flashing once every 2 seconds.

4.2.2 Activation with GPS I (P/N 2797.2 and P/N 2797.4)

The AquaFix™ 406 GPS I and GPS I/O are equipped with a GPS Interface. Prior to activating your P-EPIRB you can download your GPS LAT/LON into the P-EPIRB using an external GPS receiver and the GPS Interface cable provided with the P-EPIRB. Once your external GPS has acquired good global positioning data, press the GPS test button for at least ½ second and no longer than 5 seconds and your GPS data will download into the P-EPIRB (for full instructions see Section 4.7.2). Once you activate your P-EPIRB, your GPS coordinates are included in the distress signal.

Care and Maintenance of 406 EPIRBs

Since August 1991, commercial fishing vessels with galley and berthing spaces that operate beyond three miles from shore, have been required to have category 1, 406 MHz Emergency Position Indicating Radio Beacons (EPIRBs).

Category 1, 406 EPIRBs, though much more expensive than the old Class A EPIRBs, provide superior reliability, signal strength, location accuracy and provide much more detailed information to search and rescue agencies. There are several steps to take to ensure your EPIRB will work when you need it.

Registration

Send in the EPIRB registration and identification card! It asks questions about you and your vessel that will aid search and rescue agencies in finding you in an emergency. It will also allow them to contact you without sending out an expensive search should your call be a false alarm.

Instructions

Read the instructions for mounting and operation of your EPIRB carefully! EPIRBs do not come shipped in the ON position. It is important to learn the correct switch position for arming the EPIRB after it is installed.

Location

Mount your EPIRB in a location that will allow it to float free if the boat should sink and where icing will be minimal. Avoid locating it under an overhang or anywhere it could get hung up.

Test

Test your EPIRB once per month. 406 EPIRBs have an electronic self-check. Make sure that you follow the testing procedures in your manual. Test in the first five minutes of any hour. All EPIRB tests should be noted in your log book.

Check for Damage

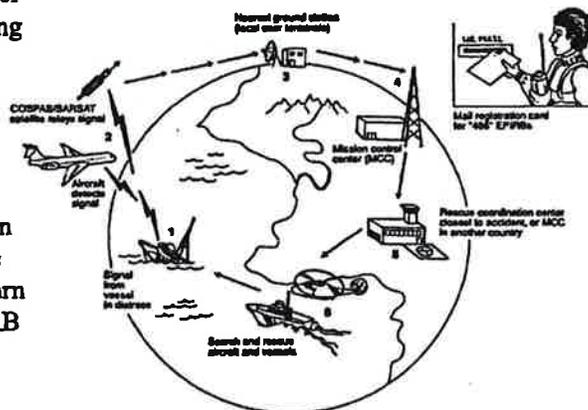
Check your EPIRB during rough sea conditions to make sure it has not been activated or damaged.

Show and Tell

Show all crewmembers and passengers on your vessel how the EPIRB operates before you get underway. This should be a part of your drills and instructions.

Maintenance Schedule

Although your EPIRB battery may be good for two to five years, many of the hydrostatic releases mechanisms need to be replaced every two years. Check the maintenance schedule on the release for your EPIRB.



Recovering an Individual from the Water

Man in the Water

Rule #1 – Don't be the man in the water!!

No one ever plans on falling overboard. A person who unexpectedly finds himself in the water is a person with fear . . . even if they are good swimmers. The fall itself is bound to invite a certain amount of shock and panic.

Upon initial entry into the water, the respiratory system (breathing) will experience a gasping response (short, shallow and irregular breath rate). Another life-threatening reaction that may occur within seconds of entering the water is heart attack. This is of particular importance for out-of-shape people who fear the water. More often than not, these victims are not wearing a PFD.

Injuries during the fall could render even good swimmers helpless. A successful man-overboard rescue is highly dependent on how well the potential rescuers respond and upon how well the victim can assist. The following are guidelines in the event you are a VICTIM or RESCUER.

Man Overboard

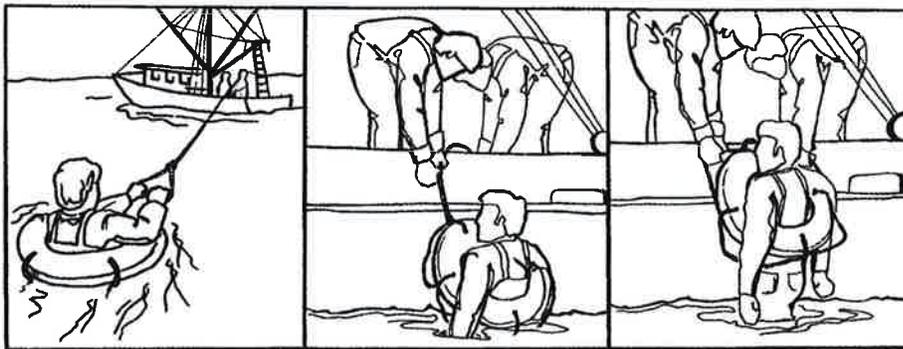
The success of recovering a person overboard depends on a few factors:

- Ability of victim to alert someone of the fall.
- Ability of rescuer to return to victim.
- Available rescue equipment.
- Drills and procedures practiced prior to incident.
- Temperature of water and time of incident (day vs. night).

If You Are the Victim

Things to Consider:

- Am I wearing a PFD?
- Can I swim back to where I fell?
- Did someone see me fall?
- How can I attract attention?
- Will I be able to assist during rescue?



Ring buoys provide flotation and permit the victim to be hauled aboard by hand or with a hoisting tackle. A bowline or lifesling can be used if the person is too large to use a ring buoy effectively. Any debris or floatable trash thrown near the victim will help mark his position for pick up. Strobe lights, "day-glow" markers or smoke pots attached to a ring buoy will mark the victim's position.

Actions to Take:

- While the fall is taking place, scream to alert others. (Choice of words left to your discretion.) “Help!”, “Man overboard!” or a crew member’s name is useful.
- Once in the water, surface and assess your situation (Where am I? Who saw or heard me fall? Am I wearing a PFD?)
- Get control of your breathing.
- Remain as calm as possible; realize the chances of survival are in your favor and remember your crew likes you....hopefully.
- Begin to draw attention to your location using sound or movement:
 - Waving your arms.
 - Blowing a whistle.
 - Kicking your feet, creating a splash.
 - Splashing water with your hands.
- Do not swim if nothing is in sight.
- Utilize your survival skills learned in training (warm water vs. cold water).
- Once spotted, notify rescuer of any injuries or other people in the water.

If You Are the Rescuer

- Sound alarm “MAN OVERBOARD” and give location, i.e. port side, 10 o’clock, NW.
- Mark the location where the person fell in by throwing some type of flotation and mark, fix position on plotter.
- Maintain 100 percent visibility on the victim.
- Communicate with other crew members and captain.
- Once alongside, throw the victim a ring buoy, rope or line.
- Use available equipment to bring victim back on board.
- If water entry/rescue swimmer is required:
 - Wear a PFD/Immersion suit and take one for the victim.
 - Attach a safety line to the crewmember.
 - Toss the PFD to the victim while swimmer stays out of arm’s reach.
 - Once victim has settled down, tow to safety. Talk to the victim to reassure them.

Recovery

In recent years a lot has been written about the problems of recovering fishermen who have either fallen or been washed overboard. There is a variety of man overboard systems that are adoptable for most vessels and circumstances.

For fishing vessels without a dedicated rescue system the following options should be considered:

- A technique of circling a person in the water while towing a lifebuoy on a line is an effective way of making contact, particularly in heavy weather.

- A conscious person in the water can be recovered using a rigid ladder, scrambling net or any device that can be climbed.
- A lifting strap passed around the back and under the arms of a person in the water, attached to a suitable recovery rope, can prove valuable. Using a mechanical lifting device can assist recovery on board.
- An inflatable dingy or life raft provides another option for recovery. Your life raft can be inflated to get people out of oil/gas saturated water and heavy seas.
- A PARBUCKLE can be improvised using ropes or a net in order to recover a person from the water.
- **REMEMBER** — a rescuer should only enter the water as a last resort. Don't compromise your own safety.

Safety Tip

This safety tip concerns swimming fully clothed in cold water. Most people who accidentally find themselves in the water are fully clothed or without a lifejacket and suddenly recognize certain discomforts. Many good swimmers have not survived short distance swims due to improper techniques used when swimming fully clothed.

The key to swimming fully clothed is to use UNDERWATER MOVEMENTS with your hands and feet. Personal judgment is required concerning the removal of shoes or boots. Some boots will fill with water or become water soaked and restrict movement. Others may assist in your situation by providing environmental protection and floatation. Just remember swimming fully clothed requires strokes without lifting your arms out of the water.

The swimmer should use a BREAST STROKE, MODIFIED SIDESTROKE or an ELEMENTARY BACKSTROKE. You are not trying out for the Olympic team, just trying to get back to where you fell.

Man-overboard Recovery Methods

There are a number of man-overboard recovery methods. The most commonly used are:

1. *One-turn or Anderson*: fastest but requires the most skillful shiphandling.
2. *Williamson turn* for night or low visibility: turns you around and sends you down your previous track.
3. *Racetrack*: for the fastest recovery when you are proceeding at high speed in clear weather.
4. *Y-backing*: for ships with large turning circles and lots of backing power, proceeding at slow speeds.

Large ships often use a small boat to recover a man from the water. Smaller vessels will use the boat-recovery method as well when the sea is very rough or there is little chance of getting the man close alongside. Swimmers with PFDs or immersion suits and tending lines should be ready to go into the water.

No matter which recovery method is used, the same basic principles and methods apply. Swing the stern away from the person with full rudder. If possible, stop the shaft before the person reaches the screw. Always assign someone to do nothing but keep the man in the water in sight.

The following are step-by-step explanations of the four most common recovery methods.

Rescuer Responsibilities

- Sound Alarm “MAN OVERBOARD”
- Throw a Flotation Device in Water
- Post a Lookout
- Turn Vessel Around
- Position Vessel for Retrieval
- Use Available Rescue Equipment
- Provide Medical Attention
- Rescue Swimmer

Victim Responsibilities

- Yell for Help / Whistle
- Assess Your Situation
- Control Your Breathing / Remain Calm
- Draw Attention to Yourself
- Stay Still — Do Not Swim
- Utilize Survival Skills
- Notify Rescuers of Any Injuries or Other People in the Water

Cold Water Near-Drowning Survival Factors

- Water Temperature
- Cleanliness of Water
- Time Submerged
- Age of Victim
- Quality of Treatment
- Other Injuries

Abandoning the Vessel

Decision to Abandon

Only the captain should give the command to abandon the ship, and only when the ship is in such distress that the lives of the people on board are endangered. Abandoning ship signifies the end of attempts to save the vessel. It means that the raft has become the best shelter, if you have one.



Establish radio contact as soon as you recognize that an emergency exists. Update the log frequently to ensure that the man on watch can quickly report the vessel's position.

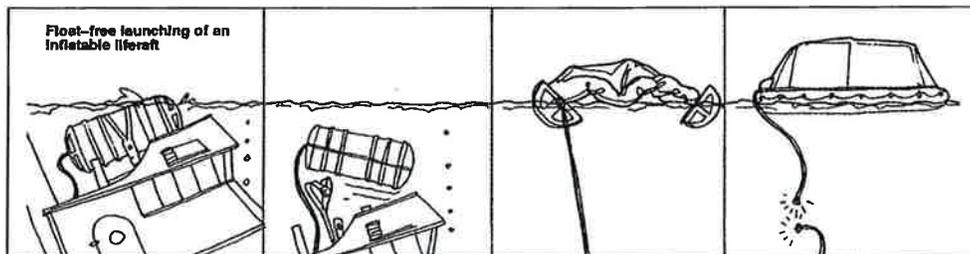
You must sound the alarm and alert the crew in plenty of time to enable them to get to their emergency stations and prepare the survival gear. It is much better to have to re-stow the survival gear after a close call than to wish you had assembled it sooner.

When the alarm sounds, each crewmember must report to his station immediately and begin his assigned survival duties.

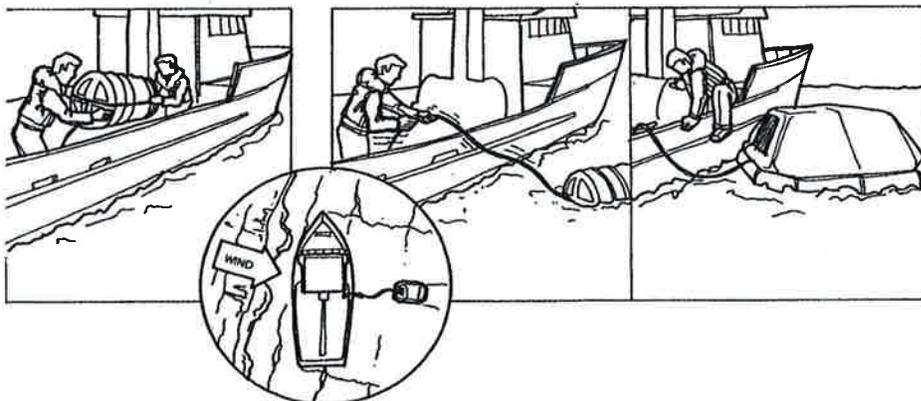
Where events do not allow for a well-organized abandonment, use whatever time is available to:

- Send a distress message.
- Muster all persons on board.
- Prepare the life raft for launching.
- Put a flotation device on.

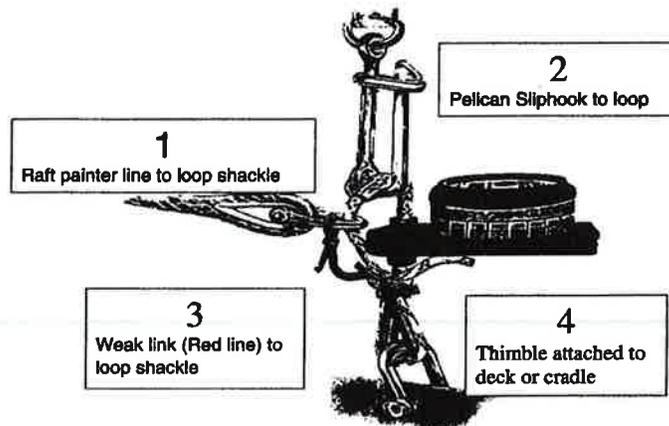
While it is a fatal mistake to wait too long to give the order for abandonment, it is just as dangerous to abandon the ship too soon.



At a depth of approximately 3 meters, the hydrostatic release is activated and the liferaft starts to float to the surface. As the vessel sinks, the painter pays out to full length and activates the CO₂ cylinder to inflate the liferaft. The painter must be pulled out manually to its full length to activate the inflation mechanism if the water depth is less than the length of the painter. Swim to the raft, place your feet on the cannister and pull until the raft inflates. If the vessel continues to sink, the painter or a weak link parts and the liferaft floats free.



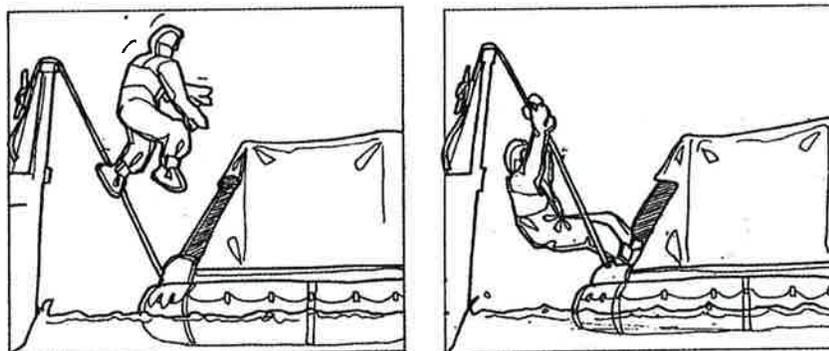
The raft should be launched from the lee side (left). There may be as much as 100 feet of painter in the cannister and pulling the painter out to its full length (center) will inflate the raft. Be sure the painter is firmly secured to the vessel (right) before launching and inflating the raft.



Disposable hydrostatic release installation

Boarding the Liferaft

Wait for the raft to inflate before boarding. If you board too soon you may interfere with the raft's inflation. Your raft will probably over-inflate and you will hear the sound of air escaping through pressure relief valves. This does not mean that the raft is defective. The sound should stop in a few moments.



If possible, board the raft without getting wet. You can jump directly into the canopy opening (left) or lower yourself with a ladder, net or line (right).

The best way to board your life raft is to jump directly into the canopy opening from your vessel, remaining DRY. You will not go through the floor.

Jump feet first into the canopy opening with your hands landing on the top of the canopy. Once in, move away from the opening so other crewmen can board.

If you must enter the water, chose a safe place to leave the vessel. Enter where you can use the painter line to guide you to the raft. If you are not in contact with the painter line, you may be swept beyond the raft.

Beware of hazards below you. Do not jump into people, objects or surface debris. Jump from the lowest suitable point to minimize impact with the water. Consider using a ladder, net or line to lower yourself to a safe point of entry.



If you must enter the water wearing a PFD, cross your arms securely over your chest and block off your nose and mouth. Always enter the water feet first, with your feet together.

Entry from a Height

Once the decision is made to abandon the vessel, the following procedures should be utilized.

- Get down as close to the water as possible and secure your PFD / Immersion Suit.
- Look down to see if your landing area is clear.
- Look straight ahead and stand tall.
- Latch on with one hand on face to protect mouth and nose from inrushing water. The free hand is placed across the chest and grabs onto the elbow or shoulder and squeeze down on the PFD.
- Step off as you were walking down a set of stairs. Cross your ankles or keep feet close together.
- Assist others and move to a safe area. Swim on your back.



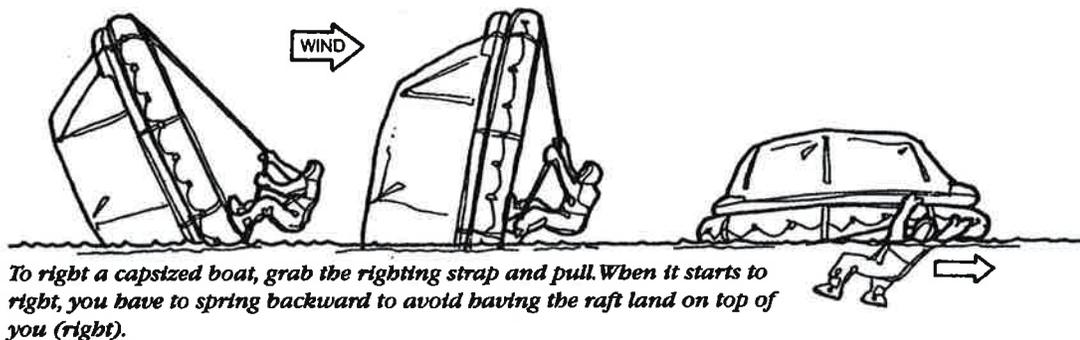
If entering the water in an immersion suit, protect your head with one arm and jump to the side. If you jump facing forward (right), a slip is more likely to cause a head injury.

Righting a Capsized Liferaft

If your liferaft inflates upside down or is blown over during inflation, DON'T PANIC. One person can easily right a capsized craft. Swim to the side marked "RIGHT HERE." If there is no marking, go to the side with the CO₂ cylinder. Maneuver the cylinder side of the raft so that it is downwind, then reach up and grab the righting strap. Start pulling yourself up onto the raft. It will help to kick your feet out as if you were swimming on top.

This will be difficult as you will have on a flotation device. GET AGGRESSIVE!

Once on top facing into the wind, stand on the very edge where the CO₂ cylinder is located. Holding onto the righting strap, lean back with all your weight and pull on the strap. Once the canopy is clear of the water, the raft will begin to follow. If the raft lands on top of you, relax. The bottom (floor) of the raft is soft and flexible and your head will form an air pocket.



To right a capsized boat, grab the righting strap and pull. When it starts to right, you have to spring backward to avoid having the raft land on top of you (right).

Stay face up under the raft. Catch a breath of air and pull yourself out from underneath. If you try to swim out face down, your PFD or immersion suit could get hung up and make it difficult for you to get free.

Survival Once On Board

- Deploy the sea anchor (drogue). Some may automatically deploy. Make sure it is out and functioning properly. When the raft is on the wave crest, the sea anchor should be in the trough.
- Bail out the raft using bailing bucket and sponge provided. Hands, shoes and caps are also useful.
- Close down the entrance to protect the crew from exposure.
- Maintain your raft. Inflate the floor and repair any leaks. It may be necessary to re-distribute your weight to better stabilize your new home.
- Tend to the injured with the first aid kit contained in the emergency pack. If you have not attended a first aid class before or lack confidence in your medical skills, it would be advisable to sign up for a course. Remember, ma-in-law may choke on your T-bone and the skills learned may be useful.
- Locate your survival manual and read instructions aloud for all to hear.
- Assess the scene and make a calm estimate of your situation and plan your course of action. Assign duties to all uninjured.
- Inventory your emergency pack contents and don't leave items lying around on the floor. Distribute seasick tablets to all even if they have never been seasick. They have never been in a life raft in the open sea.
- Post a look-out team. Activate your EPIRB and review the proper use of visual distress signals.
- Check the condition of everyone. Use the buddy system to assist each other. Maintain morale and consistent leadership. Use your sense of humor; it is a powerful tool.
- Distribute food and water but be careful not to waste it. Drink NO seawater even if diluted. Eat NO fish, turtles or birds that may come near the raft. The fishing kit is for morale, not to eat the fish even if you can cook them with your flare.
- **PLAN TO STAY ALIVE AND RETURN HOME TO THE FAMILY!!**

Actions Prior to Abandonment

- Alarm Recognition
- Muster Location
- Personal Shelter Management (Dress for Survival)
- Recognize Specific Emergency Duties
- Equipment Familiarization
- Specialized Team Development
- Communications

Hazards Complicating Evacuation

- Night-Time Evacuation
- Injuries
- Missing Person
- Faulty or No Equipment
- Poor Weather Conditions
- Panic and Fear
- Lack of Leadership
- Inexperienced Crew

Initial Hazards Once in the Water

- Injuries During the Fall
- Cold Water
- Oil & Fire
- Surface Debris
- Dangerous Marine Life
- Missing and Injured Crew
- Crew Separation
- Lack of Preparation

Sample Briefing to Pass to Vessels Prior to Hoisting

“A Coast Guard helicopter is proceeding to your position and should arrive at approximately _____. Maintain a radio watch on _____ MHz / kHz Channel _____ VHF / FM; the helicopter will attempt to contact you. Provide a clear area for hoisting, preferably on the port stern. Lower all masts and booms that can be lowered. Secure all loose gear. Keep all unnecessary personnel clear of the hoist area. When the helicopter arrives, change course to place the wind 30 degrees on the port bow and maintain a steady course and steerageway. As the helicopter approaches, gale force winds may be produced by the rotors, making it difficult to steer. The helicopter will provide all of the equipment for the hoist. A line will probably be trailed from the helicopter for your crew to guide the rescue device as it is lowered to the deck. Before handling the rescue device, allow it to touch your vessel. This will discharge static electricity. If you have to move the rescue device from the hoist area to load the patient, unhook the cable from the rescue device and lay the loose hook on the deck so the helicopter can retrieve it. Do not attach the loose hook or the cable to your vessel. The helicopter may move to the side while the patient is being loaded. Have the patient wear a lifejacket and attach any important records, along with a record of medications that have been administered. If possible, brief the patient on the instructions pictured on the rescue device. When the patient is securely loaded, signal the helicopter to move into position and lower the hook. After allowing the hook to ground on the vessel, re-attach it to the rescue device. Signal the hoist operator with a “thumbs up” when you are ready for the hoist to begin. As the rescue device is being retrieved, tend the trail line to prevent the device from swinging. When you reach the end of the trail line, gently toss it over the side.”

Actions Prior to Rescue

- Follow Instruction from Crew
- Tend to Injured / They Go First
- Transfer Organization
- Prepare Safety Line for Transfer
- Wear Flotation During Transfer
- Stay in Raft if Transfer is Unsafe
- Take your Time. You're Almost There.

Guidelines for Hoisting to CG Helos

Initial Communications

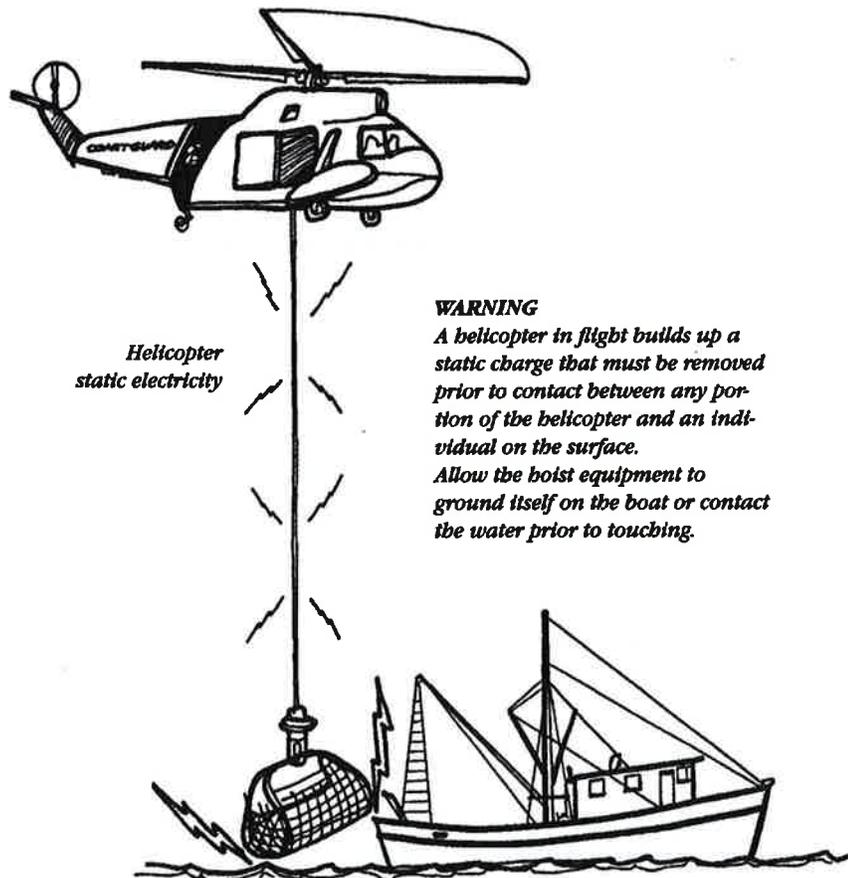
- Position (latitude / longitude)
- Any Injuries
- State of Vessel
- Signaling Devices Onboard
- Open Areas to Hoist to (usually port quarter)

Preparation for Hoisting

- If Underway: Bow Facing 30-45 right of wind line
- If DIW: Bow Facing 0-90 right of wind line
- Clear Hoisting Area: snag hazards, antennae, booms
- Life Jackets
- Somebody on Radio if Possible

During Hoisting

- Ground the Device
- Tending Trail Line
- Disconnecting Device (Don't hook cable to boat)
- Any Problems: Advise immediately over radio



STAY Rules-Seven Steps to Increase Your Odds of Survival

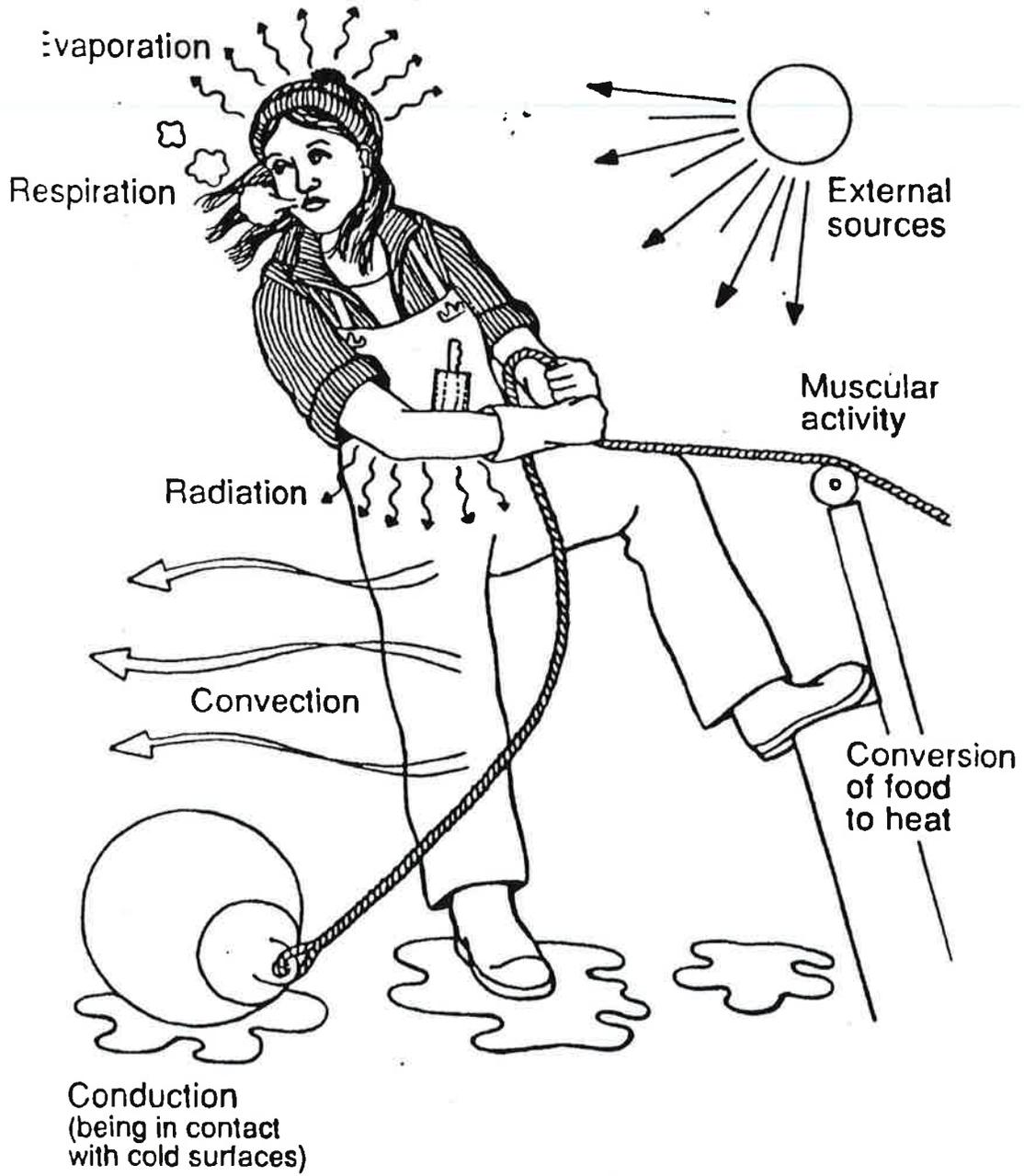
The following seven “STAY” rules will greatly improve your chances of surviving abandon ship emergency. They are from the AMSEA Marine Safety Instructor Training Manual, and have been “tested” during real marine emergencies.

- • **1. STAY Afloat:** wear a PFD and stay on top of floating objects, like the boat.
- • **2. STAY Still:** conserve heat and energy.
- • • **3. STAY Dry:** keeping your body out of the water will reduce heat loss through
• • • conduction.
- • • **4. STAY With the Boat:** the boat can be useful as something to hold on to and it will make you a bigger target.
- • **5. STAY Warm:** get out of the water, if possible. Protect your high heat loss areas.
- • **6. STAY Together:** it makes you an easier target, improves morale, and can reduce heat loss by using the HUDDLE position.
- • **7. STAY Sober:** alcohol increases heat loss and decreases judgement and coordination.

Hypothermia & Cold Water Survival

HEAT LOSS

HEAT GAIN



Hypothermia and Cold Water Survival

Hypothermia occurs when the body's CORE temperature drops. Submersion in cold water is a major cause of hypothermia because water conducts heat away from the body 25 times faster than air of the same temperature. Hypothermia can also result from a combination of wind and cool or cold temperatures, wet clothing or clothing that is not suitable for the weather.

Although hypothermia can easily occur when air temperatures are above freezing, it can be prevented by using good judgment, wearing layered clothing to stay warm but not sweaty, putting on rain gear before getting wet, and avoiding being immersed in cold water. It helps to remember that 50 percent of your body's heat is lost through your HEAD and NECK. Other high heat loss areas are your ARMPITS, CHEST and GROIN.

Signs and Symptoms

- Uncontrolled shivering
- Confusion
- Poor coordination
- Weak or irregular pulse
- Dilated (big) pupils
- Slurred / slow speech
- Poor judgment
- Drowsiness
- Slow / shallow breathing
- Unconsciousness

It is sometimes difficult to detect hypothermia because the affected person may not know or may deny that he is having a problem. In addition, signs and symptoms may be confused with or complicated by alcohol.

If you suspect that someone has hypothermia, check the person's pulse for 1 to 2 minutes when doing your primary survey. Treat the person GENTLY. If he is breathing and has a pulse, carefully remove his wet clothing and cover him with dry coverings.

To treat for hypothermia, remove the person from the cold environment and remove any wet clothing. Encase the individual in a sleeping bag and provide skin-to-skin contact with a warm person.

Give warm fluids only after uncontrolled shivering stops, when the person is alert enough to get a cup of hot drink to his mouth by himself without spilling it and can swallow without choking.

Check for and treat other injuries.

Cold Water Survival/Hypothermia

3 Stages of Hypothermia

Stage	Core Temperature	Signs & Symptoms
Mild Hypothermia	99° - 97°F Normal; Shivering can begin 97° - 95°F	Cold sensation and goose bumps. Unable to perform complex tasks with hands. Shiver can be mild to severe. Hands numb.
Moderate Hypothermia	95° - 93°F	<p>Shivering intense. Muscle incoordination becomes apparent. Movements slow and labored, stumbling pace, mild confusion, may appear. Use sobriety test, if unable to walk a 30 foot straight line, the person is hypothermic.</p> <p>At 93° - 90°F, violent shivering persists, difficulty speaking, sluggish thinking, and amnesia starts to appear. Gross muscle movements sluggish. Unable to use hands, stumbles frequently, and difficulty speaking. Signs of depression, withdrawn.</p>
Severe Hypothermia	90° - 86°F	<p>Shivering stops. Exposed skin blue or puffy. Muscle coordination very poor. Inability to walk, confusion, incoherent/irrational behavior, but may be able to maintain posture and appearance of awareness</p> <p>At 86° - 82°F, muscle rigidity, semiconscious, stupor, and loss of awareness of others. Pulse and respiration rate decrease, possible heart fibrillation</p> <p>At 82° - 78°F, Unconscious. Heart beat and respiration erratic. Pulse may not be palpable</p> <p>At 78° - 75°F, pulmonary edema, cardiac and respiratory failure. Death may occur before this temperature is reached.</p>

Preventing Drowning on Initial Immersion

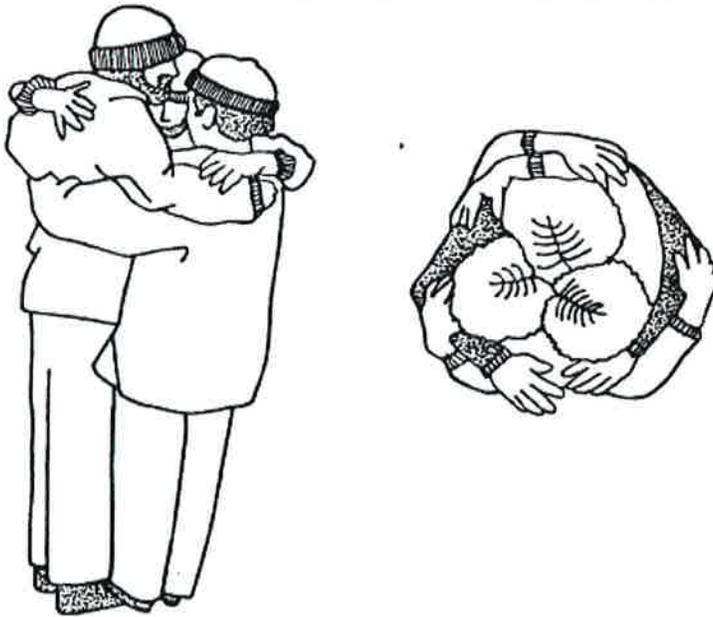
- **Protective Clothing**
- **Flotation**
- **Slow Entry for Slow Response**
- **Climatize**
- **Body Type (Fat vs. Muscle)**
- **Survival Techniques (Wave Spray Protection and Survival Swimming)**
- **Stay Out of Water**

HELP

(Heat Escape Lessening Position)



Huddle Position



Chain Swim



Minimizing the Effects of Unintentional Flooding

Approximately 70 percent of deaths involving commercial fishing industry vessels are related to stability. Maintaining proper stability on fishing vessels is one of the most difficult tasks for the fisherman. The more you learn about stability, especially the stability limit of your own boat, the safer you can be.

The most important concept for you to concern yourself with while fishing and stowing catch is to keep to a minimum the number of stability hazards present at the same time. For instance, while you are lifting the cod end aboard, be aware of the hazards posed by an open hatch. Be aware of the effects of shifting catch on deck, or of partially filled fish hold or ballast tank.

Stability changes with every gallon of fuel, ice and water that is used. It changes with every shift in ballast and with every load of fish; it makes a difference whether you put the cargo down below or on the deck. Finally, the stability of your boat changes with every wave that passes under the boat since the stability varies with the position of your vessel on the wave.

Common Small Vessel Flooding Sources

Small bull breach:
Located here possibly from impact with floating debris such as logs. Also possible from impact on hull by fishing gear, or in structural failure of wood hulls (broken framing).

Damaged rudder port fittings:
Packing problems with rudder posts results in many flooding cases. Structural failure (cracking) of the fitting housing has also been observed.

Large bull breach:
Known to result from impact from fishing gear (otter doors, etc.). Can also result from grounding and collision-type accidents.

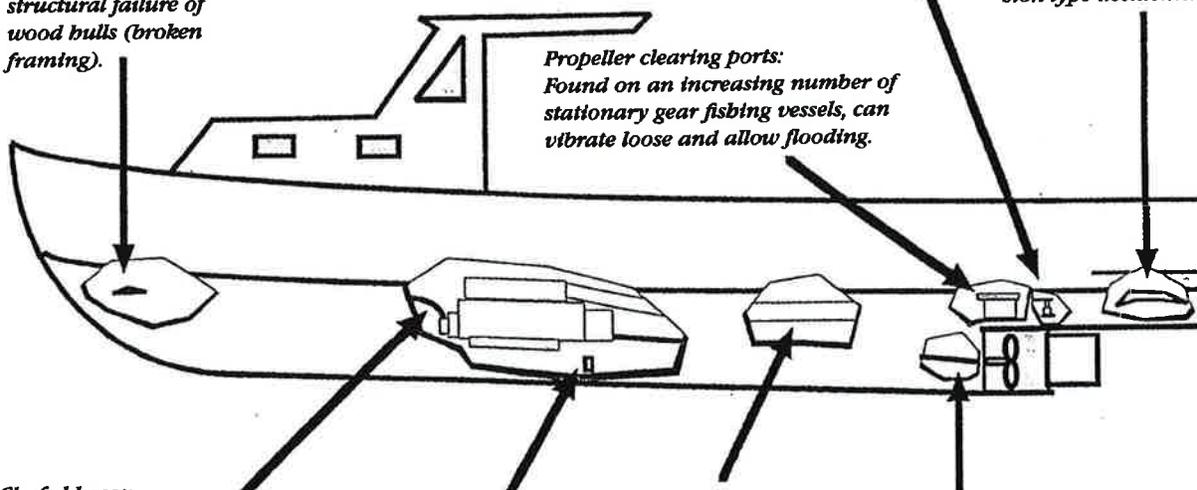
Propeller clearing ports:
Found on an increasing number of stationary gear fishing vessels, can vibrate loose and allow flooding.

Chafed hoses:
Resulting from vibration damage to hoses in washing and engine cooling systems.

Open seacocks:
Resulting from corrosion damage or improper hose connections.

Split piping:
Freeze damage to wet exhaust lines, or failures in pump system piping.

Main shaft packing gland:
A perpetual maintenance problem on boats, can also result from fouled propellers.



Some Suggestions for Preserving Adequate Stability

The United States Coast Guard, in conjunction with the Commercial Fishing Industry Vessel Advisory Committee, recommends the following measures. You should consider this as preliminary guidance on matters influencing the safety of fishing vessels as specifically related to preserving vessel stability.

- All doorways and other openings through which water can enter the hull or deckhouses should be closed in adverse weather and when not in use.
- All closure devices should be maintained on board in good working condition.
- Hatch covers and flush deck scuttles should be kept securely closed when not in use during fishing.
- All deadlights should be maintained in good condition and securely closed in bad weather.
- All fishing gear and other large weights should be stowed, prevented from shifting and placed as low as possible.
- Care should be taken to maintain pull from fishing gear in line with the vessel's longitudinal centerline and to avoid maneuvering with trawls off the quarters or beams. (Trawls off the quarters or beam generate tremendous overturning forces that can easily capsize a vessel).
- The point of action of the weight is at the hoist block of the frame or point of suspension. (Haul back pull points should be shifted to lower points during trawl operations.) This lessens the magnitude of potential overturning forces generated when the trawl moves off the longitudinal centerline of the vessel.
- The gear to release the deck load on fishing vessels that carry catch such as herring on deck should be kept in good working order for immediate use when necessary.
- Freeing ports in bulwarks should always be open while underway
- When the weather deck is prepared for the carriage of deck loads by division with pound boards, there should be slots between them for adequate size to allow an easy flow of water to the freeing ports, *i.e.*, good drainage.
- Never carry fish in bulk without first being sure that the portable divisions in the fish hold are properly installed. **THE CARGO MUST NOT SHIFT!!**
- Minimize the number of partially filled tanks. Free surface can severely impair your vessel's stability.
- Observe any instructions given regarding the filling of water ballast tanks. Remember that partially filled tanks can be dangerous. They generate free surface.
- Closing devices provided for vents to fuel tanks should be secured in bad weather.
- Be alert to the danger of following or quartering seas. These may cause heavy rolling and/or difficult steering. If excessive heeling or yawing occurs reduce speed, alter course or both.
- Do not overload. Overloading increases draft and decreases reserve buoyancy, which decreases stability.
- Avoid icing conditions. Standing wire rigging will ice up to a greater extent than struts or yards. If icing cannot be controlled, leave the area.
- Maintain at least 1 foot of freeboard at all times.

Preserving Water Integrity

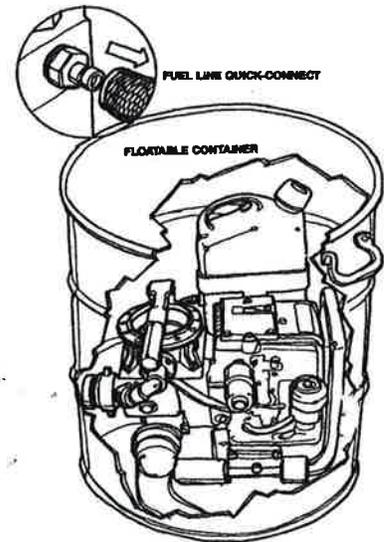
1. All watertight compartments should have a means of being pumped. In one-compartment type vessels, there should be at least two bilge suctions with one at the deepest part of the bilge and one at the stern.
2. All valves and pumping systems should be marked as to function.
3. Bilge water level alarms should be installed in all watertight compartments. Alarms are to be audible and visible.

Damage Control / Emergency Repair

1. Prior to vessel departure, inspect condition and proper working order of all engines, auxiliary motors, impellers, hoses and valves, which make up the pumping system.
2. All bilge suction lines shall be provided with screens.
3. Bilge is to be kept free of debris to ensure proper discharge of bilge water.
4. Spare parts and engine repair kits should be stowed aboard in the event that a pump system needs repair.
5. Materials such as steel plate patches, repair clamps, wooden plugs or any material that can be used to stop water from entering the vessel and the tools needed to fasten or hold the material in place, shall be stowed aboard.

Dewatering Equipment and Techniques

1. A minimum of two pumping systems, capable of pumping all compartments, should be installed with each pump powered from independent sources such as a main engine, generator or auxiliary engine.
2. The salt water systems should be insulated from the bilge pumping system and all bilge suctions should have check valves installed.
3. If the same pump is used for bilge and deck wash down purposes, a three-way valve must be installed and discharge line provided with a vent. No shutoff can be installed in the vent line.
4. When conditions do not allow for self-priming pumps, a raw line may be installed, provided it meets the following:
 - Shutoff valve is installed well above waterline.
 - Prime line is routed well above waterline.
 - Discharge pipe is vented on deck.
5. Delivery of Coast Guard Dewatering Pumps
 - Transmit proper MAYDAY following the written procedures.
 - Be sure to notify USCG about your situation, since pre-flight preparations include loading the proper gear for the type of emergency, *i.e.*, sinking needs pumps.
 - The Coast Guard will deliver a pump one of two ways, depending on distance from shore and sea condition — the direct method by air or the indirect method by jet.
 - Pump will be delivered inside a floatable container.



General Safety Instructions for Coast Guard Dewatering Pumps

Safety Instructions

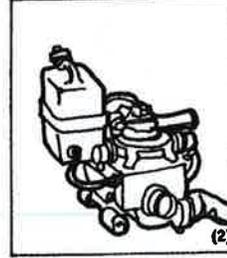
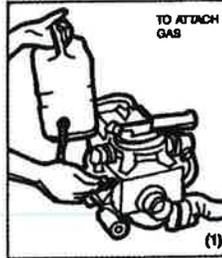
- Refuel only in well-ventilated areas.
- If gasoline is spilled, move pump away from spill.
- Do not refuel gasoline tank while engine is running.
- Do not run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odorless, colorless poison.
- To prevent accidental starting, always remove the spark plug before working on the engine or equipment.
- Do not tamper with the exhaust system.
- Do not operate the engine if the air cleaner is removed (except for adjustment).
- Always keep hands and feet clear of rotating parts.
- Do not disconnect either suction or discharge hose during pump operation.
- Do not check oil or fuel level while the engine is running.
- Use caution handling pump during and after running until engine has cooled.

Sample Instructions for the Dewatering Pump

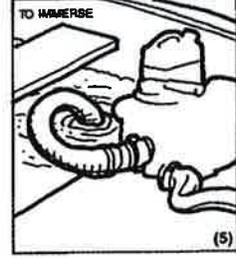
A. Before starting pump

- Mount fuel tank to engine and connect fuel line to quick connect/disconnect fitting (1,2).

- Put strainer end of suction inlet hose into water being pumped and connect coupling to pump. Be sure strainer and end of hose are submerged. If air gets into inlet hose or strainer, the pump will not pump. If strainer is not used, large solids may plug or damage the pump (3,4,5).



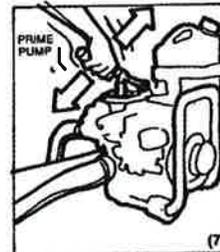
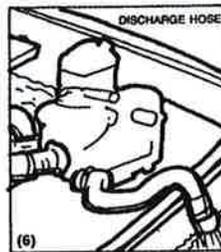
- Outlet (discharge) hose should be laid out with minimum kinks or sags and placed overboard (6).
- Prime the pump with water by actuating hand pump until water discharges from plastic outlet of the hand pump (7).



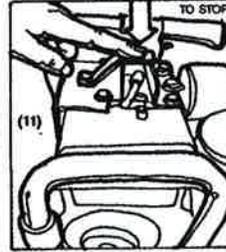
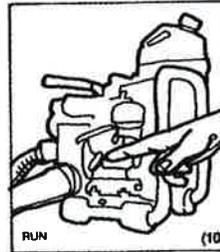
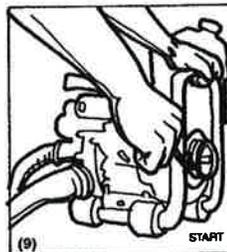
- Place choke lever on engine to "choke" (8).

B. Operating pump:

- Wrap starter rope on pulley and pull (9).
- After second pull (if engine hasn't started), set choke half way and crank again. Then set choke at 1/4 to prevent flooding the engine.



- After starting, adjust choke for best operation (10).
- After pump and engine are started, actuate hand priming pump until pump is pumping water.



- Be sure inlet hose and strainer are kept under water.
- Stop engine before adding gasoline (11).

- Keep pump and engine as nearly level as possible.

C. To stop engine and pump:

- Disconnect fuel line. Engine will continue pumping for approximately one minute and then stop.
- When finished pumping, drain and flush the pump and hoses with fresh water.

Damage Control Kit

Every vessel should have tools and materials on board for damage control. The items should be assembled and stored in a damage control kit. This kit should be stored where it is easily accessible, and up out of potentially flooded areas. In addition, all crew members should be aware of the kit and familiar with the uses of its contents.

Suggested content items are listed here. Some of these items may be omitted, or others might be added based on vessel design.

PLUGS & PATCHES

- Wedges
 - Various sizes
 - Soft wood that swells when wet
- Tapered Plugs
 - Two per sea cock: one in kit; one attached to sea cock
 - Soft wood that swells when wet
- Rubberized Strips and Sheets
 - Gasket material
 - Rubberized cloth
 - Inner tube strips
- Neoprene Fabric (such as pieces of old immersion suits)
- Rags
- Scrap Hose
- Nerf® Ball(s)
- Silicon or Graphite Impregnated Fiber
- Waterproof, Nonhardening Putty
- Plastic, Canvas or Nylon Tarp(s)

Produced by
Alaska Marine Safety Education Association – www.amssea.org
with assistance from
17th U. S. Coast Guard District Alaska – www.uscg.mil/d17/
&

Commercial Fishing Industry Vessel Safety Advisory Committee

Damage Control Kit

FASTENERS

- Grease Tape
- Duct Tape
- Bicycle Inner Tube Tape
- Hose Clamps in Various Sizes
- Wire Ties
- Twine
- Oakum
- Waterproof Epoxy & Backing Material

TOOLS



- Knife
- Shears
- Hacksaw
- Hammer
- Hatchet
- Screw Driver(s)
- Pipe Wrench
- Crescent Wrench
- Cordless Drill
- Nut Driver(s) including 5/16" for hose clamps
- Wooden or Rubber Mallet

DON'T FORGET . . .

- Storage Container With Light Attached to Handle
 - Small plastic tote with handle & snap on lid
 - Five-gallon plastic bucket with handle & lid
 - Duffie bag
- Waterproof Flashlight(s)
- Battery-Powered Headlamp
- Hand-held VHF Radio

Vessel Damage Control



Quick Reference Guide & Suggested Damage Control Kit Contents

Quick Reference Damage Control

ASSESS THE DAMAGE

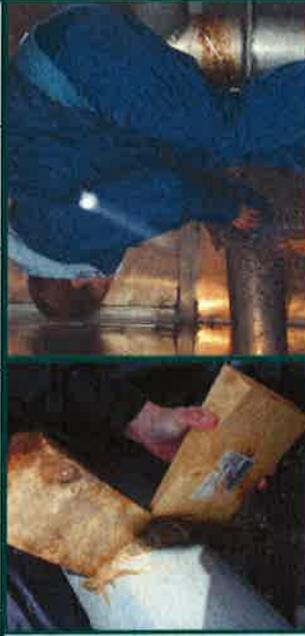
- Determine if it is leaking or flooding
- Determine whether or not available pumps can keep up
- Alert crew to situation and see that they are prepared to abandon ship if it becomes necessary
- Ensure that all crew are prepared to assist as needed
- Alert the Coast Guard of the situation
- Determine if it is safe to enter the flooded compartment and attempt damage control
- If so, trace the source of the flooding

TABLE OF FLOODING RATES (Gallons Per Minute)

Distance below waterline	Diameter of Opening in Hull (Inches)									
	1"	1.5"	2"	2.5"	3"	3.5"	4"	6"		
1'	20	44	79	123	177	241	314	707		
2'	28	62	111	174	250	340	444	1000		
3'	34	77	136	213	306	417	544	1,224		
4'	39	88	157	245	353	481	628	1,414		
5'	44	99	176	274	395	538	702	1,581		
6'	48	108	192	301	433	589	770	1,731		
7'	52	117	208	325	468	636	831	1,870		
8'	56	125	222	347	500	680	889	1,999		
9'	59	133	236	368	530	722	942	2,121		
10'	62	140	248	388	559	761	993	2,235		

CONTROL THE DAMAGE

- If possible, isolate flooding by closing watertight doors and hatches
- Shut down generator and inverters to reduce electrocution risk
- Disengage machinery that may make working in flooding area hazardous
- Jam materials into the breach to slow the flow of water
- Wrap cloth or other material around wedges and plugs for a tight fit



- Bolster patches or plugs with shoring or nail-on patching
- Lay a tarp against outside hull and secure over the breach
- Use pumps to remove as much incoming water as possible
- Water may come from more than one source. Identify and stop all sources of flooding
- Remember to give the Coast Guard regular updates as the situation progresses
- Close off above-the-waterline holes, such as drains and discharges that can siphon water into the boat should it sink below their levels
- Ensure that patches are secure before attempting to get underway
- If grounded, ensure hull is watertight before refloating
- Maintain a watch at the source(s) of the flooding

Fire Prevention and Fire Fighting

Fire is even more dreaded at sea than it is ashore. Fishermen faced with a fire at sea can neither call for professional help nor run away from the danger. Short of abandoning ship in favor of a tiny life raft, they must stay onboard and fight the fire themselves whether or not they have any training.

I hope this training program encourages further fire-fighting training, as the time spent today is minimal. I would encourage all participants to contact your local fire department and ask to attend/participate in their portable fire extinguisher training.

Coast Guard statistics reveal that most fires aboard fishing vessels occur in UNATTENDED MACHINERY SPACES. Typical causes include broken fuel or lube oil lines that spray fuel on hot engine parts, faulty electrical systems, uninsulated exhaust in contact with flammable materials, rags or other combustibles in the vicinity of hot engines, and spontaneous combustion of oil soaked rags. Other potentially high fire danger areas are accommodation spaces and galleys.

Prevention

- Constant awareness of the danger of fire is the responsibility of each and every crewman. Carelessness is a chief cause of fire aboard vessels.
- Each crewman should be:
 - Alerted to common fire hazards and taught how to eliminate them.
 - Advised of his duties in the event of fire.
 - Aware of all means of escape from interior spaces.
- Restrict the use of combustible materials when building, repairing and/or maintaining the vessel.
- Ensure the proper installation of fuel, lube and hydraulic oil lines.
- Exhaust systems are to be properly wrapped and engine rooms, cargo spaces and fuel tanks adequately vented.
- Unattended spaces should be equipped with fire and smoke detectors and alarm systems.
- Vessels must have adequate fixed fire extinguishing systems and/or portable fire extinguishers.

Causes

Spontaneous Ignition

Placing an oil-soaked rag in a storage area or engine room is an excellent candidate for spontaneous ignition. The oil rag begins to "oxidize" — to react chemically with the oxygen in the warm air around it — which in turn produces still more heat. The heat causes the oil to oxidize faster and produce still more heat. Since the heat is not drawn away by ventilation, it builds up around the rag.

Finally, the rag gets hot enough to burst into flames. All this can and does occur without any source of heat.

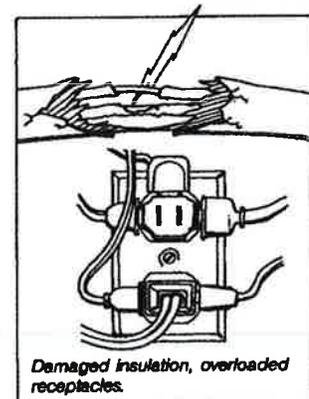


Faulty Electrical Equipment

When electrical equipment wears out, is misused or is poorly wired, electrical energy can turn to heat and a fire may be the result. Standard home or industrial electrical equipment has no place on the ocean. The salt air causes corrosion and a steel hull can cause erratic operation or short-circuiting. The result may be overheating or arcing in equipment or wiring and the ignition of flammable materials nearby.

Approved marine electrical equipment is specially made for shipboard use.

You can avoid this type of fire by making frequent inspections, replacing wires that are obviously defective and by using only fuses and circuit breakers of the proper size for the circuit.



Exposed Light Bulbs

An exposed light bulb can ignite combustible material by direct contact. Numerous vessel fires have started when a crewmember left a lamp lit in unoccupied quarters. As the ship rolled, curtains or other combustible material came in direct contact with the hot bulb and ignited.

Engine Rooms

Engine rooms are full of fire hazards. Water dripping from ruptured sea water lines can cause severe short-circuiting and arcing in electric motors, switchboards, and other exposed electrical equipment. Hot engine exhausts can also cause vessel fires.

Drip trays should be emptied frequently and oil accumulation in the bilges should be kept to a minimum. A safety fuel shut-off should be installed outside the engine compartment to allow the operator to stop the flow of fuel without entering a fire area.

Foam Insulation

Many vessels use rigid polyurethane or other organic foam insulation because of their excellent insulation properties. Such foams should be covered with a suitable flame barrier.

Should a fire occur in areas filled with foam, after the fire is extinguished, the foam must be completely removed to ensure that the fire is not smoldering in concealed spaces.

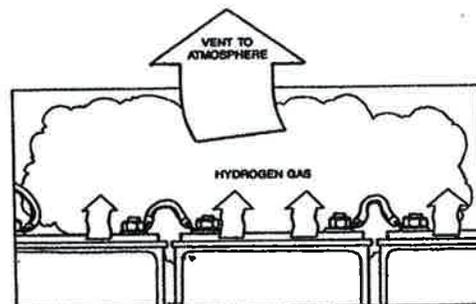
All foams can burn, and they give off toxic gases and black smoke.

Electric Motors

Faulty electric motors are prime causes of fire. Problems may result when a motor is overloaded, isn't properly maintained or is used beyond its safe working life. Motors require regular inspection, testing, lubrication, cleaning and ultimately replacement.

Charging Storage Batteries

When storage batteries are being charged, they emit hydrogen, a highly flammable gas. A mixture of air and hydrogen can be explosive. Hydrogen is lighter than air and will rise as it is produced. If ventilation is not provided at the highest point in the battery charging space, the hydrogen will collect. Then, any source of ignition can cause an explosion and fire.



Galley Operation

A ship's galley is a busy, potentially dangerous place. The intense activity, the many people, the long hours of operation and the basic hazards — open flames, fuel lines, rubbish, and grease or soot build up and general poor housekeeping — all add to the danger of a fire.

When liquid fuels are used for cooking, extreme care should be taken to avoid damage to fuel lines. You should be constantly alert to leaks in fuel lines and fittings. Everyone who uses the galley should know where the fuel line shut-off valves are and the valves must be easy to get at.

Good housekeeping and cleanliness is a must and it doesn't mean just cleaning the stovetop.

Smoking

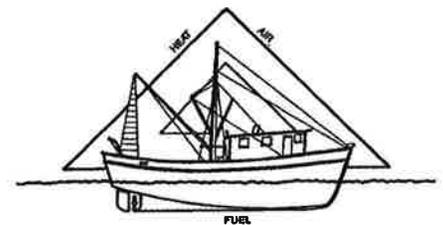
Careless smoking is a key fire hazard. Cigarettes and matches must be properly disposed of in noncombustible receptacles. Ashtrays should be emptied into metal containers with lids, not cardboard boxes used as trash containers. In hazardous areas, no smoking warnings should be posted and observed. Smoking in bed should be prohibited.



The Fire Triangle

A fire must have HEAT, FUEL and OXYGEN in order to burn. Remove any leg of this "triangle" and fire cannot occur.

The fuel for a fire can be in the form of flammable solids, liquids or gases. Liquid fuels burn more intensely than solids because they are more easily vaporized. The vapor from a liquid fuel is also heavier than air. It is extremely dangerous because it will seek low places, dissipate slowly and travel to distant sources of ignition.



A boat is full of fuel sources for fire.

Air contains the oxygen necessary for burning and ignition heat is present in many forms aboard vessels, including flames, spark, friction and spontaneous or internal combustion.

Removing the Fuel

Theoretically, you could put out a fire by physically dragging the fuel away from the source of heat, like someone pulling a log out of a campfire. While this may be rarely practical, it is often possible to move nearby sources of fuel so the fire cannot expand beyond what is already being consumed.

In fire fueled by liquids or gases, it may be possible to extinguish the fire by cutting off the fuel supply. When a fire is being fed by a leaky hydraulic or diesel line, for example, it can be put out by closing the proper valve. If a pump is supplying liquid fuel to a fire in the engine room, the pump can be shut down. Either way, the source of the fuel is removed and the fire is extinguished.

Removing the Oxygen

A fire can be put out by removing its oxygen, or by lowering the oxygen level in the air to less than 16 percent. In open areas, smothering a fire is difficult but not impossible. In smaller open areas, *i.e.*, fire in a galley trashcan, it may be snuffed out simply by placing a cover tightly over the can blocking the flow of air to the fire.

To put out a fire in an enclosed compartment, engine room or cargo hold, the space can be starved of oxygen by completely closing all air-tight hatches, doors, etc. The fire will consume all the available oxygen as long as no air can continue to enter.

Removing the Heat

The most common method of putting out fire is to remove the heat by attacking the fire base with water. An excellent heat absorber, water destroys the ability of a fire to sustain itself by cooling the fuel, by absorbing the fuel and by absorbing radiant heat from flames.

Stability Hazard

The use of large quantities of water to fight fires may jeopardize the stability of the vessel. Dewatering techniques must be commenced immediately when large quantities of water are used.

WARNING: The use of water on electrical fires is not recommended. On electrical fires, water creates a shock hazard. On oil fires, a solid stream will splash the oil, possibly spreading the fire. Water fog may be used on oil fires.

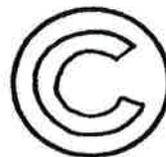
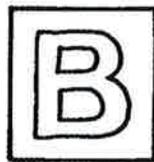
Spread of Fire

If a fire is attacked quickly and effectively, it can usually be contained and extinguished. If it is allowed to burn freely, however, it will generate great amounts of heat that can spread throughout the vessel and ignite new fires wherever fuel and oxygen are present.

Additionally, the heat flame, smoke and gases associated with fire pose many health hazards. Crewmen fighting a fire should use all available protective clothing and respiratory equipment and should stay low and retreat to fresh air before they are overcome.

Classification of Fire

To put out a fire successfully, you need to use the most suitable type of extinguishing agent — one that will do the job in the least amount of time, cause the least amount of damage and result in the least danger to crew members. The job of picking the proper agent has been made easier by the classification of fires into four types, or classes, lettered A through D. Within each class are all fires involving materials with similar burning properties and requiring similar extinguishing agents. However, most fuels are found in combinations and electrical fires always involve some solid fuel.

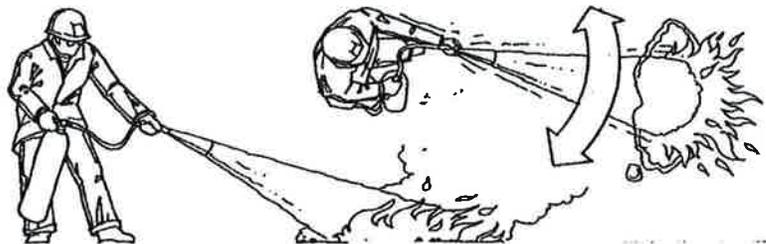


Class A Fires

Fires of common combustible solids such as wood, paper and plastics are best put out by WATER, a cooling agent. Foam and certain dry chemicals, which act mainly as smothering or chain-breaking agents, may also be used.

Class B Fires

For fires involving oil, grease, gas and other substances that give off large amounts of flammable vapors, a smothering agent is best for the job. Dry chemical, foam and carbon dioxide (CO₂) may be used. Water, although appropriate, in most cases



Aim at the base of the fire and sweep the flames away.

with inexperienced personnel will only make the fire worse. If the fire is being supplied with fuel by an open valve or a broken pipe, a valve on the supply side must be shut down to stop the fuel supply. This may put the fire out itself or at least make it easier to put out and allow the use of much less extinguishing agent.

Class C Fires

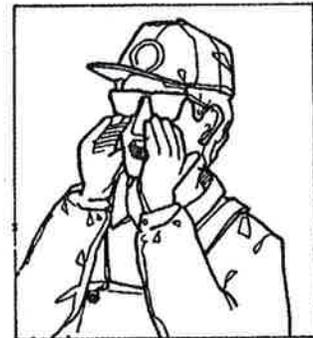
For fires involving energized electrical equipment, conductors or appliances, non-conducting extinguishing agents (CO₂, Halon, dry chemical) must be used, although dry chemical will ruin electronic equipment. An external generator and main engine shutdown switch should be available to shut off electrical sources. Always try to de-energize the circuit to remove the chances of shock and the source of ignition.

Class D Fires

These fires may involve combustible metals such as potassium, sodium and their alloys, and magnesium, zinc, titanium and powdered aluminum. Water should not be used on Class D fires. It may add to the intensity or cause the molten metal to splatter.

Hand-held Portable Fire Extinguishers

Portable extinguishers can be carried to the fire area for a fast attack, but they contain a limited supply of extinguishing agent. The agent is quickly used up and continuous application can exhaust the extinguisher in as little as 8 seconds. For this reason, it is important to back up the lead extinguisher with additional extinguishers or a hose line. If the first extinguisher fails or does not have enough agent to put out the fire completely, the additional extinguishers can be used to finish the job.



Sound the alarm.

Firefighting Procedures

The first step in fighting a fire is to sound the alarm and alert the captain and crew so the fire can be fought as a team. Vessels have been lost because someone tried to fight a fire by himself without sounding the alarm. By the time the rest of the crew knew what was happening the fire was out of control.

The crewmember that discovers a fire or the indications of fire must sound the alarm immediately. When you sound the alarm, be sure to give the exact location of the fire, including the compartment and deck level. This is important as it confirms the location for the vessel's fire party and gives them information regarding the type of fire to expect. The exact location may indicate the need to shut down certain fuel, electrical and ventilation systems and it indicates what doors and hatches must be closed to isolate the fire.

SIZE UP

Size-up is the evaluation of the fire situation. The fire team leader should determine:

- The class of fire (What combustible materials are burning?).
- The appropriate extinguishing agent.
- The appropriate method of attack.
- How to keep the fire from spreading.
- The required manpower and fire fighting assignments.

The first crew to arrive might extinguish a small fire. Larger fires require a coordinated attack and efficient use of manpower and equipment. During size-up, communication and a staging area should be set up.

Communications

Communications with the captain should be established by intercom or a messenger. Communications with fire fighting teams must be established and maintained.

Staging Area

The staging area should be established in a smoke-free area, as near as possible to the fire. An open-deck location, windward of the fire is ideal. If the fire is below deck deep within the vessel, the staging area should be a location below deck. A location near an intercom, if feasible, would be helpful in maintaining communications. However, the staging area should not be located where it will be endangered by fire. All supplies needed to support the firefighting effort should be brought to the staging area.

Attack the Fire

The attack should be started as soon as possible to gain immediate control of the fire and to prevent or minimize its spread. The attack will either be DIRECT or INDIRECT, depending on the fire situation, the equipment available and training level of the crewmen. Direct and indirect attacks differ widely in how they achieve extinguishments; both are effective when properly employed.

Direct Attack

In a direct attack, fire fighters advance to the immediate fire area and apply the extinguishing agent directly into the seat of the fire. An indirect attack should be considered if the heat and smoke make it impossible to locate or reach the seat of the fire.

Indirect Attack

An indirect attack is employed when it is impossible for fire fighters to reach the seat of the fire or they are not properly prepared as trained firefighters. Generally this is the case when the fire is in the lower portions of the vessel. The success of an indirect attack depends on the complete containment of the fire.

One technique involves making a small opening low into the fire space, inserting a fire hose nozzle and injecting a water spray. Heat converts the water to steam, which acts as a smothering agent.

Preventing Fire Spread

If a fire can be prevented from spreading beyond the space in which it originated, it can usually be controlled and extinguished without extensive damage. To do this, the fire must be virtually surrounded on all sides: fire fighters with the hose lines or portable extinguishers must be positioned to cover the flanks and the spaces above and below the fire. The possibility of the fire traveling through the venting system must also be considered. Many times in a fire at sea, the life rafts, life rings and PFD's are burned up before it occurs to anyone that the burning vessel might have to be abandoned.

Provisions should be made to safeguard and prepare life saving equipment during fire drills and actual fires.

Overhaul

Overhaul is begun after the main body of the fire is out. It is actually a combination of two procedures: EXAMINATION and CLEANUP. The purpose of the examination is to find and extinguish hidden fire and hot embers and to determine if the fire has spread to other parts of the vessel. At the same time, debris should be cleaned up and free water removed. Any unsafe conditions should be corrected.

When the Fire Is Out

Before a fire can be considered out, the crew must ensure that certain essential steps have been taken. These include:

- A thorough examination of the fire area to ensure that potential paths of fire spread have been examined.
- All smoke and combustion gases have been removed by ventilation.
- A reflash watch has been established. Crewmembers must be assigned to do nothing but check for re-ignition and to sound the alarm if it occurs.
- An examination has been made to see if the fire has damaged the vessel. High temperature can cause decks, bulkheads and other structural members to warp or become structurally unsound.
- Any necessary dewatering procedures have been started.
- A muster has been conducted to account for all personnel.

Tactical Considerations

- Alarm
- Organize and Stage
- Restrict and Confine
- Attack and Extinguish
- Protect Survival Gear
- Overhaul and Restore

Portable Extinguisher Operation

Pull The Pin

Aim Low at Base of Fire

Squeeze the Handle

Sweep from Side to Side

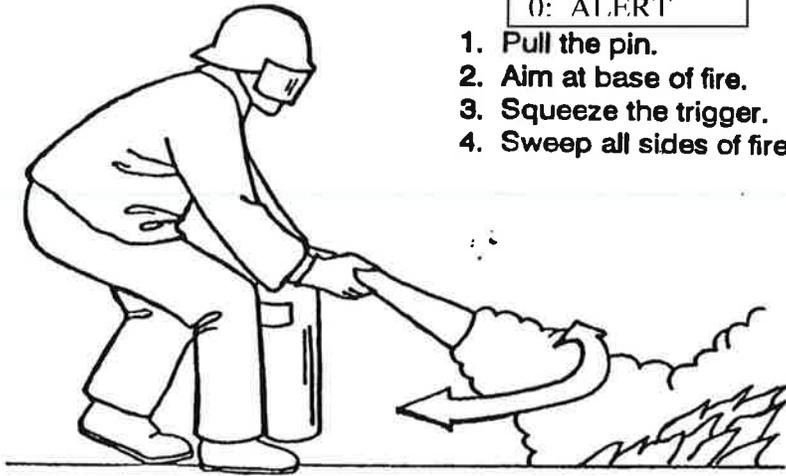
Fire Size-Up

- Where is the Fire?
- Are There People in the Space?
- What is Burning? What Class?
- What is the Best Agent?
- What is the Required Manpower?
- Can We Stop It from Spreading?

When the Fire Is Out

- Examine the Area Completely
- Ventilate Smoke and Gases
- Have Reflash Watch
- Damage Check to Vessel
- Dewatering Procedures
- Nose-Count of Personnel

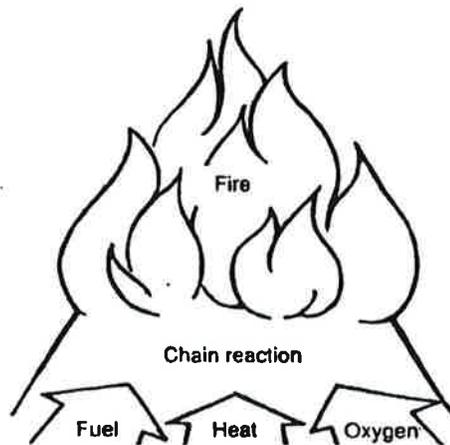
Using Fire Extinguishers



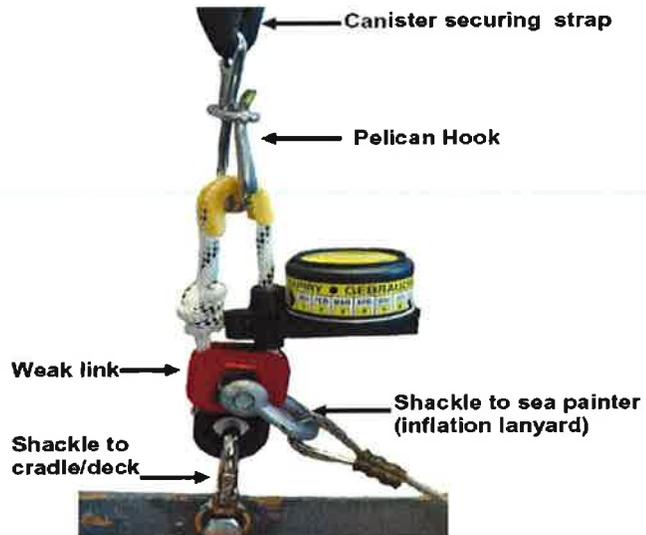
0: ALERT

1. Pull the pin.
2. Aim at base of fire.
3. Squeeze the trigger.
4. Sweep all sides of fire quickly.

Four Steps Leading to a Fire



LIFERAFTS



- 1) Check for proper float free arrangement.
- 2) Check expiration on hydrostatic release.
- 3) Check service date on raft.
- 4) Check for adequate capacity for yourself, captain, and crew.
- 5) Check to see if it is rated for offshore (SOLAS A)
- 6) Familiarize yourself with the location and the steps that would be needed to manually deploy it.

Southeast Fisheries Science Center
75 Virginia Beach Dr
Miami FL. 33149

January 23, 2012

MEMO TO: All POP Observers

MEMO FROM: Kenneth Keene
NOAA/NMFS Southeast Fisheries Science Center
Pelagic Observer Program

RE: POP Valise Life Raft

The POP has purchased a SOLAS A valise (soft pack) life raft with a four-man capacity. This will allow us to deploy on vessels where the observer's presence would exceed the vessel's life raft capacity. The following instructions will guide you in the use of the valise raft.

Equipment:

- Four man USCG approved ocean use valise raft with SOLAS A pack
- Carabiner attached via weak link to raft painter
- Pelican case to store and move raft from vehicle to vessel. (if shipped)
- Foldable aluminum hand truck for moving.
- Laminated copies of raft instructions and USCG approval letter

INSTRUCTIONS:

Receiving the raft:

Verify that the equipment listed above is with the raft (note that the SOLAS A pack is inside the raft, so you cannot access it). When you receive the raft it should be contained inside the case (if shipped) for ease of handling. Laminated copies of these instructions and the USCG approval letter will be zip tied to the exterior of the raft/case; **please remove these**, read, and store with your paperwork, however at the conclusion of your trip you need to re-attach them to the raft. Note that although you should remove the raft from the Pelican case, and you can attach the carabiner to an pertinent location on the vessel, you should NEVER attempt to open the valise pack, or pull the painter out much further than a foot or two. Normally, it will be convenient to keep the raft inside the case until you can load it onto the vessel. Although there may be situations where the vessel has room on board for both raft and case, we assume that generally you will have to separate the two and leave the case in your rental/personal vehicle. Even if there is room for both the case and the raft on the vessel, make sure to remove the raft from the case to facilitate quick deployment.

Storing the raft on board the vessel:

The USCG approval for use of this raft assumes it will be stored in an area that is easily accessible, including inside spaces like the wheelhouse or “ready room” (wet room). In small vessels, the main salon/galley area is also acceptable. The raft cover is NOT weather resistant and must be kept out of the elements as best as possible. Also, when moving the raft to and from the vessel, do NOT drag or pull the life raft on the ground-the cart is provided for this reason. The expected weather may influence where you and the captain choose to stow the raft; however you need to be vigilant regarding changes in conditions. Storage of the raft in an engine room, lazarette, or forepeak is NOT acceptable. Accessibility is key for this important piece of safety equipment.

Deploying the raft:

The steps to deploy the raft are exactly the same as in your safety training, except that because there is no hydrostatic release/cradle, you will not need to undo the hydrostatic release and remove the raft from the cradle. Either tie the painter to the vessel, or use the carabiner to attach the painter to a strong location on the vessel’s deck (In the latter case, should the vessel sink before the liferaft can be deployed, the raft will self deploy and detach from the vessel when weak link breaks). To deploy the raft after securing the painter, throw the raft overboard and pull the painter line out until resistance is felt, then a sharp tug on the painter should inflate the raft.

After your trip:

Remember the raft represents a significant expense to the program. When you leave the vessel, it should leave with you; place raft back inside the case and zip tie the instructions and USCG approval letter back on. In most cases it may be fine to leave the raft locked inside the vessel overnight, but it is never OK to leave the raft on deck overnight in port. Also, the raft CANNOT be shipped regular UPS. Therefore you will most likely need to stay in the area a little longer than usual to arrange for the shipment of the raft back to Miami or its next destination. NEVER leave the raft behind with vessel or fish house personnel for later shipping.

General policy information:

The provision of this raft for your trip should not be interpreted by vessel personnel that NMFS is responsible for providing safety equipment in order to make a vessel suitable for carrying an observer as required by regulation. In fact, NMFS is under no obligation to provide this raft. However, the POP (as well as some other observer programs) has purchased a raft as a courtesy to the industry. If the vessel captain or owner has any concerns about the use of the valise raft, they may read the USCG approval letter; if they have any further concerns they should contact the POP office at 800/858-0624.

U.S. Department of
Homeland Security

United States
Coast Guard



Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: CG-5433
Phone: (202) 372-1249
Fax: (202) 372-1917
Email: Jack.A.Kemerer@uscg.mil

16711

JUL 15 2008

MEMORANDUM

From: 
M. M. ROSECRANS
(COMDT) CG-5433

Reply to: CG-5433
Attn of: Jack Kemerer
202-372-1249

To: CGD SEVEN (dp)

Thru: CG LANTAREA (Ap)

Subj: NMFS OBSERVERS AND VALISE PACKED LIFERAFTS

Ref: (a) CGD SEVEN (dp) Memorandum 16711 of 3 June 2008
(b) NOAA Fisheries and USCG Memorandum of Agreement on Observer Safety dtd 21 December 2004
(c) Requirements for Commercial Fishing Industry Vessels, 46 CFR Part 28
(d) Implementation of Lifesaving Equipment Requirements for Commercial Fishing Vessels, NVIC 1-92 and Change 1
(e) COMDT (G-MVI-4) Letter 16711.10 of 18 December 1993

1. Issue. The NMFS Observer Program Managers and USCG District Prevention and CFVS Program Managers have requested interpretation and guidance on the use of valise-packed inflatable liferafts by NMFS observers, such as in reference (a). This is particularly applicable when an observer embarks on a fishing vessel that has an installed inflatable liferaft with sufficient capacity to accommodate only the crew of the vessel. The question then is whether or not the carriage of a valise-packed liferaft in addition to the currently installed liferaft provides an acceptable safety equipment level and such carriage is consistent with the intent and letter of the requirements set forth in 46 CFR Part 28.

2. Discussion.

a. References (b) through (e) state and discuss safety and survival equipment requirements regarding commercial fishing vessels. On smaller vessels, the installed liferaft often only has the capacity to accommodate the crew and not the NMFS observer. These may be four-man, non-SOLAS, but Coast Guard-approved liferafts. In these instances, NMFS has provided the observer with a valise-packed liferaft to ensure there is survival craft capacity for the observer. This action has been accepted by the Coast Guard as meeting the equipment requirements. There has been no change to the Coast Guard's acceptance of a NMFS observer bringing aboard a valise-packed liferaft that is Coast Guard-approved to meet the aggregate survival craft capacity to accommodate the total number of individuals on board the vessel.

b. In order for the observer's valise-packed liferaft to be acceptable for use and meet the survival equipment requirements onboard a commercial fishing vessel, the valise liferaft must be Coast Guard approved, as must the vessel's installed liferaft. A valise-packed liferaft will carry a 160.051/...series Coast Guard approval number. A valise-packed liferaft is not a SOLAS-approved liferaft, but is Coast Guard-approved for domestic service. The liferaft must also be fitted with a service pack appropriate to the area in which the vessel will be operating.

- c. Service pack types for non-SOLAS liferafts and valise-packed liferafts include:
- "Ocean Service" or "Ocean Service (A)" – for operating beyond 50 miles of the coastline;
 - "Limited Service" or "Limited Service (B)" – for operating between 20-50 miles of the coastline, cold waters; or
 - "Coastal Service" – for operating between 20-50 miles of the coastline in warm waters, or beyond the Boundary Line between 12-20 miles of the coastline in cold waters.

Note: the above service pack and liferaft requirements apply to documented vessels and undocumented vessels with more than 16 individuals on board.

d. The intent of the regulations and the guidance provide in NVIC 1-92 is that each vessel must have one or more inflatable liferafts of a combined capacity large enough to accommodate every person on board, and its service pack type based on the vessel's operating area. Liferafts placed on a vessel after September 15, 1991 must be of a type approved by the Commandant. Coast Guard-approved SOLAS liferafts are for six persons or greater and will carry approval numbers in the 160.151/...series. Survival equipment packs on SOLAS liferafts are marked "SOLAS A" for Ocean Service and "SOLAS B" for Limited Service. SOLAS liferafts must be stowed so as to float free and automatically inflate in the event the vessel sinks. Coast Guard-approved Non-SOLAS liferafts, including valise-packed liferafts, for domestic service are for four persons or greater and will carry approval numbers in the 160.051/...series. The survival equipment packs installed on Non-SOLAS liferafts are as listed in paragraph 2.c. Non-SOLAS liferafts must be kept readily accessible for launching or be stowed so as to float free in the event the vessel sinks. A valise-packed liferaft that is placed in the wheelhouse or ready room can be considered readily accessible for launching if it is kept where it can be reached immediately without constraint and its access is not blocked in any way.

3. Action. The interpretations discussed above regarding carriage of valise-packed inflatable liferafts by NMFS observers whenever they embark on a commercial fishing vessel should be distributed to all units and personnel who are involved with examining commercial fishing vessels and enforcing safety regulations applicable to such vessels. Specifically, examiners and boarding personnel must understand the following:

a. A valise-packed inflatable liferaft may be carried in addition to the vessel's installed liferaft to meet the aggregate capacity to accommodate the total number of individuals on board the vessel when the addition of a NMFS observer on board the vessel causes the number of persons to exceed the capacity of the vessel's liferaft.

b. A valise-packed inflatable liferaft, when carried aboard a vessel by a NMFS observer, must be Coast Guard-approved, have a 160.051/...series approval number, and be fitted with the appropriate survival equipment pack for the area in which the vessel will be operating.

c. A valise-packed inflatable liferaft, when carried aboard a vessel by a NMFS observer, must be placed or stowed where it is unobstructed and readily accessible for launching in an emergency.

#

Copy: All District (dpi)
NOAA NMFS Observer Program Manager

Proper Lifting Techniques

1. Plan ahead before lifting.

Knowing what you're doing and where you're going will prevent you from making awkward movements while holding something heavy. Clear a path, and if lifting something with another person, make sure both of you agree on the plan.

2. Lift close to your body.

You will be a stronger, and more stable lifter if the object is held close to your body rather than at the end of your reach. Make sure you have a firm hold on the object you are lifting, and keep it balanced close to your body.

3. Feet shoulder width apart.

A solid base of support is important while lifting. Holding your feet too close together will be unstable, too far apart will hinder movement. Keep the feet about shoulder width apart and take short steps.

4. Bend your knees and keep your back straight.

Practice the lifting motion before you lift the object, and think about your motion before you lift. Focus on keeping your spine straight--raise and lower to the ground by bending your knees.

5. Tighten your stomach muscles.

Tightening your abdominal muscles will hold your back in a good lifting position and will help prevent excessive force on the spine.

6. Lift with your legs.

Your legs are many times stronger than your back muscles--let your strength work in your favor. Again, lower to the ground by bending your knees, not your back. Keeping your eyes focused upwards helps to keep your back straight.

7. If you're straining, get help.

If an object is too heavy, or awkward in shape, make sure you have someone around who can help you lift.

8. Wear a belt or back support. (The POP will provide if asked.)

If you are lifting in your job or often at home a back belt can help you maintain a better lifting posture. For ideas on inexpensive back supports that can help support the low back while lifting, [click here](#).

Lifting

TIPS:

1. *Never bend your back to pick something up.*

It's just not worth the damage that improper lifting technique can cause.

2. *Hold the object close to your body.*

You are a much more stable lifter if you're not reaching for an object.

3. *Don't twist or bend.*

Face in the direction you are walking. If you need to turn, stop, turn in small steps, and then continue walking.

4. *Keep your eyes up.*

Looking slightly upwards will help you maintain a better position of the spine.

DRESS FOR SURVIVAL

Extra clothing will prolong your survival time by reducing loss of body heat and trapping air that will help keep you afloat. Put on plenty of warm clothing, including a watch cap. Wool or polypropylene clothing is best.

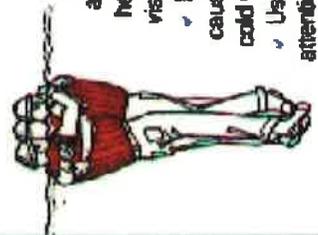
ENTERING THE WATER WITH A PFD

- ✓ If you are wearing a PFD:
 - ✓ Fasten PFD securely.
 - ✓ Cross your arms over your chest to help hold it down.
 - ✓ Block off your nose and mouth with one hand.
 - ✓ Protect your head.
 - ✓ Keep your feet together in case you land on something.
 - ✓ Check the area below before you enter.
 - ✓ Enter feet first.



IN THE WATER WITH A PFD

- ✓ Use the **HELP (Heat Escape Lessening Posture)** technique.
 - ✓ Huddle together as a group to decrease heat loss and increase visibility.
 - ✓ Don't swim! Swimming causes rapid heat loss in cold water.
 - ✓ Use a whistle to attract attention.

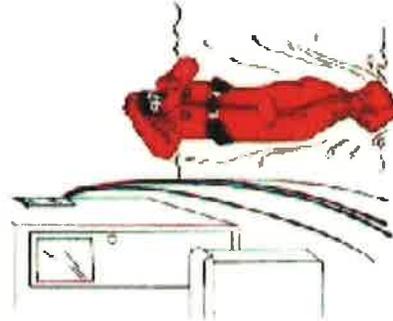


ABANDON SHIP!

- ✓ Give a proper **MAYDAY**: vessel name, position, nature of distress.
- ✓ The Captain gives the order to abandon ship.
- ✓ Stay clear of rigging.
- ✓ Throw buoyant objects over the side, if possible, to increase visibility.

IMMERSION SUITS

Immersion suits are your best protection against the cold and the harsh conditions of the water. Take care of it! Don't wait for an emergency! Regularly air it out and lubricate the zipper. Drill with the suit on so you know how it works.



ENTERING THE

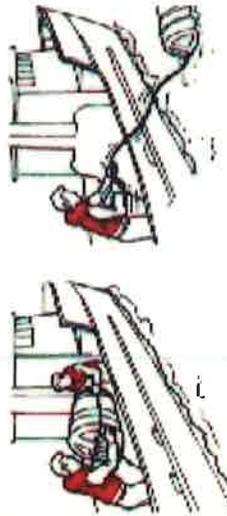
WATER:

- ✓ Fully zip suit and ensure all closures are snug.
- ✓ Enter water feet first, as slowly as possible; feet together, protect your head.
- ✓ Inflate external flotation bladder after entering the water.

RAFT STOWAGE

- ✓ Stow raft in a readily accessible location where it will float free.
- ✓ Secure raft canister to cradle or bed with a properly installed hydrostatic release.
- ✓ Secure painter firmly to vessel, with a weak link incorporated into the line.
- ✓ Install lateral canister carefully, ensuring it is not punctured and watertight gaskets are intact.

RAFT LAUNCHING



- ✓ Ensure launching area in water is free of debris.
- ✓ 2 orientation should grab the canister at the ends and toss it into the water on the lee side of the vessel. Do not cut bands.
- ✓ After launching, pull painter **until** raft inflates. (The painter may be as long as 250 feet.)
- ✓ Wait for full inflation - with the canopy erected - before boarding.
- ✓ Ensure raft is tied to vessel.
- ✓ Keep the raft tied to vessel as long as it is safe; the vessel is easier for rescuers to see.

HOW TO RIGHT A CAPSIZED RAFT

Grab the righting strap and pull. When it begins to right, spring backward and to the side.





June 2006

Issue 9E

UNITED STATES COAST GUARD COMMERCIAL FISHING VESSEL SAFETY PROGRAM

New Requirements for Chemical Testing Following Serious Marine Incidents

On December 22, 2005, the Coast Guard published a Final Rule in the Federal Register (Vol. 70, No. 245, Pages 75954-75961) that revises requirements for mandatory chemical testing following serious marine incidents involving vessels in commercial service, including commercial fishing industry vessels. The new requirements change or add to the regulations found in Title 46 Code of Federal Regulations (CFR) Part 4, Subpart 4.06. **The Final Rule is effective June 20, 2006.**

A serious marine incident (SMI) is any reportable marine casualty or accident involving a vessel in commercial service which results in:

- One or more deaths;
- An injury to a non-crewmember which requires professional medical treatment beyond first aid;
- An injury to a crewmember which requires professional medical treatment beyond first aid, and renders the individual unfit to perform routine duties;
- Damage to property in excess of \$100,000;
- Actual or constructive loss of any inspected vessel;
- Actual or constructive total loss of any uninspected self-propelled vessel of 100 gross tons or more;
- A discharge of oil of 10,000 gallons or more into the navigable waters of the United States; or
- A discharge of a reportable quantity of a hazardous substance into the navigable waters of the U.S., or a release of a reportable quantity of a hazardous substance into the environment of the U.S.

The changes to the regulations set time limits for marine employers to ensure individuals are tested for alcohol use, and specimens for drug testing are collected from individuals following a SMI, when it is determined those individuals were directly involved in the SMI. The rule also requires that most commercial vessels have alcohol testing devices on board, and authorizes the use of saliva as an acceptable specimen for alcohol testing.

Failure to comply with the chemical testing requirements may result in the assessment of a civil penalty of up to \$5,500 for each violation. Also, mariners holding credentials issued by the U.S. Coast Guard may face suspension or revocation proceedings if they do not comply with the testing requirements.

The following is a summary of the new requirements:

1. **Alcohol testing** must be conducted on each individual engaged or employed on board the vessel who is directly involved in the SMI. The testing must be conducted **within 2 hours** of when the SMI occurred, unless precluded by safety concerns directly related to the incident. If safety concerns cannot be addressed and testing conducted within 8 hours after the occurrence of the SMI, it is not required. In this situation, the marine employer must document on form CG-2692B the reason why testing was not conducted.

2. **Drug testing** must be conducted on each individual engaged or employed on board the vessel who is directly involved in the SMI. Collection of drug-test specimens must be conducted **within 32 hours** of when the SMI occurred, unless precluded by safety concerns directly related to the incident. If safety concerns prevent the collection of specimens within 32 hours, then specimens must be collected as soon as possible thereafter. If drug-test specimens are not collected, or the individual refuses to provide a specimen, the marine employer must document the reasons why on form CG-2692B. Individuals refusing to provide a specimen must be removed as soon as practical from duties that affect the safe operation of the vessel.

3. **Alcohol testing devices** must be readily available on board the vessel unless obtaining the devices and conducting the required testing can be accomplished within 2 hours from the time of occurrence of the SMI. **Saliva** is an acceptable specimen for alcohol testing.

Approved Evidential Breath Testing devices or Alcohol Screening Devices are on the National Highway Traffic Safety Administration's Conforming Products List. The lists can be viewed or downloaded from NHTSA's website at: <http://www.nhtsa.dot.gov/people/injury/alcohol/blood.htm>

Relatively inexpensive saliva Alcohol Screening Devices that meet minimum requirements are available in packages that could be separated to accommodate several vessels. Packages of 25 testing devices of some brands can be purchased for approximately \$125.

Become familiar with the new requirements. Contact your local Coast Guard office if you have questions.

www.FishSafe.info



XIV. CONTACT LIST

NATIONAL MARINE FISHERIES SERVICE HIGHLY MIGRATORY SPECIES MANAGEMENT DIVISION Margo Schulze-Haugen, Chief http://www.nmfs.noaa.gov/sfa/hms/ (301) 427-8503		
Topics	Office	Phone Number and Address
Commercial Swordfish Sharks Exempted fishing permits Atlantic HMS News List Pelagic and bottom longline Protected Species Shark and Swordfish LAPs	HMS Headquarters Office	Phone: (301) 427-8503; Fax: (301) 713-1917 Address: 1315 East-West Highway, NMFS/SF1 Silver Spring, MD 20910
Atlantic tunas Atlantic tunas dealer reporting Bluefin tuna Catch Document Program Charter/Headboat operations International Trade Permit	HMS Gloucester Office	Phone: (978) 281-9260; Fax: (978) 281-9340 Address: 55 Great Republic Drive NMFS/SF1 Gloucester, MA 01930-2298
Billfish Swordfish Tournament registration Billfish Certificate of Eligibility Pelagic Longline Workshops	HMS St. Petersburg Office	Phone: (727) 824-5399 Fax: (727) 824-5398 Address: 263 13 th Ave. South St. Petersburg, FL 33701
FISHING AND DEALER PERMITS		
- <i>Atlantic Shark and Swordfish Vessel and Dealer permits</i>	NMFS Southeast Regional Permit Office Webpage: http://sero.nmfs.noaa.gov/permits/permits.htm	Phone: (727) 824-5326 Address: 263 13 th Ave. South St. Petersburg, FL 33701
- <i>Atlantic tunas, Atlantic HMS Charter/Headboat and HMS Angling Vessel Permits</i>	Automated Permitting System Webpage: http://www.hmspermits.gov/	Phone: (888) 872-8862 Please dial "0" to speak with a person.
- <i>Atlantic tunas Dealer Permits</i>	NMFS Northeast Region Permit Office Webpage: http://www.nero.noaa.gov/permits/	Phone: (978) 281-9370; Fax: (978) 281-9366 Address: 55 Great Republic Drive Gloucester, MA 01930
<i>Incidental HMS Squid Trawl permit</i>	NMFS Northeast Region Permit Office Webpage: http://www.nero.noaa.gov/permits/	Phone: (978) 281-9370; Fax: (978) 281-9366 Address: 55 Great Republic Drive

See 50 CFR part 635 for the current Atlantic HMS regulations and 50 CFR part 300 subpart M for the ITP regulations. Regulations may change, and if disparities with this guide exist, the regulations prevail.

		Gloucester, MA 01930
Vessel Monitoring Systems (VMS)		
Kelly Spalding	National VMS Program Manager	(301) 427-2300
Patrick O'Shaughnessy	Southeast VMS Program Manager	(727) 824-5358

See 50 CFR part 635 for the current Atlantic HMS regulations and 50 CFR part 300 subpart M for the ITP regulations. Regulations may change, and if disparities with this guide exist, the regulations prevail.

NMFS LAW ENFORCEMENT OFFICES

Aguadilla, PR	(787) 890-0715	Morehead City, NC	(252) 726-0314
Bellport, NY	(631) 776-1734	New Bedford, MA	(508) 992-7711
Boston, MA	(617) 884-5754	Newport News, VA	(757) 595-2692
Charleston, SC	(843) 554-9896	Niceville, FL	(850) 729-8628
Ellsworth, ME	(207) 664-0508	Ocean City, MD	(410) 629-1258
Galveston, TX	(409) 770-0812	Portland, ME	(207) 780-3241
			(603) 436-3186
Gloucester, MA	(978) 281-9213	Portsmouth, NH	x224
Guaynabo, PR	(787) 749-4405	Slidell, LA	(985) 643-6232
Harlingen, TX	(956) 423-3450	St. Petersburg, FL	(727) 824-5344
Marathon, FL	(305) 743-3110	Titusville, FL	(321) 269-0004
Marmora, NJ	(609) 390-8303	Wall, NJ	(732) 280-6490
Miami, FL	(954) 746-4160	Woods Hole, MA	(508) 495-2147

24-Hour Enforcement Hotline: (800) 853-1964

The NMFS Office of Law Enforcement maintains a 24-hour hotline for the public to report potential violations of Atlantic HMS regulations. This number should be used only to report potential violations, not for general information, concerning Atlantic HMS.

U.S. COAST GUARD

Coast Guard Regulations

Commercial vessels are subject to the Fishing Vessel Safety Act of 1988. For information, contact one of the following local Coast Guard offices:

Maine to New York (617)223-8440

New Jersey to North Carolina (757)398-6554

South Carolina to Florida (305)415-6868

Gulf of Mexico (504)671-2154

Please also visit the Coast Guard Commercial Fishing Vessel Safety Program's website at:

www.fishsafe.info.

COOPERATIVE TAGGING PROGRAMS

To obtain a tuna, billfish, or swordfish tagging kit or report a tag recovery: (800) 437-3936

To obtain a shark tagging kit or report a tag recovery:

Apex Predators Investigation

NOAA/NMFS/NEFSC

28 Tarzwell Drive

Narragansett, RI 02882-1152 USA

401-782-3320 or (877) 826-2612

<http://na.nefsc.noaa.gov/sharks/>

To report Bluefin Tuna recreational landings in North Carolina or Maryland:

North Carolina Harvest Tagging Program: (800) 338-7804

Maryland Department of Natural Resources: (410) 213-1531

See 50 CFR part 635 for the current Atlantic HMS regulations and 50 CFR part 300 subpart M for the ITP regulations. Regulations may change, and if disparities with this guide exist, the regulations prevail.

STATE FISHING REGULATIONS

State	Agency	Contact Information
Maine	ME Department of Marine Resources http://www.state.me.us/dmr/index.htm	Phone: (207) 624-6550
New Hampshire	NH Fish and Game http://www.wildlife.state.nh.us/	Phone: (603) 868-1095
Massachusetts	MA Division of Marine Fisheries http://www.mass.gov/dfwele/dmf/	Phone: (617) 626-1520
Rhode Island	RI Department of Environmental Management http://www.dem.ri.gov/	Phone: (401) 789-3094
Connecticut	CT Department of Environmental Protection http://www.ct.gov/dep/site/default.asp	Phone: (860) 424-3000
New York	NY Department of Environmental Conservation http://www.dec.ny.gov/	Phone: (631) 444-0430
New Jersey	NJ Fish and Wildlife http://www.state.nj.us/dep/fgw/	Phone: (609) 292-2083
Delaware	DE Division of Fish and Wildlife http://www.fw.delaware.gov/Pages/FWPortal.aspx	Phone: (302) 739-9914
Maryland	MD Department of Natural Resources http://www.dnr.state.md.us/	Phone: (410) 260-8264 (877) 620-8367
Virginia	VA Marine Resources Commission http://www.mrc.state.va.us/	Phone: (757) 247-2200
North Carolina	NC Division of Marine Fisheries http://www.ncfisheries.net/	Phone: (252) 808-8013 (800) 682-2632
South Carolina	SC Department of Natural Resources http://www.dnr.sc.gov/	Phone: (843) 953-9312
Georgia	GA Department of Natural Resources http://www.gadnr.org/	Phone: (912) 264-7218
Florida	FL Fish and Wildlife Conservation Commission http://www.floridaconservation.org/	Phone: (850) 487-0554
Alabama	AL Department of Conservation and Natural Resources http://www.outdooralabama.com/	Phone: (251) 861-2882 (251) 968-7576
Louisiana	LA Department of Wildlife and Fisheries http://www.wlf.state.la.us/	Phone: (225) 765-2800
Mississippi	MS Department of Marine Resources http://www.dmr.state.ms.us/	Phone: (228) 523-4078
Texas	TX Parks and Wildlife Department http://www.tpwd.state.tx.us/	Phone: (512) 389-4800 (800) 792-1112
Puerto Rico	Caribbean Fishery Management Council http://www.caribbeanfmc.com/	Phone: (787) 766-5927
U.S. Virgin Islands	Caribbean Fishery Management Council http://www.caribbeanfmc.com/	Phone: (787) 766-5927

See 50 CFR part 635 for the current Atlantic HMS regulations and 50 CFR part 300 subpart M for the ITP regulations. Regulations may change, and if disparities with this guide exist, the regulations prevail.

January 2010

Pelagic Observer Program safety policies

Training:

All POP observers must have completed and passed a NMFS Observer Safety training course (minimum of 2.5 days of safety training) before deployment. Every three years, observers must complete and pass a safety refresher course. Observers must take First Aid/CPR every three years.

Safety Gear:

The following health and safety gear will be issued to all POP observers and *must* be brought on board for every trip:

-Immersion suit with strobe and signal mirror

-EPIRB

-Automatic inflatable PFD (may substitute another USCG-approved PFD for the issued PFD upon agreement with POP staff)

-First Aid Kit

-Hibiclens/hibistat and staphaseptic

The following health and safety gear will be issued to observers upon their request:

-Back support belt

-Bucket

All safety gear should be checked for proper working condition before each trip or once a calendar quarter, whichever is more often. Consult your Safety Manual or call the POP safety coordinator for instructions on how to test the gear.

Pre-deployment:

A POP pre-trip safety checklist *must* be completed before the vessel leaves the dock. You *may not* deploy on a vessel that does not have a current USCG Commercial Fishing Vessel Examination decal or lacks any of the main safety items on the pre-trip safety checklist. If there are any deficiencies, contact the POP office. If you cannot reach the POP office, remember you cannot deploy on the vessel. *When in doubt, do not deploy!* It is also the POP's policy to allow observers to refuse to board a vessel for documented health and safety concerns, even if the vessel has a current USCG decal and passes the POP pre-trip safety checklist. However, in these cases the POP will require a written statement by the observer documenting the concerns.

During the trip:

- During gear haulbacks, observers are required to wear closed-toed footwear on deck. Bare feet or sandals are absolutely forbidden.
- During fishing operations, observers are required to wear a PFD while on deck. Observers are also required to wear a PFD when alone on deck.
- Observers may not help in any fishing activities or operation of the gear, or stand watches. However, observers may help with general clean up.
- Observers are prohibited from swimming during deployments.
- All injuries or illnesses will be reported to contract supervisor *and* POP staff.
- Observers may not lift or attempt to lift heavy objects (>50 lbs) without help

After the trip:

- During debriefing, observers will provide information regarding injuries, illnesses, and close calls during the trip, as well as evidence of staph infections on the vessel.

Instructions for the Pelagic Observer Program's Vessel Safety Checklist

The safety checklist provided by the NOAA Pelagic Observer Program (POP) in Miami, FL is mandatory to be completed prior to each trip made by a fisheries observer. The checklist is important to assure not only the safety of the observer, but can bring attention to the captain or crew of safety deficiencies they may not have been aware of. The following set of instructions should be coupled with the following two pages of a mock checklist. If you have any questions about the safety checklist, you can contact the safety coordinator or call the POP 800 number.

The following numbered instructions parallel the yellow boxes on the mock safety checklist:

#

- 1) Trip number: record the six character observer/trip identifier. This should be used on all data forms and field notes for a single trip.
- 2) Vessel Name: record the vessel name. Take care with spelling and F/V is not necessary.
- 3) Vessel Number: record the 6-7 digit USCG documentation number. If the vessel does not have a USCG number, record the state registration number and include the two letter state abbreviation prefix.

EPIRB: (do not handle the EPIRB, ask captain or crew to handle it for inspection)

- 4) EPIRB Category 1 Present: if there is a Category 1 EPIRB present onboard circle "YES". If no Category 1 EPIRB is present circle "NO". This would be an opportune time to judge the effectiveness of such an EPIRB in case of an emergency. BE SURE IT IS IN A FLOAT FREE ARRANGEMENT.
- 5) Location: record the location of the EPIRB on the vessel. (starboard house, etc)
- 6) Battery Expiration: record the expiration on the EPIRB. This is found in various location for various brands. The battery expires on date displayed. If the battery expiration cannot be read or is missing, request captain/crew to test the EPIRB. Note the Result in section 24.
- 7) Hydrostatic Release Expiration: the hydrostatic release for an EPIRB should have an expiration displayed. Record the date. The release expires on date displayed.

- 8) NOAA Registration Expiration: record the NOAA registration expiration date. An example of this sticker with the information will appear like number 17 on this form.

LIFE RAFT:

- 9) Life Raft Manufacturer: write in the manufacturer of the life raft. (i.e. Viking, Switlik, Revere, etc.)
- 10) Is liferaft release properly setup: if the release is set up properly as seen in #18, circle "YES". If not properly set up circle "NO".
- 11) Number of Type 1 PFD's: Record the number of type one PFD's on board the vessel. Include your POP issued Type II.
- 12) Number of Throwable PFD's (rings or lifesling typically): Record the number of throwable PFD's on the vessel. The throwable PFD's must be 24 inches and have adequate rope based on the size of the vessel. Be sure the throwable is accessible and usable in an emergency situation.
- 13) Number of Immersion Suits: Record the number of immersion suits aboard the vessel. Typically there will only be immersion suits above 32' 00 N Latitude. Always include your POP issued suit.
- 14) USCG CFVS Decal Number: Record the number issued by the USCG on the safety decal. This is found on the center bottom of the sticker.
- 15) Date of Expiration: Record the date of the issuance or expiration, depending on the version of the sticker present, on the USCG CFVS decal. This appears on the right side of the sticker.
- 16) Picture of USCG CFVS Decal: Mark the example sticker to reflect the information **exactly as it is** on the vessels decal.
- 17) Example of NOAA/SARSAT EPIRB registration decal. Information is used for #8.
- 18) Example of proper weak link setup for a liferaft.
- 19) Total Number of Fire Extinguishers: On first line write in the number of working available fire extinguishers onboard. On the "Location" lines, write in location where the fire extinguishers can be found. Make sure extinguishers are charged and circle "YES" or "NO" on the checklist. Check for expiration on the extinguishers and record on the sheet.

- 20) Flares: Record the number of individual types of flares and record. There should be at least 3 parachute flares, 6 hand flares, and 3 smoke flares. Record the location where the flares are found, and CHECK the expiration dates.
- 21) First Aid Kit Location: Record the location of the first aid kit.
- 22) CPR/First Aid Trained Capt/Crew: Record the name of the Captain or crew member who is certified in CPR and First Aid.
- 23) After completing this form, complete a thorough vessel check to your personal standards. Record any concerns below. If any concerns will delay the departure of the trip, contact the POP office immediately.
- 24) Record any notes relevant to the safety checklist or your personal safety check (i.e. added POP Valise raft).
- 25) Signatures: Be sure that you (the observer) and the captain or the owner sign and date the safety checklist.

Safety is priority number one. If for any reason you do not feel comfortable to go on a vessel because of safety concerns, the POP will back your decision 100%. If there are any questions concerning this list or other safety related information contact Ken Keene at 305-361-4275, or the POP number 1-800-858-0624 for further assistance.

BE SAFE!!

****FYI: Safety equipment expires on the date displayed on the equipment. For equipment that only displays a month and year as an expiration date, the expiration is on the last day of that month of the year displayed.****

January 2010

Pelagic Observer Program safety policies

Training:

All POP observers must have completed and passed a NMFS Observer Safety training course (minimum of 2.5 days of safety training) before deployment. Every three years, observers must complete and pass a safety refresher course. Observers must take First Aid/CPR every three years.

Safety Gear:

The following health and safety gear will be issued to all POP observers and *must* be brought on board for every trip:

-Immersion suit with strobe and signal mirror

-EPIRB

-Automatic inflatable PFD (may substitute another USCG-approved PFD for the issued PFD upon agreement with POP staff)

-First Aid Kit

-Hibiclens/hibistat and staphaseptic

The following health and safety gear will be issued to observers upon their request:

-Back support belt

-Bucket

All safety gear should be checked for proper working condition before each trip or once a calendar quarter, whichever is more often. Consult your Safety Manual or call the POP safety coordinator for instructions on how to test the gear.

Pre-deployment:

A POP pre-trip safety checklist *must* be completed before the vessel leaves the dock. You *may not* deploy on a vessel that does not have a current USCG Commercial Fishing Vessel Examination decal or lacks any of the main safety items on the pre-trip safety checklist. If there are any deficiencies, contact the POP office. If you cannot reach the POP office, remember you cannot deploy on the vessel. *When in doubt, do not deploy!* It is also the POP's policy to allow observers to refuse to board a vessel for documented health and safety concerns, even if the vessel has a current USCG decal and passes the POP pre-trip safety checklist. However, in these cases the POP will require a written statement by the observer documenting the concerns.

During the trip:

- During gear haulbacks, observers are required to wear closed-toed footwear on deck. Bare feet or sandals are absolutely forbidden.
- During fishing operations, observers are required to wear a PFD while on deck. Observers are also required to wear a PFD when alone on deck.
- Observers may not help in any fishing activities or operation of the gear, or stand watches. However, observers may help with general clean up.
- Observers are prohibited from swimming during deployments.
- All injuries or illnesses will be reported to contract supervisor *and* POP staff.
- Observers may not lift or attempt to lift heavy objects (>50 lbs) without help

After the trip:

- During debriefing, observers will provide information regarding injuries, illnesses, and close calls during the trip, as well as evidence of staph infections on the vessel.

January 2012

LONGLINE HAUL LOG

This log is completed for each deployment of pelagic longline gear set and hauled. It reflects all the physical information relating to a single set/haul fished: weather, water depth, hook depth, bait, target species, set/haul dates, times, position, and water temperature. The LONGLINE HAUL LOG will serve as a cover sheet and the INDIVIDUAL ANIMAL LOG/S will follow with all associated catch.

All changes from the 2011 version of this form will be marked in red. Only fill in numbers of items if you have marked the checkbox for that item; if you have not marked the box, leave the item number blank. However, on item information that calls for a number but does not have a yes/no checkbox, if there are zero items used you must fill in a zero.

INSTRUCTIONS**HEADER**

1. OBSERVER/TRIP Identifier: Record your assigned three character observer identifier + your three digit sequential deployment number. A trip is defined as any dock to dock deployment where pelagic longline fishing occurs, or any dock to dock deployment of over 12 hours, regardless of if fishing effort takes place or not. The exception is if you stay on the same vessel and do not unload fish; in this case use the same trip number. This will be the unique trip number for all logs and field notes associated with a single trip.
EXAMPLE: **A12005**
2. VESSEL NAME: Record the name of the vessel you are deployed on. Care should be taken to record the correct spelling of the vessel's name. Do not use any punctuation; hyphens, commas or periods in vessel name fields.
EXAMPLE: **MR ADVENTURE, SY KI MAI, MISSYS DREAM**

3. VESSEL NUMBER: Record the six or seven digit U.S. Coast Guard Documentation Number. If the vessel does not have a Coast Guard Number, record the state registration number and include the two letter state abbreviation prefix. This is not the same as the NMFS or state fishing permit number.
EXAMPLE: USCG documentation number - **234567**
State registration number - **FL234567**
4. DATE LANDED: Record the month, day and year the vessel arrives back in port. This may not be same date the catch is unloaded.
EXAMPLE: **01/01/2002**

HAUL AND GEAR INFORMATION

5. HAUL NUMBER: Record the haul number each time longline gear is set/hailed. Start with 1 for the first haul and continue sequentially for all hauls made within in a single trip. If a line is cut during the set this should be treated as two separate sets and hauls, each having its own haul log and associated animal logs. If a set is made immediately after another set and both sets soak at the same time, the set of that pair that is **hailed** first is numbered next, **not** the one that was set first.
6. GEAR CODE: Record the three digit TIP code for the gear fished during this haul.

Pelagic Longline = **675**
Bottom longline = **676**
7. PAGE NUMBER: Record the total number of pages used on this haul. The cover page for each haul will always be page number 1 and any associated INDIVIDUAL ANIMAL LOG sheets, will start with page number 2.
8. HAUL OBSERVED? If the haul was observed, place a check or "X" in the checkbox; if not leave the checkbox blank.
Note: An **observed haul** is defined as one where all of the catch and bycatch hauled is recorded. An **unobserved haul** is defined as one where complete discard information is **not** collected. Reasons for unobserved hauls include illness, safety concerns, etc. Always record the reason for an unobserved haul in the COMMENTS section.

9. CATCH?: If this haul had any associated catch or bycatch, recorded on the INDIVIDUAL ANIMAL LOG, place a check or "X" in the checkbox; if not leave the checkbox blank.
10. INCIDENTAL TAKE?: Indicate whether a marine mammal, sea bird or sea turtle was caught in this haul by placing a check or "X" in the checkbox; if not leave the checkbox blank. If box is checked, the animal(s) should appear on the INDIVIDUAL ANIMAL LOG and also on separate SEA TURTLE, MARINE MAMMAL, OR SEA BIRD INDIVIDUAL LIFE HISTORY FORMS (as appropriate).
11. WEATHER: Record the two digit code for the weather at the **beginning** of the haul.
- 01 - Clear
 - 02 - Partly cloudy
 - 03 - Continuous layer of clouds
 - 04 - Drizzle
 - 05 - Continuous Rain
 - 06 - Intermittent Rain/Showers
 - 07 - Thunderstorms with lightning
 - 08 - Rain with fog
 - 09 - Fog or thick haze
 - 10 - Snow or rain and snow mixed
 - 11 - Blowing snow
 - 99 - Other, please describe in field #41 **COMMENTS**
12. WIND SPEED: Record the maximum wind speed, in whole knots, at the **beginning** of the haul. Use Beaufort sea state table to estimate wind if needed. A number is needed here, even if it is "0".
13. WIND DIRECTION: Record the direction, in compass degrees, of the wind at the **beginning** of the haul. Wind coming from the northeast would be recorded 045. If wind is light or wind direction is difficult to determine, record either "VAR" for variable wind or a dash "-" for undetermined.
14. WAVE HEIGHT: Record the maximum wave height, in whole feet, at the **beginning** of the haul. If the wave is less than six inches, record 0.

15. REVERSE HAUL? Indicate whether this was a reverse haul by placing an "X" next to the appropriate YES or NO blank.
A reverse haul is when the last hook set is the first hook hauled.

16. GEAR CONDITION: Indicate the condition of the gear at the completion of the haul back by recording the most appropriate two digit code listed below.

- 60 = No gear damage with **greater** than 10% hooks lost
- 61 = No gear damage with **less** than or equal to 10% hooks lost
- 62 = Less than 50% fouled gear due to weather/oceanic conditions. Gear tangled, spun up or otherwise lowered gear fishability.
- 63 = More than 50% fouled gear due to weather/oceanic conditions. Gear tangled, spun up or otherwise lowered gear fishability.
- 66 = Parted off, gear recovered (ONLY if part off results in >20 min lost time)
- 67 = Parted off, gear not recovered
- 68 = Gear completely damaged or lost
- 69 = Split haul (portion of gear having additional soak time)
- 70 = Lowered fishability due to gear conflicts
- 99 = Other

Please specify **other** gear condition in field #42 **COMMENTS**

17. STRING NUMBER: Record the string number that best describes the configuration fished in this haul. This number relates directly to the LONGLINE GEAR LOG string number.

If there are multiple combinations of gear (more than two gangion lengths or three dropline lengths) or a change in target species, then an additional LONGLINE GEAR LOG may need to be completed and the appropriate string number entered in field #16. (see field#23)

18. MAINLINE LENGTH: Record the length, to the nearest tenth of a nautical mile, of the main line for this set. Use available electronics or calculate using avg set speed X set duration. If you use calculations, make sure to round input numbers (speed and time) to the tenth before calculating. The default method should be calculation, if the information comes from another method please note it in the COMMENTS.

EXAMPLE: Begin set 1706, end set 2051, set speed 7.14 kts
3 hrs 45 min → 3.75 → 3.8 x 7.1 = 26.98 → 27.0 nm

Note: 1 nautical mile = 6080 feet

19. SET SPEED: Record the vessel's speed, to the nearest tenth of a knot, during the setting of gear. This may be an average speed obtained from available electronics or a calculated value from mainline length /set duration.
20. BOTTOM DEPTH RANGE: Record, to the nearest fathom, the minimum and maximum depths over the bottom, which the gear fished for this haul. This can be taken from a chart or from available electronics. **Note: 1 fathom = 6 feet**
21. HOOK DEPTH RANGE: Record, to the nearest fathom, the minimum and maximum depths the hooks fish. This is calculated by adding **dropline length + gangion length + leader length**.
22. TOTAL ADDITIONAL WEIGHT: Record, to the nearest pound, the total weight of additional line weights for the haul. This is weight attached to mainline, **not** associated with radar reflectors, radio beacons, anchors or gangions/leaders. If no additional weights are used, enter "0".
23. TARGET SPECIES: Record the primary species being targeted in this haul, using one of the following 3 character abbreviations: SWO, TUN, YFT, BET, SHX, DOL or MIX

This information is obtained from the captain prior to fishing activity but should also reflect gear and deployment characteristics. "MIX" may be used when multiple species are being targeted. Consult POP staff if an unusual gear configuration is being used. A change in target species might require an additional Gear Log and string number (consult POP staff).

24. Field omitted. (Was previously soak duration).

ITEMS USED?

25. TYPE: Record whether each type of item listed is used on the gear in this haul, by placing a check or "X" in the checkbox; if not leave the checkbox blank.

26. NUMBER: Record the number of each item used on the gear. All items with an "X" marking YES should have a number value > 0. For items **not** used, leave space.

NUMBER OF HOOKS

27. SET: Record the number of hooks used for this set.

28. LOST: Record the number of hooks lost. This should relate to field #16 **GEAR CONDITION** and may include "bite offs", "cut offs" and missing hooks.

29. TENDED: Record the number of hooks pulled prior to begin haul. A practice called "hotlining", when a vessel runs the line and pulls individual hooks where floats are submerged. This was commonly used in the live bait tuna fleet, Gulf of Mexico *note live bait fishing was disallowed in Sept, 2000.

30. REBAITED: Record the number of hooks pulled, rebaited and put back into the water. This number will be added to the hooks set number to get total hooks in any effort analysis. *note bait number should reflect hooks set + rebaited hooks.

BAIT INFORMATION

31. NUMBER: Record the number of individual baits used. You can account for up to three different baits. *note, record the larger number of bait kind used in bait #1; also all numbers **MUST** add up to equal number of hooks set.

32. LBS: Record, to the nearest pound, the total weight of bait used. You can account for up to three different baits. *note, record the bait kind with the heavier pounds used in bait #1 if bait number is the same.

EXAMPLE: 400 baits of mackerel weighing 260 lbs would be listed as bait #1 and 400 baits of squid weighing 172 lbs would be listed as bait #2.

33. KIND: Record the two digit code that identifies the bait used. You can account for up to three different baits.

Mackerel	= 01
Herring	= 02
Squid	= 03
Artificial	= 04
Sardine	= 05
Scad	= 06
Other	= 99

Note: only use 04 (artificial) for lures that are used alone on a hook, i.e. not in combination with natural baits. If artificials are used in combination (for example, skirts with sardines), use the proper natural bait code and describe the artificial use in the COMMENTS section.

34. TYPE: Record the one digit code that describes the type of bait used. You can account for up to three different baits.

Whole	= 1
Cut	= 2
Live	= 3
Other	= 9

35. CONDITION: Record the one digit code that describes the condition of the bait used. You can account for up to three different baits. Note that bait coded as TYPE 3 (live) will always be coded as CONDITION 4 (fresh).

Frozen	= 1
Semi Frozen	= 2
Thawed	= 3
Fresh	= 4
Salted	= 5
Other	= 9

SET/HAUL INFORMATION

36. SET/HAUL BEGIN/END DATES: Record the month, day and year this set began and ended. Record the month, day and year this haul began and ended.
EXAMPLE: 01/01/2002
37. SET/HAUL BEGIN/END TIMES: Record the local time (24 hour clock) this set began and ended. Record the local time this haul began and ended. Local time is defined as the time used on the vessel. If time used on the vessel is not the same as actual local time, please note in comments.
EXAMPLE: **0730** (7:30 AM) **1930** (7:30PM)
38. BEARING/LATITUDE: Record latitude in degrees and minutes and include the hemisphere (N or S) when this set began and ended and when this haul began and ended. If you can only get LORAN then record both TD's and LORAN chains. These values will be converted to lat/lon prior to data entry.
EXAMPLE: **29 05 N** or 61500 (7980Z) Enter leading zeros.
39. BEARING/LONGITUDE: Record longitude in degrees and minutes and include the hemisphere (E or W) for when this set began and ended. If you can only get LORAN then record both TD's and LORAN chains. These values will be converted to lat/lon prior to data entry.
EXAMPLE: **09 03 W** or 43900 (7980Y) Enter leading zeros, but not more than two characters for longitude (e.g. 09 not 009).
40. SET/HAUL BEGIN/END WATER SURFACE TEMPERATURE: Record, to the nearest tenth of a degree Fahrenheit, the sea water temperature. Record the water temperature for when this set began and ended. You can obtain this from available electronics or from a surface temperature, taken with a digital thermometer (rated to + or - 0.5 degree Fahrenheit)
41. LOST TIME: Record total time lost, to nearest tenth of an hour, searching for gear due to part offs, mechanical repairs, or other breaks (**>20 minutes**) in the normal hauling operations that occur during the haul back. If there is no lost time, enter "0.0". Reasons and times are recorded in the COMMENTS section of the Haul Log.
Example: **PART OFF 0820-0900 - 0.7 HRS SEARCHING FOR GEAR**

42. COMMENTS: Indicate additional information concerning this haul was recorded by placing an "X" next to YES=1. The first comment will always indicate the number of bent hooks in the form BH=XX (two digits). A bent hook is defined as bent or straightened to the point that the hook is no longer used by the vessel. Examples of additional comments can be light stick placement, part-off times, and any additional, pertinent information. If more space is required, use the back of the sheet and include "see back" on the front.

Split hauls - Defined as hauls where either the mainline is intentionally cut **or not** to allow remaining gear to soak longer OR more than 6 hours has elapsed between hauling operations of two different portions of the same set. The portion of gear that received more soak time will require another haul log. Use the next sequential haul number, record the same set date, time, position, temp and duration but record the new begin haul and end haul information. When a split haul occurs, the **mainline length** and **numbers of gear items** on each of the two haul logs involved will need to be recalculated to reflect the two separate retrievals, **but this information will need to be recombined on the distance calculation table to represent the single setting of gear. The haul with the additional soak time gets a gear condition code of 69.** Other situations that may result in a **split haul** are when there is a part off and several hours (more than 6) is spent searching; when nightfall delays the search or the continuation of the haulback until the following morning, or when another vessel retrieves a portion of the gear. This last situation would also require that the split haul be recorded as **not observed**.

BEAUFORT WIND FORCE SCALE: Specifications and equivalent speeds for use at sea

FORCE	Equivalent miles/hr	Speed knots	Wave m	Height ft	Description	Map Symbols	U.S. Advisory Flags	SPECIFICATIONS FOR USE AT SEA
0	0-1	0-1	0	0	Calm			Sea like a mirror
1	1-3	1-3	.1	.33	Light Air			Ripples with the appearance of scales are formed, but without foam crests.
2	4-7	4-6	.2	.66	Light Breeze			Small wavelets, still short, but more pronounced. Crests have a glassy appearance and do not break.
3	8-12	7-10	.6	2	Gentle Breeze			Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered white horses.
4	13-18	11-16	1	3.3	Moderate Breeze			Small waves, becoming larger; fairly frequent white horses.
5	19-24	17-21	2	6.6	Fresh Breeze			Moderate waves, taking a more pronounced long form; many white horses are formed. Chance of some spray.
6	25-31	22-27	3	9.9	Strong Breeze		Small Craft Advisory 	Large waves begin to form; the white foam crests are more extensive everywhere. Probably some spray.
7	32-38	28-33	4	13	Near Gale			Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.
8	39-46	34-40	5.5	18	Gale		Gale Warning 	Moderately high waves of greater length; edges of crests begin to break into spindrift. The foam is blown in well-marked streaks along the direction of the wind.
9	47-54	41-47	7	23	Severe Gale			High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.
10	55-63	48-55	9	30	Storm		Storm Warning 	Very high waves with long over-hanging crests. The resulting foam, in great patches, is blown in dense white streaks along the direction of the wind. On the whole the surface of the sea takes on a white appearance. The 'tumbling' of the sea becomes heavy and shock-like. Visibility affected.
11	64-72	56-63	11.5	38	Violent Storm			Exceptionally high waves (small and medium-size ships might be for a time lost to view behind the waves). The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere the edges of the wave crests are blown into froth. Visibility affected.
12	73-83	64-71	14+	46+	Hurricane		Hurricane Warning 	The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected.

"The scale was created in 1806 by Sir [Francis Beaufort](#), a British naval officer. The initial scale did not have wind speeds, but listed a set of qualitative conditions

from 0 to 12 by how a naval vessel would act under them - from 'just sufficient to give steerage' to 'that which no canvas could withstand'. The scale was made a standard part of log entries for Royal Navy vessels in the late 1830s." From Wikipedia



Force 0
Sea like a mirror



Force 1
Ripples with the appearance of scales are formed, but without foam crests.



Force 2
Small wavelets, still short, but more pronounced. Crests have a glassy appearance and do not break.



Force 3
Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered white horses.



Force 4

Small waves, becoming larger; fairly frequent white horses.



Force 5

Moderate waves, taking a more pronounced long form; many white horses are formed. Chance of some spray.



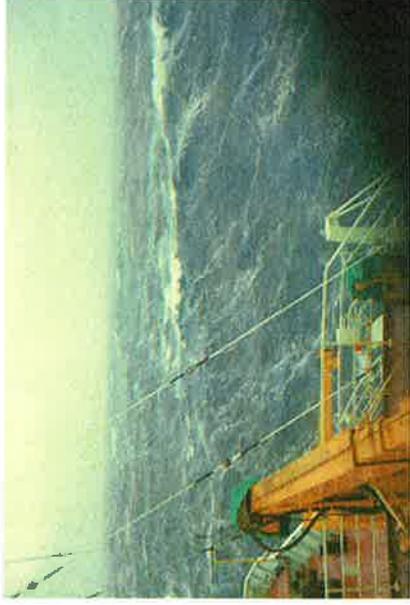
Force 6

Large waves begin to form; the white foam crests are more extensive everywhere. Probably some spray.



Force 7

Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.



Force 8

Moderately high waves of greater length; edges of crests begin to break into spindrift. The foam is blown in well-marked streaks along the direction of the wind.



Force 9

High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.



Force 10

Very high waves with long over-hanging crests. The resulting foam, in great patches, is blown in dense white streaks along the direction of the wind. On the whole the surface of the sea takes on a white appearance. The 'tumbling' of the sea becomes heavy and shock-like. Visibility affected.



Force 11

Exceptionally high waves (small and medium-size ships might be for a time lost to view behind the waves). The sea is completely covered with long white patches of foam lying along the direction of the wind. Everywhere the edges of the wave crests are blown into froth. Visibility affected.



Force 12

The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected.

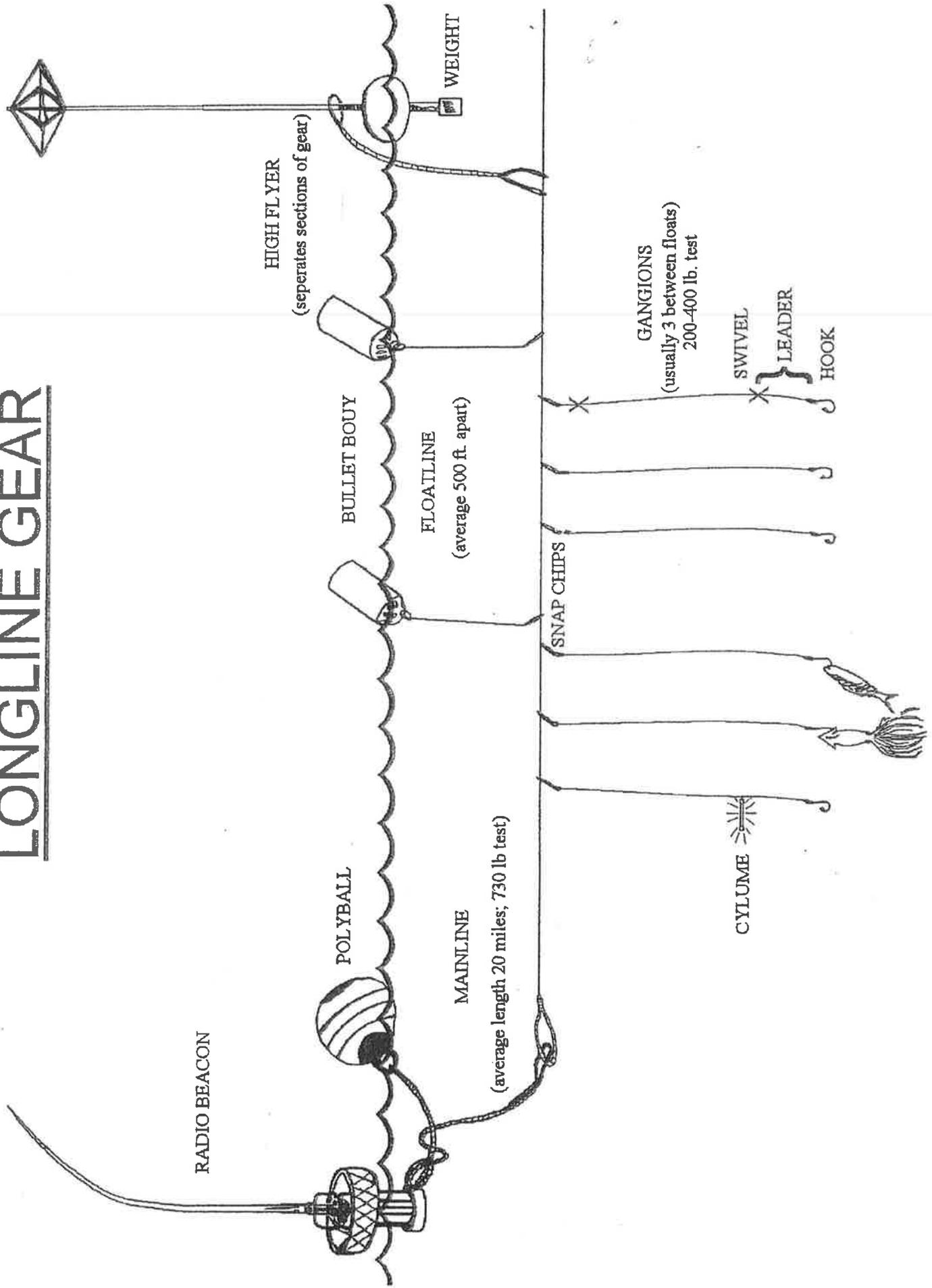
Pictures provided by N.O.A.A.

Pierson - Moskowitz Sea Spectrum vs Beaufort Force
(Sea State Table)

Force	Sea State	Significant Wave (Ft)	Significant Range of Periods (Sec)	Average Period (Sec)	Average Length of Waves (FT)
1	0	<.5	.5 - 1	1	2
2	1	0.5	1 - 2.5	1.5	9.5
3	2	2	1.5 - 5	3	26
4	3	3.5	2 - 6.5	4	50
5	4	6	2.5 - 8.5	5	80
6	5	8	3 - 10	6-7	130
7	6	18	4 - 13	8-9	220

8	7	32	5.5 - 17	10-12	400
9	8	52	7.5 - 23	13-15	650
10					
11	9	60-100	9 - 28.5	16-19	800-1200
12					

LONGLINE GEAR



Pelagic Longline Hooks (Actual sizes)

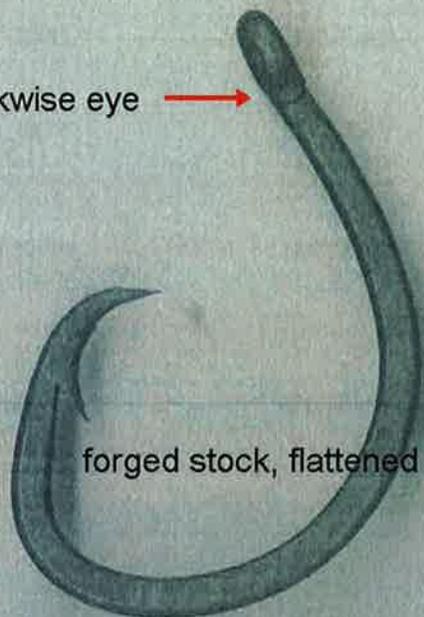
counter clockwise eye



round stock

MUSTAD 39960 18/0

clockwise eye



forged stock, flattened

LGPN LPCIRBL 18/0

maximum offset is 10 degrees



MUSTAD 39960 16/0



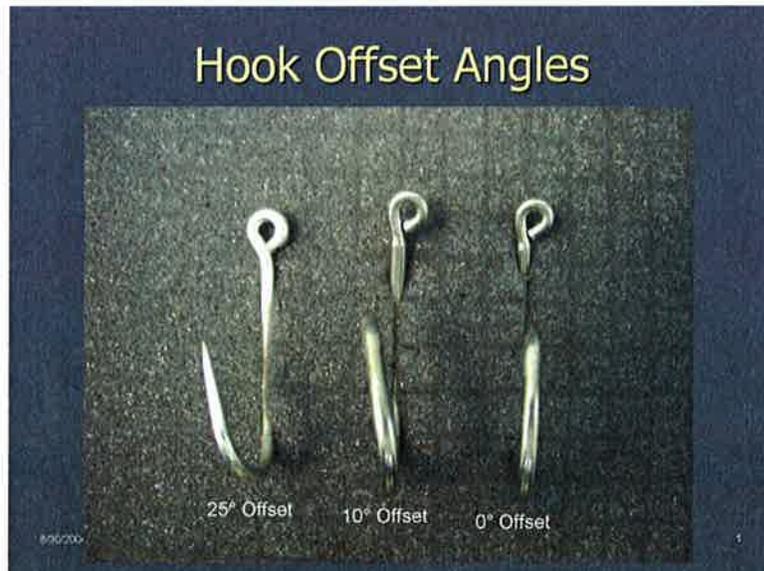
LGPN LPCIRBL 16/0

maximum offset is 0 degrees

OTHER HOOKS CURRENTLY IN USE:

<u>BRAND</u>	<u>MODEL</u>	<u>DESCRIPTION</u>
EAGLE CLAW	2048	Looks exactly like Mustad 39960 except eye is clockwise.
VMC	5789	Looks exactly like Mustad 39960 except has dull finish, even when new.
MUSTAD	39998 (16/0) 39996 (18/0)	Looks like LGPN LPCIRBL hook except has a counter clockwise eye and is not carbon steel; black finish shiny plated and may flake/rust.
MUSTAD	39988D	Looks exactly like Mustad 39960 except wire size of stock is thinner. This 'weak hook' will be predominantly used in the GOM; although other 'weak hook' brands are available and may be seen.

How to tell clockwise from counter-clockwise eyes: Hold hook with bend up, point of hook pointing away from you. Looking at the eye, follow the shank around the bend of the eye to the end; this is the direction of the eye. Example below is a clockwise eye.



JANUARY 2010

LONGLINE GEAR LOG

This log contains detailed questions about the gear fished. Generally one gear is used to describe gear within a single trip. Changes in item numbers used would not require a separate gear log, however a change in gear configuration (i.e. use of light sticks, hooks between floats or fishing depth) that redirects toward another target species generally requires a separate gear log. Numeric values reflect an average from all hauls with the same string number.

Example: First two hauls use light sticks and direct toward swordfish described by string number 1. The remaining five hauls do **not** use light sticks and target tuna. A second gear log would then be completed and numbered string number 2. Record the appropriate string number in **field #16** on each of the LONGLINE HAUL LOG sheets. Hauls 1-2=**1** and Hauls 3-7=**2**

If information is not available or unknown for any question record a dash (-) in the field.

Note that the 2007 version of this form contained some significant changes relative to previous versions. Most of the "yes/no" fields have been replaced by a checkbox; a check or x in the checkbox indicates a yes, an unchecked box indicates a no. Only fill in numbers of items if you have marked the checkbox for that item; if you have not marked the box, leave the item number blank. However, on item information that calls for a number but does not have a yes/no checkbox, if there are zero items used you must fill in a zero.

DEFINITIONS

LONGLINE: 600-1000 lb test monofilament nylon mainline supported in the water column by floats "droplines", and having attached branch lines "gangions" which have baited hooks on the free end.

SECTION: A portion of mainline with an arrangement of floats, hooks and polyballs defined on either end by a radar reflector or radio beacon. Generally section configuration is repeated throughout a string with some variation occurring in the last section set.

GANGION: A 300-500 lb test nylon monofilament attached to a mainline by a snap. A gangion may vary in length and have up to two swivels, one at the snap and another some distance above the hook. Fishermen may refer to this as a "leader".

LEADER: A section of steel wire or monofilament placed between a swivel and the hook. It reduces bite offs, makes hook replacement easier and helps to maintain the gangion length. Fishermen may refer to this as a "tail".

DROPLINE: A 300-500 lb nylon monofilament or braided nylon line connecting the float to the mainline. Fishermen may refer to this as a "drop" or float line.

INSTRUCTIONS

HEADER

1. OBS/TRIP ID: Record the six character observer/trip identifier. This should be used on all data forms and field notes for a single trip.
Example: D04006.
2. VESSEL NUMBER: Record the 6-7 digit U.S. Coast Guard Documentation Number. This should be displayed prominently on the vessel. If the vessel does not have a Coast Guard Number, record the state registration number and include the two letter state abbreviation prefix. This is not the same as the NMFS or state fishing permit number. Do not use spaces.
Example: USCG documentation number - 234567
State registration number - FL2345XX
3. VESSEL NAME: Record the name of the vessel. Care should be taken to record the correct spelling of the vessel's name. Do not use punctuation; hyphens, commas, or periods and data is entered in capital letters.
Example: MR ROGERS, SY KAI MAI, MISSYS DREAM

4. DATE LANDED: Record the month, day and year when the vessel arrives back in port. This may not be the same day fish are unloaded and sold.
Example: 01/01/2003
5. STRING NUMBER: Record the consecutive number assigned to each string as it is uniquely configured. Changes that result in a change in target species might necessitate a new number and LONGLINE GEAR LOG. Each string will be assigned a number consecutively, i.e., first string = 1, the next string = 2, etc.

GEAR INFORMATION

6. NUMBER OF HOOKS*: Record the number of hooks set. This is an **average** of all hauls with the same string number.
7. ANCHOR USED?: Indicate if an anchor was used, by marking the box with an **x**. (If the box remains unchecked, data entry personnel will assume no anchor was used). For the purpose of these data, anchors are defined as objects which hold gear to the sea bottom. Thus, sea anchors or weights that might be employed to slow the drift of the gear are NOT anchors. Their use should be noted in the comments, however.
8. WEIGHT: If the ANCHOR USED box is marked, record an estimated total weight, to the nearest pound, of the anchor(s) used to hold the gear in place. This information can be obtained from the captain. If no anchor was used or if the gear is tied directly to the vessel, enter "-"; do not enter zero.

*This is a calculated number; refer to distance calculation worksheet and instructions.

MAINLINE

9. COLOR: Record the color of the main line, by marking an **X** in the box next to the appropriate color. If more than one color is present mark an **X** next to "Multi-color" but do not mark an **X** next to all the other colors.

Please describe "**Other**", and the color and ratios of multi-color lines, in field #43 **COMMENTS**.

10. NUMBER OF STRANDS: Record the number of strands of material that make up the mainline. Generally this should be "**1**".

11. DIAMETER: Record, to the nearest tenth of a millimeter, the diameter of the mainline. Use a caliper, if provided, or submit a label or sample piece with your data. General ranges found are **3.0-4.2 mm**

12. TEST: Record the pound test or breaking strength of the main line. This information can be obtained from the captain and/or verified from a manufacturer label. General ranges found are **600-1000 lbs**.

13. MATERIAL: Indicate the material that the mainline is constructed of, by marking an "**X**" in the box with the appropriate material.

Please describe **other** materials in field #43 **COMMENTS**.

FLOATS

14. TYPE USED?: Indicate whether a float type was used, by marking an **X** in the checkbox provided; by not marking a checkbox the observer is indicating that this type of item was not used:
Polyball (do not count those associated with beacons or high flyers)
Bullet/Daub
Other

Please describe **other** float type in field #42, **COMMENTS**.

15. TYPE NUMBER*: Record the number for each float type used. This is an **average** of all hauls (recombine split haul values) with the same gear configuration. Only record a number if the checkbox for that item has been marked; do not enter zero.
16. MAX HOOK BETWEEN*: Record the **maximum** number of hooks between bullet/daub floats. This is an **average** of all hauls with the same gear configuration.
17. RADIO BEACONS: Record the number of radio beacons. These may also be called "radio buoys" or "beepers". This is an **average** of all hauls with the same gear configuration. Enter a zero if no radio beacons were used.
18. RADAR REFLECTORS: Record the number of radar reflectors. These may also be called "highfliers". This is an **average** of all hauls with the same gear configuration. Enter a zero if no radar reflectors were used.
19. SECTIONS*: Record the number of sections. This is an **average** of all hauls with the same gear configuration.
20. DISTANCE BETWEEN SECTIONS*: Record the distance to the nearest tenth of a nautical mile. This is an **average** of all hauls with the same gear configuration.

LIGHT STICKS

21. USED?: Indicate whether light sticks are used on this string by marking an **X** in the checkbox. If the box is not checked, it will be assumed light sticks were not used.
22. LIGHT STICK COLOR: Indicate the color or colors of light sticks used on this string by marking an **X** next to the appropriate color. If there is more than one color the

*This is a calculated number; refer to distance calculation worksheet and instructions.

Multi-color box should be checked and the different colors and their ratios should be described in the **COMMENTS** section, but do not mark an **X** next to all the other colors.

GANGIONS

23. COLOR: Indicate the color of the gangion line by marking an **X** in the checkbox next to the appropriate color. If there is more than one color the Multi-color box should be checked and the different colors and their ratios should be described in the **COMMENTS** section, but do not mark an **X** next to all the other colors.

Please record any **other** color in field #42 **COMMENTS**.

24. DISTANCE BETWEEN*: Record the distance, in whole feet, between gangions. This is an **average** of all hauls with the same gear configuration.

25. DIAMETER: Record, to the nearest tenth of a millimeter, the diameter of the gangions. General ranges found are **1.8-2.2 mm**

26. TEST: Record the pound test or dry breaking strength of the gangions. General ranges found are **300-500 lbs**.

27. MATERIAL: Indicate the material that the mainline is constructed of, by marking an "**X**" in the box next to the appropriate material.

Please describe **other** materials in field #43 **COMMENTS**.

28. GANGION LENGTH: Record, to the nearest foot, the gangion lengths. You can account for up to two different lengths. Gangion length should not include the leader length. This is an **average** of all hauls with the same gear configuration.

* This is a calculated number; refer to distance calculation worksheet and instructions.

29. GANGION COUNT: Record the number of gangions for each length used. This is an **average** of all hauls with the same gear configuration.
30. LEADERS USED?: Indicate whether leaders are used between the gangion and the hook by marking an **X** in the box. If the box is not marked it will be assumed leaders were not used.
31. LEADER LENGTH: Record the length of the leader to nearest **inch**. This is an **average** of all hauls with the same gear configuration.
32. LEADER TEST: Record the pound test or dry breaking strength of the leader. Generally this is the same as the gangion.
33. LEADER MATERIAL: Indicate the material that the mainline is constructed of, by marking an "**X**" in the box next to the appropriate material.

Please describe **other** materials in field #43 **COMMENTS**.

34. SWIVELS USED?: Indicate whether swivels are used on gangions by marking an **X** in the box. **Normally there is always a swivel on the snap, so this box will always be checked.**
35. NUMBER SWIVELS/ GANGION : Record the number of swivels used per gangion. One is generally located at the snap and a second swivel will be located some distance above the hook between the gangion and the leader.

DROPLINES

36. LENGTH: Record, to the nearest foot, the length of the droplines. This is an **average** of all hauls with the same gear configuration.

37. DISTANCE BETWEEN*: Record, to the nearest foot, the distance between droplines. This is an **average** of all hauls with the same gear configuration.
38. HOOK BRAND: Record the hook brand name. You can account for up to four different hooks. This information can be obtained from the captain and/or verified from a manufacturer label or Hook Guide.
Example: **Mustad, Eagle Claw, Hi Liner** or **LGPN** (Lindgren/Pitman)
39. MODEL/PATTERN: Record the hook model or pattern number. You can account for up to four different hooks. This information can be obtained from the captain and/or verified from a manufacturer label or Hook Guide. **DO NOT** include LETTERS in this field unless indicated on the hook guide.
Example: 39660D=**39960**
40. SIZE: Record the hook size. You can account for up to **four** different hooks. This information can be obtained from the captain and/or verified from a manufacturer label or Hook Guide. If the hook is unknown, provide a sample hook with data.
Example: **16/0, 18/0**
41. OFFSET: Record the hook offset. You can account for up to **four** different hooks. This information can be obtained from the captain and/or verified from a manufacturer label or Hook Guide. If the hook offset is unknown or in question provide a sample hook with data.
Example: **0, 10**
42. COMMENTS: Please reference each comment with its corresponding field number. If more space is required, use the back of the sheet and include "see back" on the front.

*This is a calculated number; refer to distance calculation worksheet and instructions.

LONGLINE DISTANCE CALCULATION INSTRUCTIONS (01/2010)

Use the POP Distance Calculation Table and procedures to fill in the distance fields of the Longline Gear Log. Generally there is one Gear Log per trip. However, for a change in TARGET SPECIES or when combinations of gangion lengths (2) and or dropline lengths (3) exceeds the number of spaces provided, an additional GEAR LOG and its corresponding STRING NUMBER (for HAUL LOG) might be required.

SET#: Record sets that have a common gear configuration. Draw a single line through blanks where another gear configuration was used. A separate calculation table should be used for each gear configuration or string described. If the number of sets with any single gear configuration exceeds 15, use another calculation sheet and re-label the **SET#**, starting with 16.

MAINLINE LENGTH: Record the length of mainline in nautical miles for each set. Compute the average mainline length and round to the **nearest tenth** of a nautical mile (20.16 = 20.2 nm).

SECTIONS/SET: Record the total number of sections deployed during each set. Compute the average sections and round to the **nearest whole number** (3.8 = 4 sections).

TOTAL HOOKS SET: Record the total number of hooks used during each set. Compute the average hooks set and round to the **nearest whole number** (368 hooks).

TOTAL POLYBALLS: Record the total number of polyballs. Do not include polyballs associated with high fliers and/or radio beepers. Compute the average polyballs and round to the **nearest whole number** (4 floats).

TOTAL DROP FLOATS (Excl. polyballs): Record the total number of bullet/daub floats deployed during each set. Compute the average floats and round to the **nearest whole number** (100 floats).

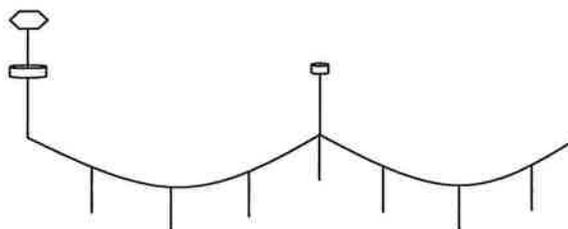
MAX HOOKS PER FLOAT: Record the total number of hooks placed between floats. Compute the average hooks between floats and round to the **nearest whole number** (4 hooks).

With these averages available, fields #20, #24, and #37 can be computed for the Longline Gear Log.

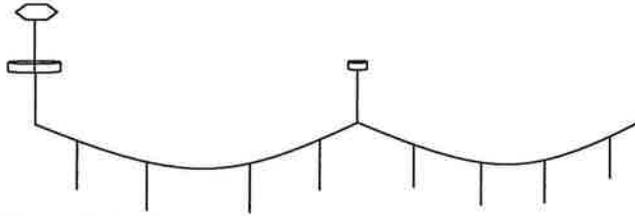
Distance Between Sections (field #20): Average mainline length (nautical miles) divided by the average number of sections fished (round to tenth of a nautical mile).

Distance Between Gangions (field #24): There are two cases that must be considered to accomplish this computation.

Case #1: The last of the series of hooks-between-floats is attached almost at the same time the dropline is attached.



Case #2: The dropline is attached at an interval equal to a hook placement following the last of the hooks-between-floats.



If Case #1 occurs, convert the average mainline length from nautical miles to feet by multiplying average mainline length by **6080** feet, then divide by the average of the total number of hooks set to determine the distance between gangions (round to whole feet).

$$\text{Avg. Mainline Length (ft) } \div \text{ Avg. Hooks set} = \text{Hook Distance (Distance between gangions, ft)}$$

If Case #2 occurs, convert the average mainline length from nautical miles to feet by multiplying average mainline length by **6080** feet, then add the average values of total Sections, Hooks, Floats (includes bullet/daubs + Polyballs) and divide that value into the mainline length to determine the distance between hooks (round to whole feet).

$$\text{Avg. Mainline Length (ft) } \div (\text{Sections} + \text{Hooks} + \text{Total Floats}) = \text{Hook Distance (Distance between gangions, ft)}$$

Distance Between Floats (field #37): If Case #1 occurs, multiply the number hooks-between-floats by the hook distance to derive the float distance. Using the example from the previous page:

$$\text{Hook Distance (ft) } \times 4 = \text{Float Distance (Distance between droplines, ft)}$$

If Case #2 occurs, multiply the number of hooks-between-floats plus 1 (this will accommodate the spacing of the float) by the distance between hooks to derive the float distance (round to whole feet). Using the example from above:

$$\text{Hook Distance (ft) } \times 4 \text{ (3 hooks + 1 interval)} = \text{Float Distance (ft)}$$

We realize that variability nearly always occurs at the beginning and end of each set and from set to set within a trip. There is no such thing as a "typical longline set". We have tried several different ways to compute this information; all yielding about the same results. However, this was by far the easiest method.

Include the POP Distance Calculation Table with your data. If you are uncertain about whether more than one GEAR LOG is needed, please contact the data coordinator.

Distance Calculation Table

January 2008

Set#	Mainline Length	Sections/ Set	Total Hooks Set	Total polyballs	Total drop floats (excl. polyballs)	Max Hooks Per Float
1	20.5	5	432	5	118	4
2	22.0	4	384	4	104	4
3	18.0	3	288	3	78	4
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
Computed Averages	20.2	4	368	4	100	4

* USE A WORKSHEET FOR EACH STRING AND USE SET VALUES (recombine split haul values)

* ALL AVERAGES ARE ROUNDED OFF TO THE NEAREST WHOLE NUMBER EXCEPT MAINLINE LENGTH

* SHOW CALCULATIONS IN SPACE PROVIDED BELOW

CASE # : (1 or 2)

FIELD #20 5.1 NM

FIELD #24 CASE #1 $20.2 \times 6080 = 122816 \text{ ft} / 368 = 334 \text{ ft}$

CASE #2 $20.2 \times 6080 = 122816 \text{ ft} / 476 = 258 \text{ ft}$

FIELD #37

CASE #1 $334 \text{ ft} \times 4 = 1336 \text{ ft}$

CASE #2 $258 \text{ ft} \times 5 = 1290 \text{ ft}$

January 2009

APPENDIX 1: DOLPHINFISH GEAR

Pelagic longline gear can be configured to take advantage of local concentrations of dolphinfish/mahi-mahi (*Coryphaenae hipporus*). Often, the gear is configured in a way that directly targets dolphinfish; in this method relatively short droplines and gangions are used, and the gear is usually fished during the day for short soak periods, and can usually be set and hauled more than once in a 24 hour period. In these cases, all calculations and notations are completed in the same manner as described in the GEAR LOG INSTRUCTIONS, HAUL LOG INSTRUCTIONS, and DISTANCE CALCULATION INSTRUCTIONS. Hauls using this configuration will be given a target species designation of DOL on the Haul Log.

At other times, however, longline fishermen will attempt to take advantage of the presence of dolphinfish by a slight modification of their gear in order to not only catch the normally desired target species (e.g. swordfish and/or tunas) but to also capture more dolphinfish than the gear normally configured for swordfish/tuna would catch. This is done by clipping a short (usually 1-2 fathom) gangion directly to a daub/bulletfloat. When gear is configured in this manner, some changes in the way distance calculations are done will be needed, as well as some standardized procedures for filling out forms. These changes are detailed below.

HAUL LOG

TARGET SPECIES: Any hauls where dolphinfish leaders are clipped onto bullet floats will be MIX.

HOOK DEPTH RANGE: The minimum hook depth will be the length of the dolphinfish leaders (for example, 1 fathom leaders clipped onto the bullet floats will result in a minimum hook depth of 1 fathom). The maximum hook depth will be calculated as usual (i.e. the length of the longest floatline plus the length of the longest gangion/leader combination).

NUMBER OF HOOKS SET: This will be the total number of hooks set, the sum of all the "normal" hooks plus the dolphinfish leaders.

BAIT INFORMATION: You must remember to account for the extra dolphinfish leaders in your bait counts, weights, etc.

COMMENTS: Note how many dolphinfish leaders were set/hailed in the comments

DISTANCE CALCUALTION WORKSHEET

All sets/hauls where gear is set in a mixed configuration using dolphinfish leaders will be assigned a string number separate from any other sets/hauls in the same trip where such gear is not used. Special procedures must be used in order for the distance calculations to remain consistent. Primarily, this involves using two TOTAL HOOKS SET values from each haul log as input into the distance calculation worksheet. In the TOTAL HOOKS SET column of the Distance Calculation Worksheet, write both the total number of hooks set, then a slash, then write the total number of "regular" (non-dolphinfish) hooks set. Further, in the MAX HOOKS PER FLOAT column, do NOT account for dolphinfish hooks, only consider "regular" hooks. Work up all the averages as normal for the Distance calculation worksheet, except that the average of the TOTAL HOOKS SET column will have two values, one an average of all the hooks set, and one an average of only the "regular" hooks. The first number will be entered into the gear log for this string in the field NUMBER OF HOOKS. The second number will be used in the distance calculations at the bottom of the worksheet. Finally, the presence of a dolphinfish leader clipped to the float does NOT automatically mean the distance calculations will use a Case 1 scenario; only consider where the "regular" leaders are attached in relationship to drop floats when determining if it is a Case 1 or Case 2 scenario.

GEAR LOG

NUMBER OF HOOKS: This must be the average of the total number of hooks set (dolphinfish hooks plus regular hooks).

MAX HOOK BETWEEN: This value comes from the distance calculation worksheet, note it should NOT include dolphinfish hooks.

GANGION/LEADER LENGTH INFORMATION: Remember to account for the dolphinfish leaders (e.g. number, length) in this area. However, if two different lengths of "regular" gangions/leaders are used in addition to the dolphinfish leaders, you will need to document the dolphinfish gangion information in the comments.

COMMENTS: Note the use of dolphinfish leaders; example "USED 1 FA LEADERS CLIPPED TO EACH BULLET FLOAT FOR MAHI".

ANIMAL LOG

COMMENTS: Where possible, note the capture of an animal on a dolphinfish leader by putting the comment "MAHI HOOK" in the COMMENTS field for that animal.

OBS/TRIP ID #	VESSEL NAME	VESSEL NUMBER	DATE LANDED mm/dd/yyyy																																							
STRING NUMBER	NUMBER OF HOOKS	ANCHOR <input type="checkbox"/> USED? WEIGHT _____ lbs																																								
MAINLINE COLOR <input type="checkbox"/> Clear <input type="checkbox"/> White <input type="checkbox"/> Pink <input type="checkbox"/> Black <input type="checkbox"/> Green <input type="checkbox"/> Blue <input type="checkbox"/> Multi-color <input type="checkbox"/> Red <input type="checkbox"/> Other # OF STRANDS _____		FLOATS <input type="checkbox"/> Used Polyball <input type="checkbox"/> Used Bullet/Daub <input type="checkbox"/> Used Other Floats MAX HOOKS BETWEEN _____ RADIO BEACONS _____ RADAR REFLECTORS _____ NUMBER SECTIONS _____ DISTANCE B/ SECTIONS ____ . ____nm		LIGHT STICKS <input type="checkbox"/> USED? COLOR <input type="checkbox"/> White <input type="checkbox"/> Pink <input type="checkbox"/> Black <input type="checkbox"/> Green <input type="checkbox"/> Blue <input type="checkbox"/> Multi-color <input type="checkbox"/> Red <input type="checkbox"/> Other <input type="checkbox"/> Yellow <input type="checkbox"/> Purple																																						
GANGIONS COLOR <input type="checkbox"/> Clear <input type="checkbox"/> White <input type="checkbox"/> Pink <input type="checkbox"/> Black <input type="checkbox"/> Green <input type="checkbox"/> Blue <input type="checkbox"/> Multi-color <input type="checkbox"/> Red <input type="checkbox"/> Other DISTANCE BETWEEN _____ ft		DIAMETER ____ . ____ mm TEST _____ lbs MATERIAL <input type="checkbox"/> Nylon <input type="checkbox"/> Cotton <input type="checkbox"/> Steel Wire <input type="checkbox"/> Other <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:20%;">GANGION LENGTH</th> <th style="width:15%;">GANGION COUNT</th> <th style="width:15%;">LEADERS USED</th> <th style="width:15%;">SWIVELS USED</th> <th style="width:15%;">NUMBER SWIVELS/GANGION</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>_____ ft</td> <td>_____</td> <td style="text-align:center;"><input type="checkbox"/></td> <td style="text-align:center;"><input type="checkbox"/></td> <td>_____</td> </tr> <tr> <td>#2</td> <td>_____ ft</td> <td>_____</td> <td style="text-align:center;"><input type="checkbox"/></td> <td style="text-align:center;"><input type="checkbox"/></td> <td>_____</td> </tr> <tr> <td colspan="6">LEADER LENGTH _____in</td> </tr> <tr> <td colspan="6">LEADER TEST _____lbs</td> </tr> <tr> <td colspan="6">LEADER MATERIAL <input type="checkbox"/> Nylon <input type="checkbox"/> Cotton <input type="checkbox"/> Steel Wire <input type="checkbox"/> Other </td> </tr> </tbody> </table>					GANGION LENGTH	GANGION COUNT	LEADERS USED	SWIVELS USED	NUMBER SWIVELS/GANGION	#1	_____ ft	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	#2	_____ ft	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____	LEADER LENGTH _____in						LEADER TEST _____lbs						LEADER MATERIAL <input type="checkbox"/> Nylon <input type="checkbox"/> Cotton <input type="checkbox"/> Steel Wire <input type="checkbox"/> Other						
	GANGION LENGTH	GANGION COUNT	LEADERS USED	SWIVELS USED	NUMBER SWIVELS/GANGION																																					
#1	_____ ft	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____																																					
#2	_____ ft	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____																																					
LEADER LENGTH _____in																																										
LEADER TEST _____lbs																																										
LEADER MATERIAL <input type="checkbox"/> Nylon <input type="checkbox"/> Cotton <input type="checkbox"/> Steel Wire <input type="checkbox"/> Other																																										
DROPLINES <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:15%;">LENGTH</th> <th style="width:15%;">DISTANCE BETWEEN</th> </tr> </thead> <tbody> <tr> <td>#1</td> <td>_____ ft</td> <td>_____ ft</td> </tr> <tr> <td>#2</td> <td>_____ ft</td> <td>_____ ft</td> </tr> <tr> <td>#3</td> <td>_____ ft</td> <td>_____ ft</td> </tr> </tbody> </table>			LENGTH	DISTANCE BETWEEN	#1	_____ ft	_____ ft	#2	_____ ft	_____ ft	#3	_____ ft	_____ ft	HOOKS <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:20%;">BRAND</th> <th style="width:30%;">MODEL/PATTERN</th> <th style="width:15%;">SIZE</th> <th style="width:15%;">OFFSET°</th> </tr> </thead> <tbody> <tr> <td>HOOK #1</td> <td>_____</td> <td>_____</td> <td>____/____</td> <td>_____</td> </tr> <tr> <td>HOOK#2</td> <td>_____</td> <td>_____</td> <td>____/____</td> <td>_____</td> </tr> <tr> <td>HOOK#3</td> <td>_____</td> <td>_____</td> <td>____/____</td> <td>_____</td> </tr> <tr> <td>HOOK#4</td> <td>_____</td> <td>_____</td> <td>____/____</td> <td>_____</td> </tr> </tbody> </table>					BRAND	MODEL/PATTERN	SIZE	OFFSET°	HOOK #1	_____	_____	____/____	_____	HOOK#2	_____	_____	____/____	_____	HOOK#3	_____	_____	____/____	_____	HOOK#4	_____	_____	____/____	_____
	LENGTH	DISTANCE BETWEEN																																								
#1	_____ ft	_____ ft																																								
#2	_____ ft	_____ ft																																								
#3	_____ ft	_____ ft																																								
	BRAND	MODEL/PATTERN	SIZE	OFFSET°																																						
HOOK #1	_____	_____	____/____	_____																																						
HOOK#2	_____	_____	____/____	_____																																						
HOOK#3	_____	_____	____/____	_____																																						
HOOK#4	_____	_____	____/____	_____																																						
COMMENTS																																										

January 2012

INDIVIDUAL ANIMAL LOG INSTRUCTIONS

This log is to be used to record catch information: species, live/dead, kept/release, size and sex of animals caught on pelagic longline sets targeting large pelagic fish (swordfish, tuna, dolphin or shark).

HEADER BOX**1. Observer/Trip Identifier:**

Record a 6 character observer/trip identifier. This field uses an assigned 3-character (**A01-Z99**) observer identifier followed by a 3-digit (001-999) accumulative numerical trip identifier. This identifier is recorded on all logs within a single trip.

Example: **A01001, Z99999**

2. Vessel Name:

Record the name of the vessel. This is usually displayed on the vessels' bow and stern.

Example: CAPT MIKE, MR PROWLER, PROVIDER III

DO NOT USE ANY PUNCTUATION IN THIS FIELD

3. Vessel Number:

Record the U.S. Coast Guard Documentation Number, this number (6-7 digits) should be displayed prominently on the vessels' wheelhouse. If the vessel does not have a Coast Guard Number, record the state registration number, which should also be displayed on the wheelhouse and begins with the 2 letter state abbr.

Example: 987602, 1028691 or FL2056GY

4. Date of Haul:

Record the month, day, year that the haul back of the gear begins.

Example: 07/03/2000

5. **Haul Number:**

Record the consecutive number each time the gear is hauled, starting with 1 for the first set and haul, and continuing with 2, for the second set and haul, etc.

6. **Page Number:**

Record this page number, and the total number of pages used on this haul. The haul log will always be page number 1 and the Individual Animal Logs will be numbered sequentially starting with page number 2.

EXAMPLE: haul log + 5 animal logs, recorded as 2 of 6, 3 of 6
4 of 6, 5 of 6 and 6 of 6.

INDIVIDUAL ANIMALS BOX

1. **Carcass/undersize sample or Life History Specimen Number:**

Record the number assigned to the carcass of a fish. This number will be from a custom tag you create with a unique number within a trip **and can not be more than five characters long because of limits in the POP database**. We recommend a start value of 101, which should avoid being misread at the fish house (100 vs 001) and duplication with any turtle specimen numbers. Carcass tags should be attached to all kept market species that are weighed individually at the dock (swordfish, tunas, mako shark).

A carcass number allows you relate a dressed weight directly back to the animal log. Assigning carcass tags in sequence will speed the process of adding weights to your data sheets after the weigh out. Record a sample number created for a sampled discard animal or part of an animal(IE undersize swordfish).

Example: SW01

The third type of number that may be recorded here, is a turtle, mammal, or bird number. Use the same specimen number given on the animal's life history form: e.g. leading zeros for turtles (001, 002, etc.), MAM01, etc. for mammals, and BR001, etc. for seabirds.

(NOTE: THIS IS NOT THE SAME AS THE TAG NUMBER IN FIELD 13).

2. **Species Name (abbr):**

Record a three letter designation (**SEE SPECIES CODE LIST**) for each species, including marine mammals, sea turtles or sea birds that may be caught incidentally. Attempt to identify all animals to species. However if you do not get a clear look at the animal do not hesitate to use group abbr (SHX,TUN,BIL, etc.)

3. **Species Code: (NOTE: SEE SPECIES CODE LIST)**

Record the 4 digit code. If you are unable to identify to a species or species is unlisted, photograph and leave blank until debriefing.

4. **Damage Code:**

If the animal is damaged, record the two digit damage code. The first digit will indicate the type of damage:

- 0-unknown
- 1-shark (other than cookie cutter)
- 2-mammal
- 3-Other (describe in comments, includes bird, squid, cookie cutter, lamprey, vessel, etc)

The second digit will indicate the amount of economic Loss (note that for animals that have no economic value; e.g. billfish, blue sharks, etc. you should evaluate the amount of damage as if there was economic value):

- 0-unknown
- 1-moderate economic loss
- 2-total economic loss
- 3-Head only

Examples:

- 02- Damage from unknown source, resulted in total loss of fish.
- 11- Shark bitten animal, able to sell remaining carcass as chunk.
- 31 ("bird pecked" written in comments)- Bird(s) had eaten some

of the carcass, able to sell remaining carcass
22-Mammal eaten animal, resulted in total loss of fish.
03-Damage from unknown source; head only.

NOTE: Do not code a fish with only a few cookie cutter bites as "damaged".

5. Status:

Indicate the condition of the animal as it comes on board coded as follows:

- 0** = Unknown
- 1** = Alive
- 2** = Dead
- 3** = Damage

6. Action:

Indicate whether the animal was kept, or if it was released unknown, alive, dead, or lost at surface, using the following codes:

- 0** = Released (unknown status)
- 1** = Kept and sold
- 2** = Released dead (or kept for crew consumption)
- 3** = Released alive, **4** = Finned (Action 2)
- 5** = Lost, **6** = Tended (Action 2).

*NOTE: Because of current regulations, we assume that when a shark is kept, the fins will also be landed. However, because it will be difficult to determine if these fins get sold (secondary action code 4) or discarded (no secondary action code), only a **1** in the action column will be needed; we will discontinue the use of secondary action codes except for **2,4** when a shark carcass is discarded and the fins are kept. If the carcass is kept but the fins are discarded at sea, please note this in the comments for that animal. **Additionally, please note if the fins were removed at sea and kept, presumably to be sold. EXAMPLE: "fins removed and discarded at sea" or "fins removed at sea and kept".**

THE FOLLOWING THREE FIELDS (7,8,9) ATTEMPT TO OBTAIN LENGTH MEASUREMENTS FROM ALL DEAD FISH, REQUESTING ALL BYCATCH SPECIES (WITHIN REASONABLE SIZE) BE BROUGHT ONBOARD. #1 MEASUREMENT SHOULD BE TAKEN ON ALL DEAD FISH. #1 AND #2 MEASUREMENT SHOULD BE TAKEN ON ALL KEPT OR DEAD SWORDFISH. AN ESTIMATED #1 MEASUREMENT TO THE NEAREST FOOT SHOULD BE RECORDED ON ALL LIVE RELEASED ANIMALS. DO NOT TRY TO PIECE ANIMALS TOGETHER THAT HAVE BEEN CUT. FIGURES 1 - 4 DESCRIBE THE SPECIFIED MEASUREMENTS FOR EACH TYPE OF FISH. ESTIMATED LENGTHS FOR INCIDENTALLY TAKEN MAMMALS, BIRDS AND TURTLES SHOULD ALSO BE RECORDED HERE. IF A TURTLE IS BROUGHT ON BOARD, THE #1 MEASUREMENT WILL BE THE NOTCH TO TIP CARAPACE LENGTH (CURVED); IF A SEABIRD IS BROUGHT ON BOARD THE #1 MEASUREMENT WILL BE THE WINGSPAN (STRAIGHT). ADDITIONAL INFORMATION WILL BE RECORDED ON THE INDIVIDUAL LIFE HISTORY FORMS FOR MARINE MAMMALS, SEA TURTLES, AND SEA BIRDS.

7. **Length #1:**

Record the **curved** measured length of all billfish and swordfish to nearest centimeter according to the standards below. All shark, tuna and other finfish species are to be taken as a **straight** measurement.

SWORDFISH: TIP OF LOWER JAW TO FORK OF TAIL (LOWER JAW FORK LENGTH)
TUNA: TIP OF UPPER JAW TO FORK OF TAIL (FORK LENGTH)
BILLFISH: TIP OF LOWER JAW TO FORK OF TAIL (LOWER JAW FORK LENGTH).
SHARK: TIP OF SNOUT TO FORK OF TAIL (FORK LENGTH)
OTHER FINFISH: UPPER JAW TO FORK OF TAIL
SKATES AND RAYS: DISK WIDTH (WING TIP TO WING TIP)

8. **Length #2:**

Record the **curved** measured length of swordfish and billfish species to nearest centimeter according to the standards listed below. All shark, tuna and finfish lengths are to be taken as a **straight** measurement.

SWORDFISH: CLEITHRAL ARCH TO THE ANTERIOR RISE OF THE CAUDAL KEEL (CARCASS LENGTH OR CK LENGTH).
TUNA: ONLY WHEN #1 IS NOT TAKEN. ANTERIOR INSERTION OF PECTORAL FIN TO CAUDAL FORK OF TAIL.
BILLFISH: NONE.
SHARK: NONE.
OTHER FINFISH: NONE.

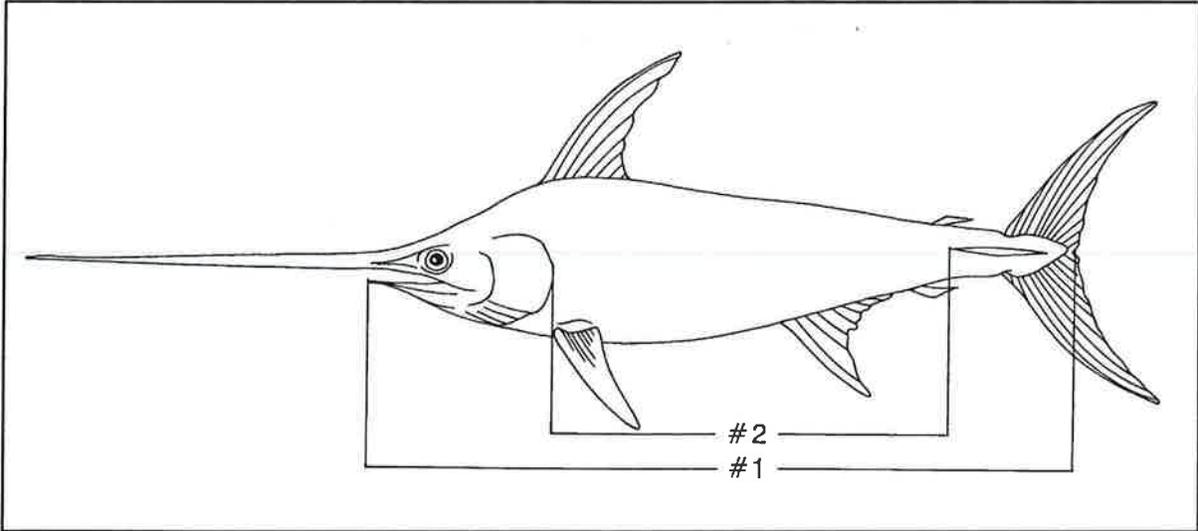


Figure 1. Swordfish measurements: #1 Tip of lower jaw to fork (curved); #2 Cleithrum to the anterior origin of the caudal keel (curved)

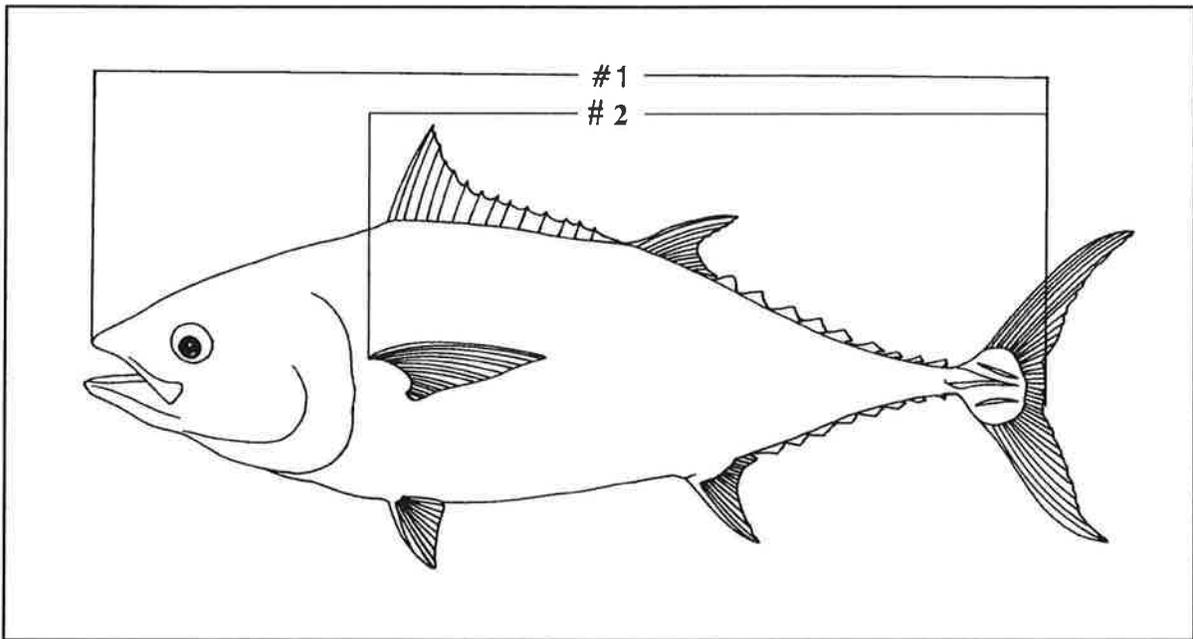


Figure 2. Tuna measurements: #1 Tip of upper jaw to fork of tail (straight); #2 Anterior insertion of pectoral fin to fork of tail (straight)

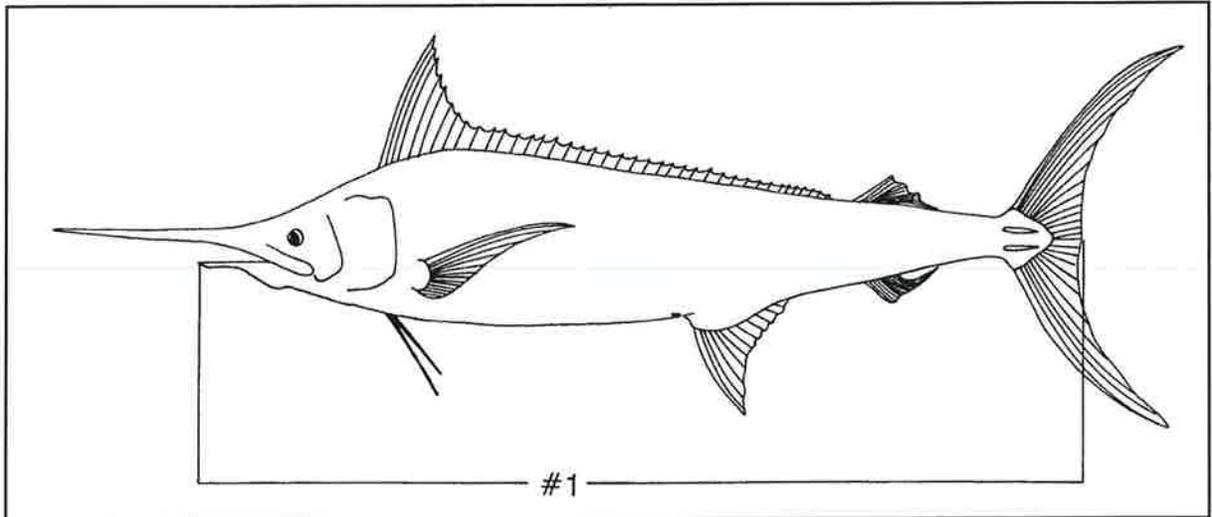


Figure 3. Billfish measurement: #1 Tip of lower jaw to fork (curved)

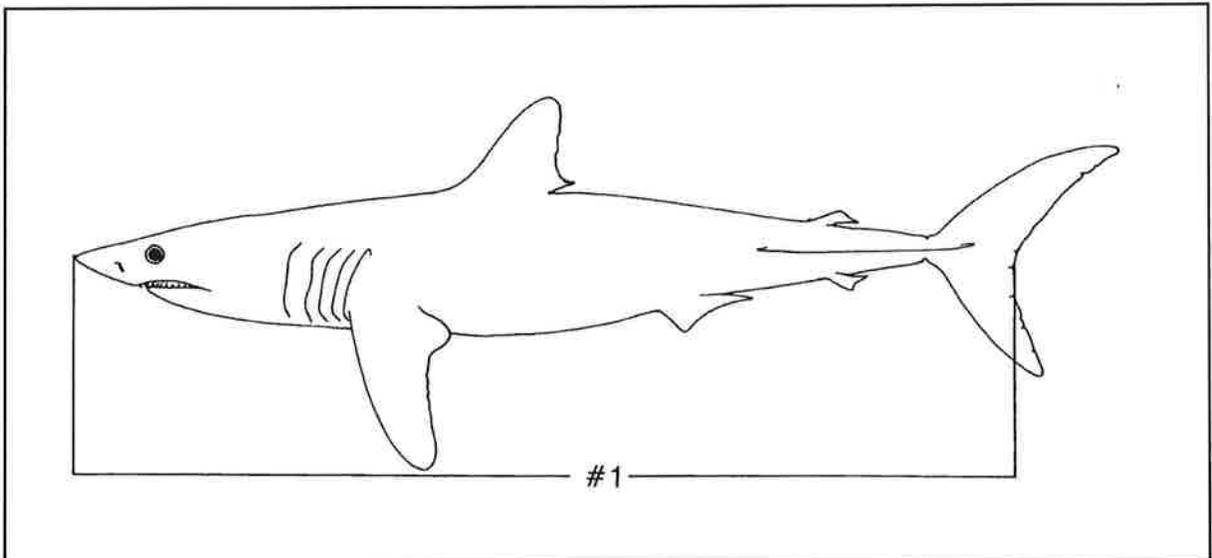


Figure 4. Shark measurement: #1 Tip of snout to fork (straight)

9. **Length #3:**

Record the measured length of the fish to nearest centimeter according to the standards below; if the fish is not brought aboard, follow instructions for estimating length.

SWORDFISH:	NONE
TUNA:	NONE.
BILLFISH:	NONE.
SHARK:	NONE.
OTHER FINFISH:	NONE.

Estimated lengths (to the nearest foot) should be taken for all animals that cannot be actually measured with a measuring device. Do not provide estimates of head-only fish. Measurements can easily be converted to centimeters using **(1 foot = 30 cm)**. Enter the #1 defined length and record a **3** in the length code.

10. **Code:**

Indicate if the length measurements are:

- 1 = Straight measurement
- 2 = Curved measurement
- 3 = Estimated measurement

11. **Weight:**

Record the actual dressed weight of an animal to nearest whole pound. This should include all swordfish and tuna which were measured and tagged. Do not input "chunk" weights or ICCAT swordfish weights; **these weights should be entered as comments.**

Units: Whole pounds.

12. **Sex:**

Record the sex of this animal, coded as follows:

- 0 = Undetermined
- 1 = Male
- 2 = Female

13. **Tag Number/Sample Information/Comment:**

Record the complete tag number (including an alpha prefix) for each tag/release animal. Attempt to re-tag a live fish that already has a tag in place, rather than sacrificing the animal to get a tag number. Never remove a tag from a fish that is being released alive. Always request that a dead tagged animal be brought on board. Assist crew in completing a tag card for all tag/release animals and offer to return tag cards to the Miami Laboratory. In the comments section, record the contact information on the tag (if legible) for any tag-recaptures.

This area may also be used to record a brief comment about an individual animal. Please record the word "SAMPLE", when a sample is collected. **When an animal is hooked, and the hook is bent or straightened to the point it will not be reused by the vessel, write "BH" for the bent hook.**

14. **Tag Code:**

Indicate the origin of the tag number from above (#12), coded as follows:

1 = Tagged and Released by crew or observer

2 = Tag already present and released with second tag

3 = Tag recaptured fish brought on board. Do not record this code unless you can get a tag number or other identifying information regarding the tag.

15. **Estimated Weight:**

Record an estimated round weight on all tag released animals (except turtles). **The priority is to get an estimated length #1 on all discard or released animals.** Do not estimate round weight for any animals other than tag release.

Units: Whole Pounds

16. **Comments:**

Record any information for an individual animal that is not covered in the other fields. Photos taken, animals kept but not sold, type of sample taken, etc. Do not include any comments that can not be related directly to an animal on the log.

[IF THERE ARE NOT SUFFICIENT LINES FOR ALL SPECIES FOR THE HAUL ON ONE PAGE,
CONTINUE THE HAUL ON ADDITIONAL INDIVIDUAL ANIMAL LOGS.]

PELAGIC OBSERVER PROGRAM

SOUTHEAST FISHERIES SCIENCE CENTER

<i>Istiophoridae</i>	BILLFISH	BIL	0190	<i>Thunnus thynnus</i>	TUNA	TUN	4656
<i>Makaira nigricans</i>	MARLIN BLUE	BUM	2179	<i>Thunnus albacares</i>	TUNA BLUEFIN	BFT	4652
<i>Tetrapturus albidus</i>	MARLIN WHITE	WHM	2177	<i>Thunnus atlanticus</i>	TUNA YELLOWFIN	YFT	4655
<i>Istiophorus albidus</i>	SAILFISH ATLANTIC	SAI	3026	<i>Thunnus obesus</i>	TUNA BLACKFIN	BLK	4658
<i>Tetrapturus spp.</i>	SPEARFISH	SPX	4000	<i>Katsuwonus pelamis</i>	TUNA BIGEYE	BET	4657
<i>Tetrapturus pfluegeri</i>	SPEARFISH LONGBILL.	SPF	4010	<i>Thunnus alalunga</i>	TUNA SKIPJACK	SKJ	4654
<i>Tetrapturus georgii</i>	SPEARFISH ROUNDSCALE	SPG	4009	<i>Euthynnus alletteratus</i>	TUNA ALBACORE	ALB	4651
<i>T. albidus/georgii</i>	WHITE MARLIN/R.S.SPEARFISH	WHX	2180	<i>Sarda sarda</i>	LITTLE TUNNY	LTA	4653
<i>Xiphias gladius</i>	SWORDFISH	SWO	4320		BONITO	BON	0330
				<i>Acanthocybium solandri</i>	WAHOO	WAH	4710
<i>Isurus spp.</i>	SHARK MAKO	XMA	3580	<i>Scomberomorus cavalla</i>	MACKEREL KING	KGM	1940
<i>Isurus oxyrinchus</i>	SHARK MAKO SHORTFIN	SMA	3505	<i>Scomber japonicus</i>	MACKEREL CHUB	CHM	2150
<i>Isurus paucus</i>	SHARK MAKO LONGFIN	LMA	3502	<i>Auxis thazard</i>	MACKEREL FRIGATE	FRM	1320
<i>Lamna nasus</i>	SHARK PORBEAGLE	POR	3501	<i>Rachycentron canadum</i>	COBIA	CBA	0570
<i>Carcharhinus longimanus</i>	SHARK OCEANIC WHITETIP	OCS	3498	<i>Coryphaena spp.</i>	DOLPHIN FISH	DOL	1050
<i>Carcharhinidae spp</i>	SHARK REQUIEM	SRQ	3571				
<i>Galieocerdo cuvier</i>	SHARK TIGER	TIG	3515	<i>Lepidocybium flavobrunneum</i>	ESCOLAR (SMOOTH SKIN)	GEM	2501
<i>Rhizopriondon terraenovae</i>	SHARK ATLANTIC SHARPNOSE	SAS	3518	<i>Revettus pretiosus</i>	OILFISH (ROUGH SKIN)	OIL	2502
<i>Carcharhinus acronotus</i>	SHARK BLACKNOSE	SBN	3485	<i>Seriola spp.</i>	AMBERJACK	AMJ	0030
<i>Carcharhinus ultima</i>	SHARK BIGNOSE	SBG	3491	<i>Caranx spp.</i>	JACK	JAC	0034
<i>Carcharhinus limbatus</i>	SHARK BLACKTIP	SBK	3495	<i>Sphyrna spp.</i>	BARRACUDA	BAR	0180
<i>Prionace glauca</i>	SHARK BLUE	BSH	3504	<i>Elegatis bipinnlata</i>	RAINBOW RUNNER	RUN	1814
<i>Carcharhinus leucas</i>	SHARK BULL	SBU	3497	<i>Pomatomus saltatrix</i>	BLUEFISH	BLU	0230
<i>Carcharhinus obscurus</i>	SHARK DUSKY	DUS	3514	<i>Cubiceps spp</i>	CIGARFISH	CUB	0530
<i>Carcharhinus isodon</i>	SHARK FINETOOTH	SFT	3481	<i>Trachipterus arcticus</i>	DEALFISH	DEA	0985
<i>Carcharhinus plumbeus</i>	SHARK SANDBAR	SSB	3513	<i>Alepisaurus spp</i>	LANCETFISH	LAX	2035
<i>Carcharhinus falciformis</i>	SHARK SILKY	FAL	3493	<i>Trichiuridae spp</i>	MACKEREL SNAKE	TRX	2504
<i>Carcharhinus brevipinna</i>	SHARK SPINNER	SSP	3496	<i>Lampris guttatus</i>	OPAH	OPA	2503
<i>Carcharhinus signatus</i>	SHARK NIGHT	SNI	3494	<i>Brama spp.</i>	POMFRET	POA	2710
<i>Carcharhinus perezii</i>	SHARK REEF	SRF	3490		PUFFER	PUX	2760
<i>Alopias spp.</i>	SHARK THRESHER	XTH	3500	<i>Echeneidae spp.</i>	REMORA	REM	2865
<i>Alopias superciliosus</i>	SHARK THRESHER BIGEYE	BTH	3510	<i>Mola spp</i>	SUNFISH	MOX	4260
<i>Alopias vulpinus</i>	SHARK THRESHER COMMON	PTH	3509	<i>Masturus lanceolatus</i>	SUNFISH SHARPTAIL	MST	4264
<i>Pseudocarcharias kamoharai</i>	SHARK CROCODILE_	SCR	3578	<i>Mola mola</i>	SUNFISH OCEAN	MOC	4263
<i>Carcharias taurus</i>	SHARK SAND TIGER	SST	3482	<i>Megalops atlanticus</i>	TARPON	TAR	4350
<i>Sphyrna spp.</i>	SHARK HAMMERHEAD	XHH	3516	<i>Lobotes surinamensis</i>	TRIPLETAIL	TPL	4590
<i>Sphyrna mokarran</i>	SHARK HAMMERHEAD GREAT	GHH	3524				
<i>Sphyrna lewini</i>	SHARK HAMMERHEAD SCALLOPED	SPL	3523				
<i>Sphyrna zygaena</i>	SHARK HAMMERHEAD SMOOTH	SHH	3522				
<i>Squalidae spp.</i>	SHARK DOGFISH	SDG	3503				
<i>Isistius brasiliensis</i>	SHARK DOGFISH COLLARED	SCO	3572				
<i>Mustelus canis</i>	SHARK DOGFISH SMOOTH	DGS	3511				
<i>Squalus acanthias</i>	SHARK DOGFISH SPINEY	DGY	3521		SQUID	SQX	8030
<i>Somniosus microcephalus</i>	SHARK GREENLAND	SGR	3532		UNCODED ANIMAL	UNC	9999
	SHARK	SHX	3508		UNKNOWN	UNK	0000
<i>Pteroplatytrygon violacea</i>	PELAGIC STINGRAY	PEL	2859				
<i>Mobulidae</i>	MANTA RAY	MAN	2864				
	SKATES/RAYS	SRX	3650				

INCIDENTAL TAKE SPECIES CODES

	TURTLE	TTX	8120
<i>Chelonia mydas</i>	TURTLE GREEN	TTG	8112
<i>Eretmochelys imbricata</i>	TURTLE HAWKSBILL	THB	8113
<i>Caretta caretta</i>	TURTLE LOGGERHEAD	TTL	8114
<i>Lepidochelys kempi</i>	TURTLE KEMP'S RIDLEY	TKR	8119
<i>Dermochelys coriacea</i>	TURTLE LEATHERBACK	TLB	8118

	WHALE	WHA	9006
<i>Orcinus orca</i>	WHALE KILLER	MKW	9020
<i>Ziphiidae spp.</i>	WHALE BEAKED	WBK	6953
<i>Kogia breviceps</i>	WHALE SPERM PYGMY	PSW	9013
<i>Globicephala spp.</i>	WHALE PILOT	MPW	9026
<i>Globicephala melas</i>	WHALE PILOT LONGFIN	PWL	9027
<i>Globicephala macrorhynchus</i>	WHALE PILOT SHORTFIN	PWS	9028
<i>Hyperoodon ampullatus</i>	WHALE NORTHERN BOTTLENOSE	WNB	9049
<i>Delphinidae spp.</i>	DOLPHIN	MDO	9038
<i>Tursiops truncatus</i>	DOLPHIN BOTTLENOSE	MBD	9036
<i>Grampus griseus</i>	DOLPHIN RISSOS	MRD	9037
<i>Stenella attenuata</i>	DOLPHIN PANTROPICAL SPOTTED	MPD	9039
<i>Stenella frontalis</i>	DOLPHIN ATLANTIC SPOTTED	MAD	9040
<i>Stenella clymene</i>	DOLPHIN SPINNER SHORT BEAKED	MCL	9041
<i>Delphinus delphis</i>	DOLPHIN COMMON	MCO	9042
<i>Stenella coeruleoalba</i>	DOLPHIN STRIPED	MSD	9043
<i>Mammalia</i>	MARINE MAMMAL UNIDENTIFIED	MAM	9010

<i>Aves</i>	SEA BIRD	BRD	6100
<i>Morus bassanus</i>	GANNET NORTHERN	GAN	6171
<i>Larinae spp.</i>	GULL	GUX	6200
<i>Larus marinus</i>	GULL BLACK BACKED	GBB	6205
<i>Larus argentatus</i>	GULL HERRING	GHE	6206
<i>Leucophaeus atricilla</i>	GULL LAUGHING	GLA	6208
<i>Puffinus spp.</i>	SHEARWATER	SWX	6400
<i>Puffinus gravis</i>	SHEARWATER GREATER	SWG	6402
<i>Calonectris diomedea</i>	SHEARWATER COREY'S	SWC	6407
<i>Oceanites oceanicus</i>	STORM PETREL	SPW	6434
<i>Fregata magnificens</i>	FRIGATE BIRD	FRB	6141

PHOTO LOG

ROLL# (N/A if SD card provided) _____

TRIP NO _____

FRAME NO	SUBJECT	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

PHOTO LOG

ROLL# (N/A if SD card provided) _____

TRIP NO _____

FRAME NO	SUBJECT	DATE
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		

SET FORM INSTRUCTIONS

This form is to be used to report fishing activity for Atlantic highly migratory species (HMS) permit holders. Under current regulations, all fishermen are responsible for submitting a logbook for every fishing trip. Set forms must be filled out within 48 hours of that day's activities or before offloading, whichever is sooner.

Please print all requested information clearly. A form with incomplete or unclear information may delay processing and will not be credited towards your compliance. This lack of compliance may result in your permit renewal being denied. **Monthly reporting for individuals holding Swordfish and Shark permits will be considered complete and in compliance with the regulations only if:** 1.) A Trip Summary is completed for each trip made, 2.) individual Set forms are completed for each set made during a trip (longline) or 24 hour period of fishing activity (non-longline), 3.) Tally Records (individual dressed weights) for all fish sold are submitted for each trip made; or 4.) A "No Fishing" reporting form is submitted when no fishing occurred during a calendar month.

If a permitted vessel did NOT fish during a calendar month, a No Fishing Reporting Form must be submitted. No Fishing Reporting Forms are located in the back of the Trip Summary Logbook, behind the trip report forms. Please note the following for No Fish Reports:

- A separate form must be completed for each month that no fishing occurred;
- Please do not submit one form for multiple months.
- Do not submit more than one form for each month.
- Put a check by each permit to indicate the fishery in which no fishing occurred.
- Multiple fisheries can be reported on one form.
- Do not check fisheries for which you do NOT have a permit.

Please mail **original** set forms, along with the **original** Trip Summary Form and **original** weigh out slips (tally records), or a No Fishing Reporting Form in the pre-addressed envelopes provided. The address is as follows:

**National Marine Fisheries Service
Logbook Program
P.O. Box 491740
Key Biscayne, Florida 33149-9915**

Set forms must be completed within 48 hours of that day's activities or before offloading, whichever is sooner. Reports should be postmarked no later than the 7th day after offloading all Atlantic Highly Migratory Species, or (7) days after the end of a month for which you are reporting no fishing activity. **Faxed reports are no longer accepted.** When additional forms or envelopes are needed, please include a note with your logbook submission or call the Logbook Program at the number listed below. Include your name, address and your vessel identification number. Alternatively, you can download forms from our website at <http://www.sefsc.noaa.gov/fls.jsp> . If you have any questions regarding logbook reporting, please contact the Logbook Program at (305) 361-4581, or Matt Maiello at 305-361-4574. If you have questions regarding HMS fisheries (regulations, permit requirements, reporting, etc.), please call 301-713-2347 or visit <http://www.nmfs.noaa.gov/sfa/hms/> .

Please use a separate set form for each set made (longline) or day of fishing activity (non-longline). If using multiple gears per trip, a separate set form will be required for each gear type used during that day of fishing activity. Please complete the required information listed below on each set form submitted:

- **Official Vessel Number** - Enter the official US Coast Guard documentation number or state registration number for the vessel as it appears on the permit.
- **Signature** – The **captain** must sign each set form to verify accuracy of information.
- **Target** - Designate the primary Target species. (Note: multiple species may be checked.).
- **Gear** - Record the gear used for the set. **Please note that when fishing with multiple gears**, a separate form must be used for each gear type. If gear is being used that is not fished in sets, one set form is required for each day (or 24 hour period) of fishing activity. If the gear type you are using is not on the form, please mark 'Other' and handwrite (list) the gear type in the space provided (ie. Greenstick gear).
- **Begin Set Date** – Enter the month and date that the set (longline) or fishing activity (non-longline) began.
- **Begin Haulback Date** – Enter the month and date that the longline haulback began.

Enter Times when using **longline gear** in the fields listed below (Note: Do not use military time):

- **Begin Set** – Enter the time the set began. Designate **AM** or **PM**.
- **End Set** – Enter the time when the set had been placed. Designate **AM** or **PM**.
- **Begin Haulback** - Enter the time that haulback began. Designate **AM** or **PM**.
- **End Haulback** - Enter the time when haulback of the gear had been completed.

When using **non-longline** gear, please indicate the time fishing began in the ‘Begin Set Time’ field. Indicate the time fishing ended in the ‘End Haulback Time’ field.

- **Latitude and Longitude** – Record the location at the start of each set to the nearest degree and minute, and the **Surface Water Temperature**, in degrees Fahrenheit.
- Enter the following data for each set if using pelagic or bottom **Longline** gear:
 - **Number of hooks** per set
 - **Number of hooks between floats**
 - **Number of light sticks**
 - **Length of Mainline** (in miles)
 - **Average Length of Gangions** (in fathoms)
 - **Average Length of Floatline** (in fathoms)
 - Indicate whether “**J**” **Hooks or Circle Hooks, or both** were used
 - Indicate what **size hooks** were used: 16/0, 18/0, or other size(s) (use space provided)
 - Indicate whether **offset hooks** were used: Yes or No
 - Indicate the **Bait Type** used: Dead, Live, or Artificial
 - Indicate if the **Bait Used** was Squid, Mackerel, or ‘Other’
- Enter the following data for each set if using **Hook and Line**. This would include all hook and line gear (i.e. handline, rod and reel, buoy gear, greenstick, etc.) except Pelagic Longline and Bottom Longline:
 - **Total Lines Fished** is the total number of lines fished (not including drifts, redeployment or branch lines).
 - **Total Hooks Fished** is the total number of hooks fished (not including drifts or redeployment).
 - Indicate whether “**J**” **Hooks or Circle Hooks (or both)** were used.
 - Indicate what **size hooks** were used on the space provided (ie. 7/0, 9/0, 11/0, etc.). You may list more than one size when applicable.
 - **Number of Buoy Gears deployed** (if applicable) refers to the number of buoy gear configurations, or units, deployed (not including drifts or redeployment).
 - Indicate the **Bait Type** used: Dead, Live, or Artificial
 - Indicate if the **Bait Used** was Squid, Mackerel, or ‘Other’
- Record numbers of **SWORDFISH and TUNA, SHARKS, AND ‘OTHER SPECIES’ KEPT AND THROWN BACK**. Write down the numbers of fish that were kept (**No. Kept**) for each species. For the fish that were thrown back, please specify the number that were released **Alive** and the number that were released **Dead**. For **Est. Lbs Kept**, write down the estimated dressed weight of fish kept for each species. For catches of species not listed on the form, print the species name in the blank spaces provided and record the requested catch information.
- Record numbers of **PROTECTED SPECIES** involved with the fishing gear:
 - **Total Number Involved**. Write down the total number of each protected species that were hooked and/or entangled with the fishing gear for the period of the report.
 - **Number Injured**. Write down the number of individuals of each protected species that was hooked or otherwise injured by the fishing gear.
 - **Number Dead**. Write down the number of individuals of each protected species that was dead or unresponsive as a result of being caught or impacted by the fishing gear.
 - **If another species is encountered** that is not listed, write the species name in the space provided.

*Mail all set forms with the corresponding
Trip Summary form and tally sheet(s) within 7 days after the last offloading date to
NATIONAL MARINE FISHERIES SERVICE,
P.O. BOX 491740,
MIAMI, FL, 33149.*

Retain the yellow copy of set forms for your records.

PAPERWORK REDUCTION ACT STATEMENT: Atlantic highly migratory species vessel logbooks provide information on fishing effort, target catch and bycatch in the fisheries for tunas, sharks and swordfish. This information is the basis for quota monitoring and stock assessment and is used to meet international obligations to report fishery statistics to the International Commission for the Conservation of Atlantic Tunas. Public reporting burden for this information collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completed & reviewing the collection of information, is estimated to average: 12 minutes per response for the set form (daily report); 30 minutes per response for the trip expense and earnings summary; 2 minutes per response for the no-fishing report; and 30 minutes per response for the annual expenditures form. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Highly Migratory Species Management Division, National Marine Fisheries Service, F/SF1, 1315 East West Highway, Silver Spring, MD 20910. Providing the requested information in the vessel logbook is mandatory, if selected, and is necessary for managing the Atlantic highly migratory species fisheries in accordance with the Atlantic Tunas Convention Act (16 U.S.C. 971 et seq.) and the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.). In accordance with NOAA Administrative Order 216-100, it is agency policy not to release confidential fisheries statistics, other than in aggregate form. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number. This is an approved information collection under OMB #0648-0371 and expires October 31, 2011.

2010 ATLANTIC HIGHLY MIGRATORY SPECIES LOGBOOK - Set Form

OMB 0648-0371 Exp 10/31/2011
Version Date 09/09
NOAA Form 88-191

Please Use Black or Blue Ink only

Official Vessel Number: Signature: _____

I certify that the information contained on this form is accurate and complete to the best of my knowledge. NMFS Use Only: _____

TARGET: Swordfish Yellowfin Bigeye Mixed Tuna Sharks Dolphin Other (list) _____

GEAR SECTION NOTE: If fishing multiple gears, use separate forms for each gear type (See instructions).

GEAR: Pelagic Longline Bottom Longline Handline Harpoon Gillnet, Drift Gillnet, Other Rod & Reel Bandit Otter Trawl Squid Trawl Buoy Other (list) _____

Set:	Begin Set Date: <input type="text"/> / <input type="text"/> / 2010	Begin Set Time: <input type="text"/> : <input type="text"/> Oam Opm	End Set Time: <input type="text"/> : <input type="text"/> Oam Opm	If the <u>Longline Haulback</u> took more than 24 hours, then check here: <input type="radio"/>
Haulback:	Begin Haulback Date: <input type="text"/> / <input type="text"/> / 2010	Begin Haulback Time: <input type="text"/> : <input type="text"/> Oam Opm	End Haulback Time: <input type="text"/> : <input type="text"/> Oam Opm	

Latitude at beginning of set: North Longitude at beginning of set: West Surface Water Temp: °F Date Received: (NMFS Use Only)

LONGLINE:				USE SEPARATE FORMS FOR EACH TYPE OF GEAR	HOOK & LINE:	
Please do not use decimals or ranges. Use whole numbers only.					Use whole numbers only.	
Number of:	Length of:	Hook:	Bait Type:	Total Lines Fished	No. Buoy Gears Deployed	
Hooks <input type="text"/>	Mainline (nm) <input type="text"/>	Type? <input type="radio"/> "J" <input type="radio"/> Circle	<input type="radio"/> Dead <input type="radio"/> Live <input type="radio"/> Artificial	Total Hooks Fished <input type="text"/>	<input type="text"/>	
Hooks between Floats <input type="text"/>	Average Gangion (fm) <input type="text"/>	Size? <input type="radio"/> 16/0 <input type="radio"/> 18/0 <input type="radio"/> Other size	Bait Used: <input type="radio"/> Squid <input type="radio"/> Mackerel <input type="radio"/> Other	Type? <input type="radio"/> "J" <input type="radio"/> Circle	List Size(s) _____	Bait: Type: <input type="radio"/> Dead <input type="radio"/> Live <input type="radio"/> Artificial <input type="radio"/> Squid <input type="radio"/> Other <input type="radio"/> Mackerel
Light Sticks <input type="text"/>	Average Floatline (fm) <input type="text"/>	Offset? <input type="radio"/> Yes <input type="radio"/> No				

SWORDFISH and TUNA				SHARKS					
	No. Kept	No. Thrown Back		Est. Lbs. Kept		No. Kept	No. Thrown Back		Est. Lbs. Kept
		Alive	Dead				Alive	Dead	
Swordfish					PELAGIC SHARK				
Bonito Tuna					Blue				
Bluefin Tuna					Mako, Longfin				
Skipjack Tuna					Mako, Shortfin				
Yellowfin Tuna					Oceanic Whitetip				
Blackfin Tuna					Porbeagle				
Albacore Tuna					Thresher, Bigeye				
Bigeye Tuna					Thresher, Common				

OTHER SPECIES				COASTAL SHARK			
White Marlin				Bignose			
Blue Marlin				Blacktip			
Sailfish				Dusky			
Spearfish				White			
Escolar				Hammerhead			
Dolphin (Mahi)				Night			
Wahoo				Sandbar			
King Mackerel				Sharpnose			
Greater Amberjack				Silky			
Banded Rudderfish				Spinner			
				Tiger			

PROTECTED SPECIES							
	Involved	Injured	Dead		Involved	Injured	Dead
Leatherback				Pilot Whale			
Loggerhead				Risso's Dolphin			
Sm. tooth Sawfish				Other Species: _____			

January 2012

POP Biological Sampling Requirements

- 1) All Geographical Areas (except as specified)
- 2) Collect all length, weight, and sex information as instructed for each species.

SWORDFISH

General: Anal spines from all female swordfish measuring ≥ 250 cm LJFL and all male swordfish ≥ 230 cm LJFL (for male swordfish, include a 2-3 inch cross section of gonad along with the spine to confirm sex ID).

Tag recapture (dead only): Collect anal spines from all sizes, sexes.

TUNAS

Yellowfin: No sampling until further notice

Bluefin: Updated sampling protocols may be mailed shortly; intensive sampling will apply during BFT GOM project.

Bigeye and Albacore: no sampling until further notice.

Tag Recaptures (all species, dead only): no special sampling except in case of satellite or archival tags. Refer to your observer manual for specific instructions.

SHARKS

Tag recapture (all species, dead only): collect vertebral centra.

BILLFISH

This year we are modifying the special sampling protocol for dead, boated WHM, WHX, SPG, SPF, and SPX. Starting this year we will only be collecting anal fins from these animals (sex ID and LJFL also required); other measurements (e.g. anal fin height, branchiostegal lengths, etc.), photographs, and skin patches will not be required **unless needed to verify species identification.**

Tag recapture (all species, dead only): no special sampling required.

OPAH

When Opah are brought on board, obtain straight fork length (FL). Record on a waterproof page from field diary: date of capture, FL, weight (dressed, if landed and estimated whole weight, if discarded at sea), sex (see pictures for assistance with differentiating sexual dimorphism in larger Opah), capture location (latitude and longitude), and estimated hook depth.

Standing directly above center of fish, take a profile picture, including the fins. So photos can be matched up with each particular fish, include the waterproof tag and place measuring device alongside the ventral (belly) side of the Opah for picture (see example).

Take a 1 cm x 2 cm fin clip from the proximal (inner), posterior corner of the pectoral fin. Place fin clip with waterproof tag in a ziplock bag and store in freezer or in ice hold.

Take additional measurements and meristic counts as requested if it does not interfere with your normal observer duties (see blank form and diagram).

October 2010

Opah Sampling Background and Goals

In conjunction with colleagues at the NOAA, Pacific Island Fisheries Science Center (PIFSC), and the Southwest Fisheries Science Center (SWFSC), we are taking a closer look at the incidentally caught *Lampris guttatus*, commonly known as Opah. On-going research has included; DNA sequencing, morphometric, and meristic examination of *L. guttatus* caught in the Hawaii based long-line fishery.

Findings indicate that there are two distinct genotypes of Opah in Hawaii being classified as one species. Visually, eye size, relative to body size, is the most noticeable characteristic when distinguishing the two Opah morphotypes; hence, we have been referring to them as "Bigeye" and "Small-eye" Opah. Upon further investigation, differences in physical appearance between the two species were documented; i.e. spot structure, tongue color, skin coloration, and relative length of pelvic, Caudal, and dorsal fins. These variations were first thought to be due to sexual dimorphism, however, both sexes were found among Big-eye and Small-eye Opah examined.

Through this process we are also investigating the possibility of a third cryptic species in Madeira. A Canary Islands Opah fin clip, from a fish stored in a museum, appears to be yet another unique lineage, perhaps this is Lowe's *Lampris lauta* (1843).

All of the aforementioned species are genetically different enough from the North Sea Opah that M.T. Brünnich described in 1788, to be considered unique.

Our intentions are to expand the collection of genetic, morphological and meristic parameters from Opah in different parts of the world. International travel to collect Opah samples is not always feasible; alternatively, existing observer programs, or pelagic long-line research have been effective in our pursuit.

Utilizing our findings in Hawaii, combined with biogeographical data, photos and genetic samples generated from your region, and other places Opah are found, we will build a cohesive knowledge base for the genus *Lampris*; and ultimately publish our results. All contributions will be recognized; moreover, we would like to extend our gratitude to all nations and individuals who choose to participate in this project.

Thank you for your time and interest in our project,

PROPOSED SAMPLING PROTOCOL FOR OPAH:

- ✓ When *Opah* are brought on board the vessel, please take a fork length measurement; in the absence of a straight edged tool, a measuring tape is acceptable. Please record the date of capture, FL, weight, sex^{*}, capture location (latitude and longitude), and estimated capture depth. Create a waterproof tag with this information[†].
- ✓ Directly above the center of the fish, including the fins, take a profile photo of the *Opah*. Please include the fish-measuring tool alongside the ventral (belly) side of the *Opah*, and the data tag for photo identification. Any unique characteristics (i.e. tongue color, spot shape, caudal fin shape, etc.) can also be photographed; just remember the ID tag in each photo so we can match the pictures with the results of the analysis.
- ✓ Remove a 1cm x 2 cm fin clip from the inner, posterior corner of the pectoral fin. Place the fin clip with its data tag into a sealable bag that can be stored in the freezer, or ice hold until the vessel returns to port.
- ✓ When you return to port mail these specimens to John Hyde in LaJolla, California for DNA sequencing[‡]. The photos and data can be sent to the email address in Hawaii^Δ.

Ideally we would like to obtain 25 fin clips matched with corresponding photos of each *Opah*. However, we do realize sampling priorities while at sea are limited so we would be grateful for any collection of fin clips, counts, measurements and photos that can be procured.

If the situation permits additional measurements and counts, would be most beneficial. A blank form, and diagram is attached with the information we are collecting in Hawaii.

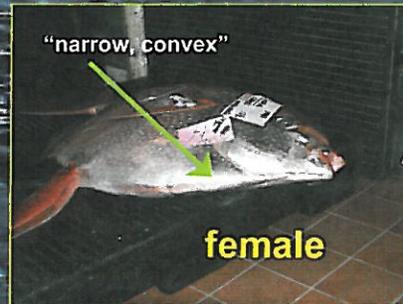
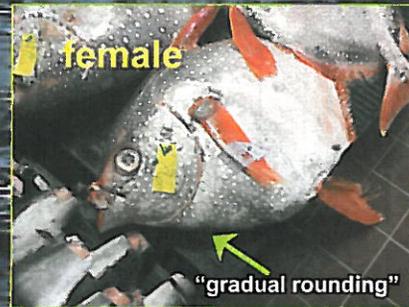
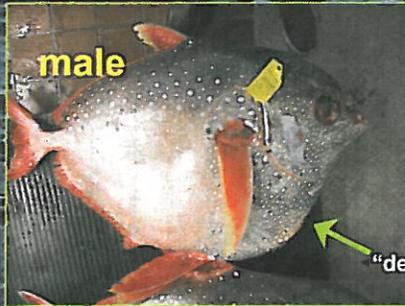
Thank you again for your assistance,

*The gender of *Opah* is determined based on secondary, sexually dimorphic characteristics. Fish with a narrow and convex, gradually rounded pelvic girdle are female, whereas fish exhibiting a broad and concave, deep and abruptly angled pelvic girdle are male (Hawn et al. 2002). The sexual identity of fish < 80 cm FL is indeterminate, as they lack ontogenetic gender expression at this and smaller.

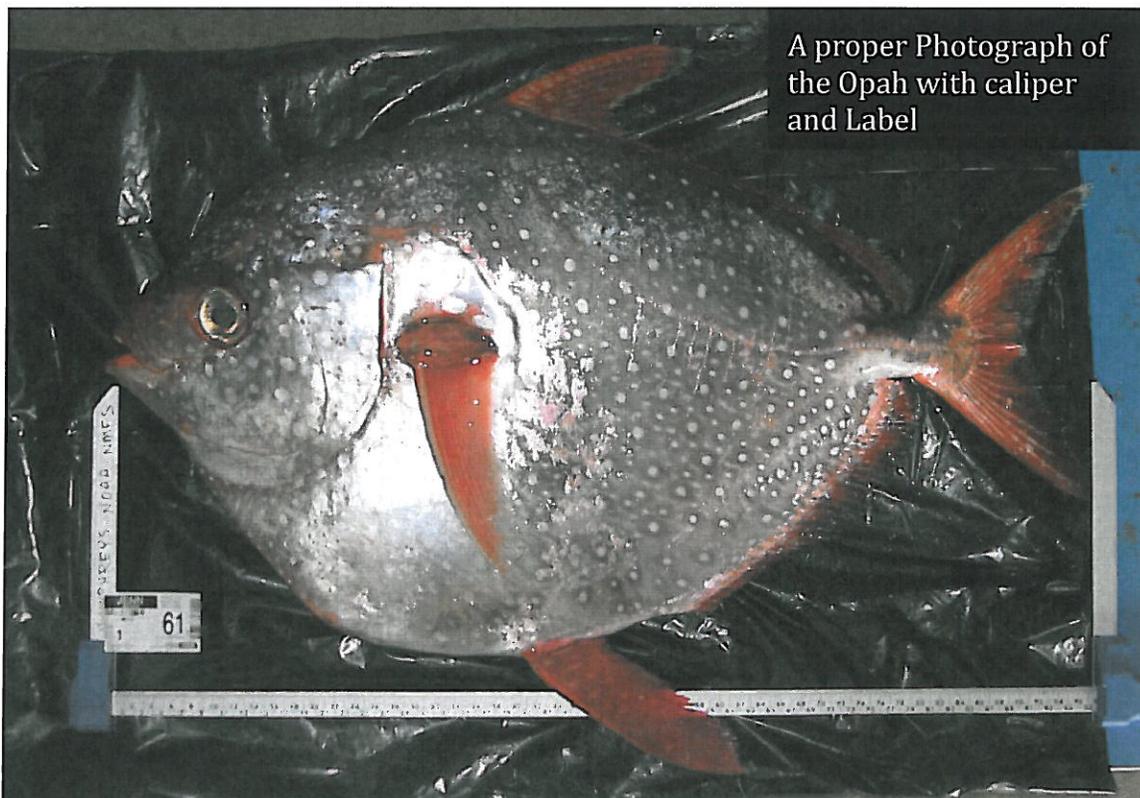
[†]Write in the Rain paper, and a pencil works the best; this can be supplied if needed.

[‡]FedEx is our primary carrier, however, UPS is also available.

Sexual dimorphism of the pectoral girdle in 'large' opah:



Images by Don Hawn



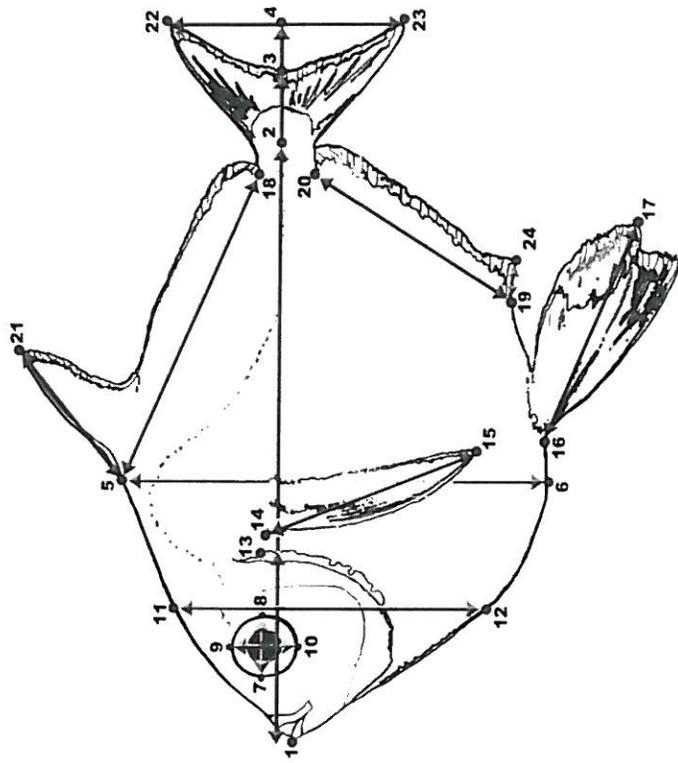
Species: *Lampris guttatus* Universal ID _____ Capture Date ____ / ____ / ____
 Depository _____ Scientist _____

Measurements Requested; with start and end positions (See Diagram)

weight		kgs
standard length (SL), points 1-2		cm
fork length (FL), points 1-3		cm
total length (TL), points 1-4		cm
body depth (BD), points 5-6		cm
head-length (HL), points 1-13		cm
head-depth (HD), points 11-12		cm
horizontal eye diameter (hEyd), points 7-8		mm
vertical eye diameter (vEyd), points 9-10		mm
dorsal fin height (DH), points 5-21		cm
base of dorsal fin length (bDL), points 5-18		cm
pectoral fin length (PL), points 14-15		cm
ventral aka pelvic fin length (VL), points 16-17		cm
anal fin height (AH), points 19-24		cm
base of anal fin length (bAL), points 19-20		cm
caudal fin spread (CS), points 22-23		cm

Elements for meristic comparisons;

branchiostegial rays (B)	
total dorsal fin rays (tD)	
total pectoral fin rays (tP)	
total ventral (pelvic) fin rays (tV)	
total anal fin rays (tA)	
total caudal fin rays (tCR)	
tounge color	





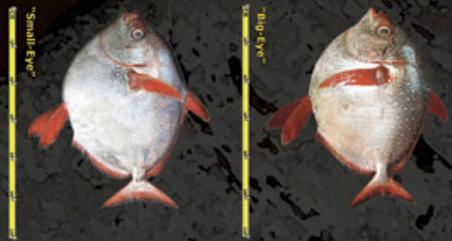
MOONFISH RISING ... BIG OR SMALL EYE?

~ Karen E Underkoffler, ~ Meagan A Sundberg, ~ John R. Hyde

= Joint Institute for Marine and Atmospheric Research - University of Hawaii, Aiea Heights Research Facility, Aiea, HI
 = NOAA, National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla CA

MOONFISH RISING ... BIG - OR SMALL-EYE?

In Hawaii, the Opah or Moonfish, *Lampris guttatus*, has historically been an incidental catch of longline gear used in the pelagic fishery. Opah's emergence as a commercially valuable species prompted scientists to investigate the sustainability of the fish in the marketplace and in the fishery. As stock assessment investigators expanded the collection of biological parameters at the Hawaii auction house, curiously few buyers to question why some opah had a smaller or larger eye with no other apparent morphological differences. Initial investigative findings suggest that the Big- and Small-Eye Opah are separate species.



INTRODUCTION:

Opah, taken on longline gear year-round with landings peaking in April-August, are viewed as a lucky fish by old-time longline fishermen, who prefer to give it away as a gesture of goodwill rather than sell it. Moonfish are commercially important to fishermen and consumers, drawing crowds at the United Fishing Agency (UFA) and around the dinner table. They are placed on the UFA auction floor and put up for sale to restaurant, import and local buyers who bid the highest prices. Analysis of Genetic tissue and morphological differences, leads us to believe that two types of *L. guttatus* are sold as one species.

METHODS OF IDENTIFICATION:

Morphology - Preliminary measurements taken from 48 fish of comparable size and sex included; Eye Depth and Length related to Body Depth and Fork Length respectively. Dorsal and Pectoral Fin Appearance - Visual clues used for species identification; Spot structure, Tongue and Skin coloration, in addition to, Dorsal, Pelvic and Pectoral Fin size relative to over-all Body size.
Meristics - Counts such as fin rays were taken on specimens purchased by JIMAR to help reveal any underlying differences in both eye types, and to build a baseline for taxonomic recognition. No apparent differences have been revealed at this stage in our research.
Genetics - Fin clips were collected from 47 fish in a range of sizes and weights to include Big and Small-eyed Opah. Male and female specimens for both types were selected to eliminate possible size fluctuations as it relates to sexual dimorphism in other species. 1590 bp of the mitochondrial cytochrome c oxidase subunit 1 gene were sequenced using standard protocols.

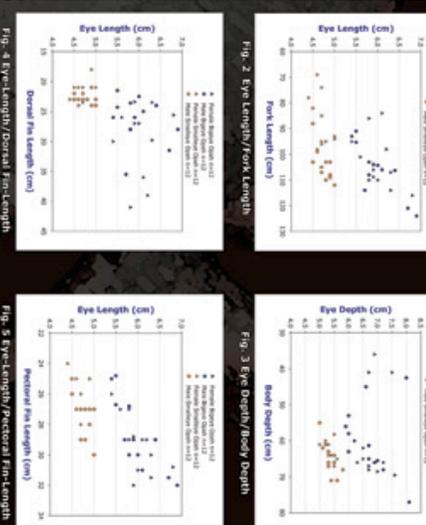
RESULTS:

Fig 1. Phylogenetic tree generated by the neighbor-joining method using Kimura's 2-parameter distance measures. Support values for clades were generated using 1000 bootstrap replicates. The "Big-Eye" and "Small-Eye" clades are ~7% diverged from each other and ~12% diverged from *Lampris immaculatus*. Greater than 90% of species surveyed at this gene exhibit less than 1% intra-specific differentiation. Both Opah clades exhibit 0.92% within-clade differentiation.



DISCUSSION AND IMPLICATIONS OF RESEARCH:

Lampris guttatus, caught in the Hawaii longline fishery, were examined using taxonomic and genetic variables. Differences between the big- and small-eye Opah were evident, and a definite distinction can be found when comparing eye-lengths to fork and fin-lengths. Morphological characteristics exhibiting the greatest differences are closely related to eye size, but visually apparent clues such as skin and tongue coloration can also be used to identify the different types. Supporting DNA analysis confirms morpho-metric variations, showing a distinct separation between clades of small-eye and big-eye Opah. Currently, two species of Opah exist on record. *L. guttatus* and *L. immaculatus*. Our findings suggest a third member will be added to the family of *Lampris*. In an effort to further define cryptic variations within this species, supplemental genetic and taxonomic measurements will be obtained and analyzed.



ACKNOWLEDGEMENTS:

JIMAR: for funding
 UFA: Managers, Crew and Fish Buyers...Thanks Guys !!
 NMFS: Robert Humphreys and Bruce Mundy for guidance
 The Smithsonian Institute: Lynn Parenti and Sandra Rarredon for Radiograph of *L. guttatus* (SIO 82-70)
 California Academy of Science: Jon Fong for Radiograph of *L. guttatus* (SU 49153)
 NOAA: Wendie Goo and Kat Uno for assistance with poster graphics

OPAH FEATURES

(*Lampris guttatus*)

BIG-EYE

Big Eye Relative to Body Size
Opalescent Posterior and Ventral Skin Coloration
Longer Dorsal, Pectoral and Pelvic Fins
Scalloped Shape of Caudal Fin
Pin-Point Spot Structure
Purplish Tongue



SMALL-EYE

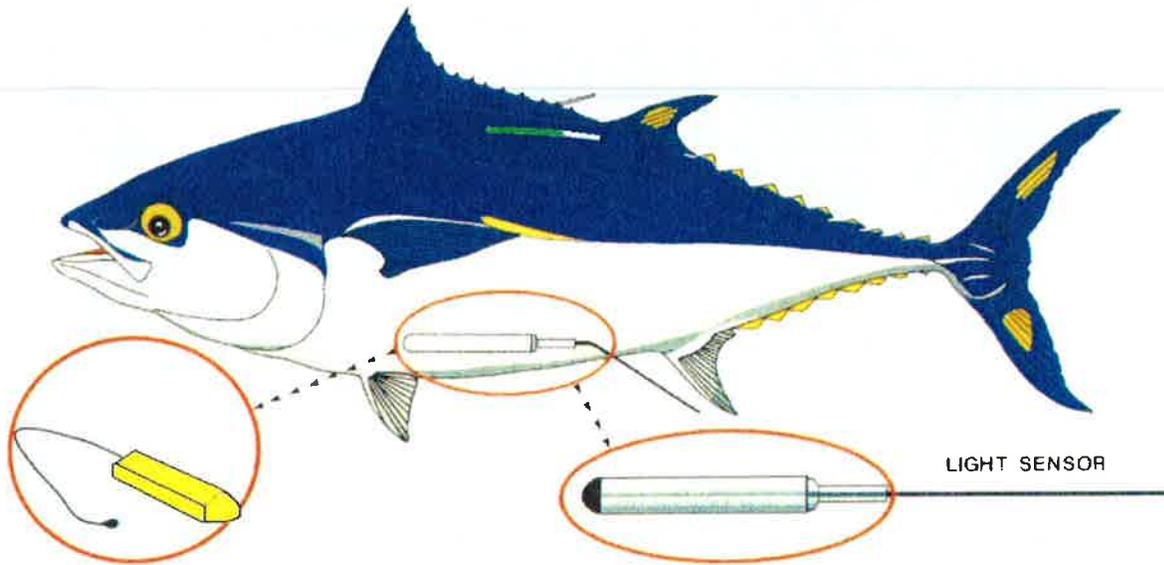
Smaller Eye Relative to Body Size
Silvery Skin Coloration across Entire Torso
Shorter Dorsal, Pectoral and Pelvic Fins
Fried Egg Shaped Spot Structure
Truncate Caudal Fin
Pink Tongue



\$1,000 Reward

OFFERED FOR

ARCHIVAL TAGS FROM ATLANTIC BLUEFIN TUNA



What are archival tags? Archival tags are electronic data-logging devices that provide location estimates by measuring light intensity through a light sensor. They also provide data on swimming depth, water temperature, and body temperature of the fish. This information is collected on a daily basis and stored in the tag for several years.

How do you determine that a bluefin tuna has an archival tag? Archival tags are implanted in the body cavity of the tuna and only the light sensor protrudes out of the body. However, these specially equipped bluefin tuna also carry unique external conventional streamer tags, with two-tone coloration, to help fisherman recognize these fish and return the archival tags. The external tags are placed about an inch off the dorsal midline on each side of the fish. On the white portion of the streamer tag it says "electronic tag inside cavity" and on the green side it says "Big \$\$\$ reward".

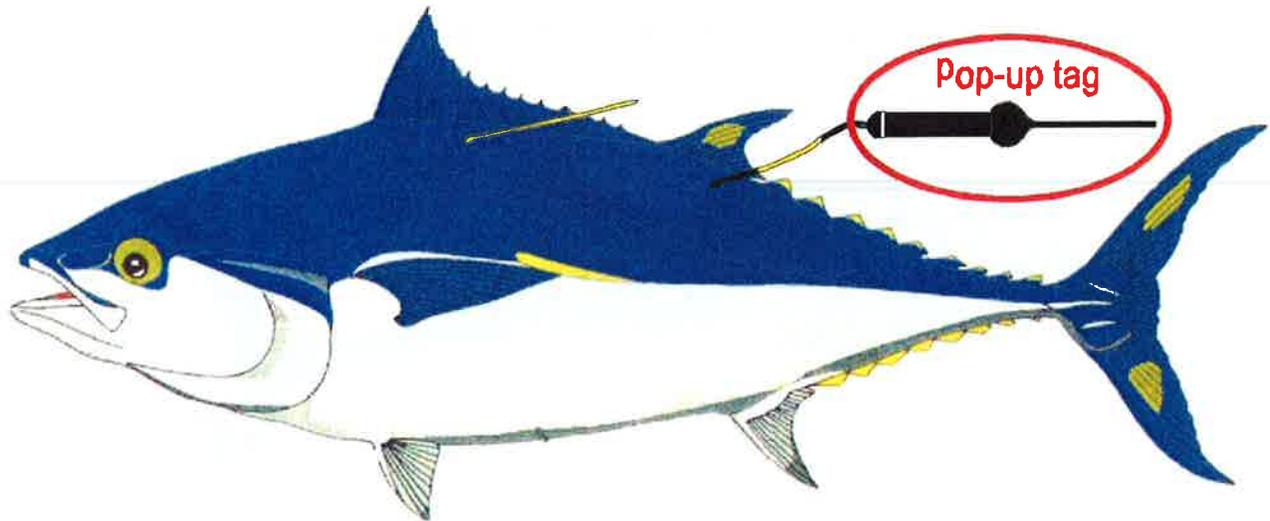
PROCEDURE FOR GETTING YOUR REWARD:

1. Report all archival tagged bluefin tuna to **YOUR LOCAL FISHERIES AGENCY**, or in the West Atlantic call the toll free number 1-800-437-3936 ¹. In the East Atlantic/ Mediterranean call the International Commission for the Conservation of Atlantic Tunas (ICCAT), Madrid, Spain, at 34-1-579-3352. Additional instructions will be provided regarding where and how the tags should be mailed. **Inquires can also be made to Dr. Eric Prince at his email address: eric.prince@noaa.gov**

2. **DO NOT DRESS THE FISH OR ATTEMPT TO REMOVE THE ARCHIVAL TAG BY PULLING ON THE LIGHT SENSOR.** Set the fish aside and call your local fisheries Agency. To remove the archival tag, make a carefully placed 6 inch incision in the belly cavity, in front of the area where the sensor enters into the fish. Remove the silver or yellow archival tag (with light sensor attached) by hand. Wash the tag with water and keep it at room temperature. Streamer tags can be cut off the fish and the portion of the tag with writing or information should be kept. In addition to saving both the archival and streamer tags, data on location and date of recapture, fishing gear used, length, weight of fish, and your name and address are also important.

\$500 REWARD

OFFERED FOR POP-UP TAGS FROM ATLANTIC BLUEFIN TUNA



Pop-Up Satellite Tags are being put on bluefin by several marine scientists to learn more about the migratory movements of bluefin tuna. Currently tags are being deployed by scientists from the US, Canada and Europe. If you find a fish with a Pop-Up Satellite Tag please remove the tag as instructed below to receive a reward.

What are pop-up tags? Pop-up satellite tags are similar to the emergency EPIRBs used for at-sea rescue since both types of technologies transmit their location to an ARGOS satellite once the antenna is at the sea surface. Pop-up tags are about 13.5 inches long and are externally attached to the bluefin as indicated above. The pop-up tags are programmed to automatically release but it is possible to capture a bluefin prior to the tag releasing. If the tag does come off the fish, it will send its location information to the ARGOS satellite. Normally, there is no need to physically recover the tag to get the data. However, if you capture a bluefin tuna bearing this very valuable tag prior to its release, please see procedures below.

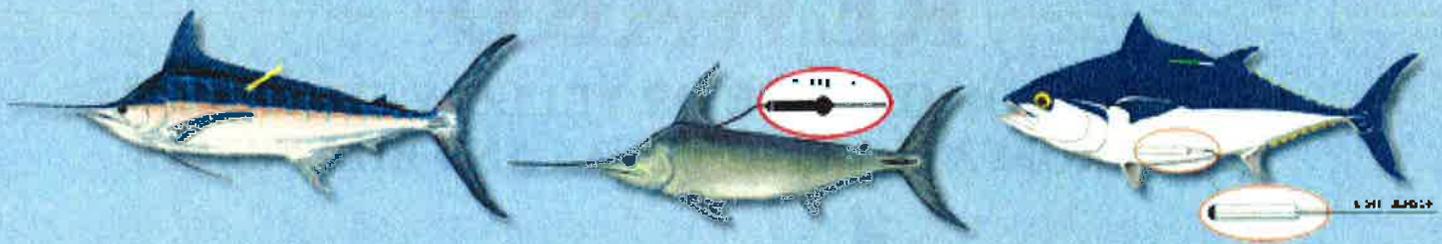
Procedure for getting your reward: Please remove the pop-up tag and the conventional streamer tag by cutting the monofilament, carefully stow them and contact us *immediately* so the tags can be retrieved and re-deployed on another giant bluefin tuna this season. In addition to saving the pop-up and streamer tags, data on location and date of recapture, fishing gear used, length, weight of fish, and your name and address are also important.

CONTACT

**National Marine Fisheries Service
1-800-437-3936**

Please Help. Your timely response is vital to this state-of-the-art bluefin research. Thank you for being a part of the *Bluefin tuna tagging programs.*

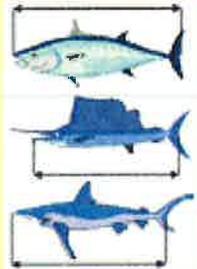
REWARD for the recapture of a tagged fish



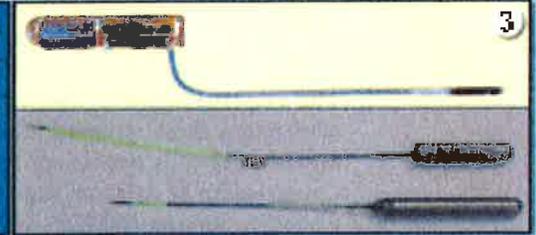
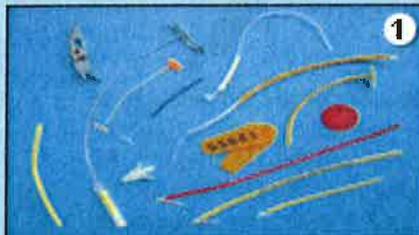
If you find a tagged fish don't pull out the tag until the specimen is measured or weighed. If you can save the fish for examination, do so.

The following information needs to be reported (as detailed as possible):

Tag code (letters and numbers), colour and address printed in the tag
Species, sex (if possible) and length or weight (specify type & units of measurements)
Date and place where the fish was caught and the fishing gear used



Please provide any additional information, such as water temperature, fish condition, wounds, etc.



> Tags implanted on fish are used to learn about fish behaviour and migrations and to estimate important population parameters, such as abundance, mortality and growth. There are three main types of tags: (1) Conventional, (2) Pop-up Satellite Archival, and (3) Internal Archival.

> Pop-up Satellite Archival Tags are electronic data-logging devices that provide location estimates, swimming depth and water temperature. This information is collected and stored in the tag's memory. A summary of these data is then transmitted to the Argos satellite system after the tag pops off at a predetermined time. Pop-up tags are valuable even when found on a beach years later because their memory still maintains the data accurately.

> Internal Archival Tags are implanted in the abdomen of the fish and only the sensor can be seen protruding from the belly. These are electronic data-logging devices that provide the same information as pop-up tags, as well as the fish body temperature. This information is stored in the tag until the fish is recovered. **Please avoid pulling the sensor when removing the tag from the fish.** To remove the tag make an incision on the fish's belly.

Acoustic tags are also electronic tags placed inside the body cavity and are not visible from the outside.



To claim your reward please contact or send information together with the tag and your address to:
ICCAT, E-mail: info@iccat.int, Address: C.P. 542, Madrid, Spain

Closest Local Fishing Agency

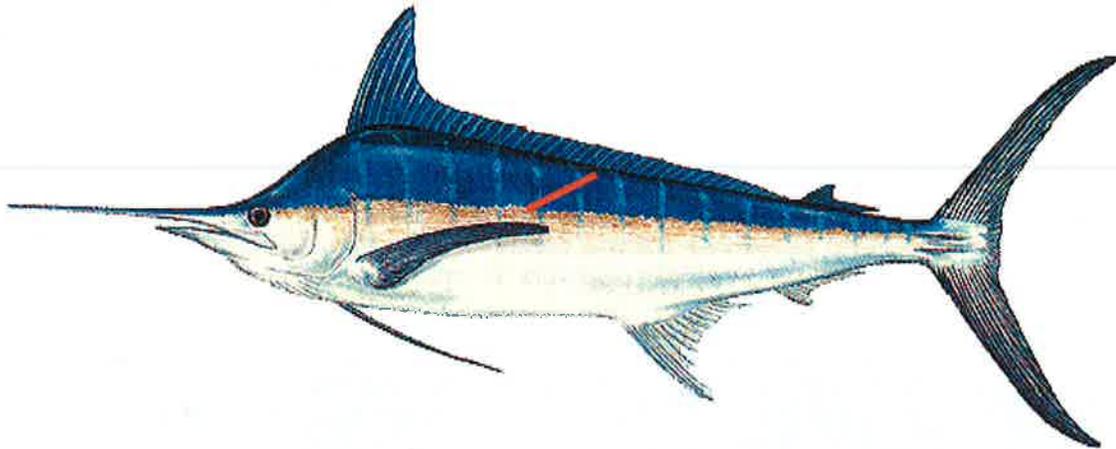
Recovery form available in www.iccat.int



**INTERNATIONAL COMMISSION
FOR THE CONSERVATION OF
TROPICAL TUNA**

REWARD

OFFERED FOR ORANGE OR YELLOW STREAMER TAGS FROM ATLANTIC TUNAS AND BILLFISHES



The external tags are placed about an inch (2.5 cm) off the dorsal midline on the side of the fish. Fishermen who return these streamer tags with recapture information, as described below, will receive one of several different rewards depending on the tag's origin. For example, a tag from the International Commission for Conservation of Atlantic Tunas (ICCAT) will get a **\$4.00 standard reward**, or a tag from the National Marine Fisheries Service (NMFS) will get a **embroidered hat**. Other organizations give **T-shirts** as rewards. In addition, reported tags are entered in the ICCAT annual lottery to win **\$500.00**.

Why are tunas and billfishes tagged? Large pelagic fishes are being tagged through the cooperation of scientists and fishermen by many different Atlantic countries to determine their migratory patterns, define population boundaries, and estimate growth rates, population sizes, and mortality rates. Your cooperation in returning tags which you recover from tunas and billfishes with complete and accurate recapture data will add to our knowledge and understanding of these fish.

WHO TO CONTACT?

Report all tagged tunas and billfishes to **YOUR LOCAL FISHERIES AGENCY**. In the west Atlantic, call the National Marine Fisheries Service's Cooperative Tagging Center at **1-800-437-3936**¹ toll free. In the east Atlantic and Mediterranean area call ICCAT, Madrid, Spain, at **TEL:34-1-416 5600 FAX: 34-1-415 2612**. Additional instructions will be provided regarding where and how the tags should be mailed. **Inquires can also be made to Dr. Eric Prince at his email address: eric.prince@noaa.gov**

WHAT TO REPORT?

- Remove the orange or yellow TAG² (when removing the streamer tag, be sure to clip off the portion of the tag with written information and keep a record of what is written on the tag, in case the tag is lost in mail).
- LOCATION of recapture
- DATE of recapture
- Fishing GEAR used,, LENGTH and/or WEIGHT of fish
- YOUR NAME, telephone number and address

¹ Outside the United States, this toll free number can be used by dialing the access code for the country that you are in for AT&T DIRECT service to the United States.

² If the fish carries a **green and white** streamer tag, this is an indication that it carries also a special (archival) tag in the ventral cavity (just behind the heart), for which a **\$1,000** reward is offered. Remove this tag from the cavity, but do not cut it. To report such a recovery, please refer to the information above.

SEX DETERMINATION PICTURES FOR BILLFISH (BUM, WHM, SPG, SPF, SAI)

We have been asked by a researcher at Texas A&M – Galveston to obtain photos of urogenital grooves from all billfish (excluding SWO) when possible. The researcher has identified differences in external morphology of sailfish that can determine sex without obtaining gonads and is investigating if this applies to other billfish. Our role is to accurately obtain sex from the gonads of all dead, boated billfish (if not 100% sure, send in a cross section of the gonad with data) and take two photos. These photos will normally need to be taken prior to cutting into the fish. The first one will be of the entire urogenital groove and the second will be a close up of the openings. For females, pull open the posterior end of the groove and place a probe in the ovary discharge pore for close up photo.

MALE:

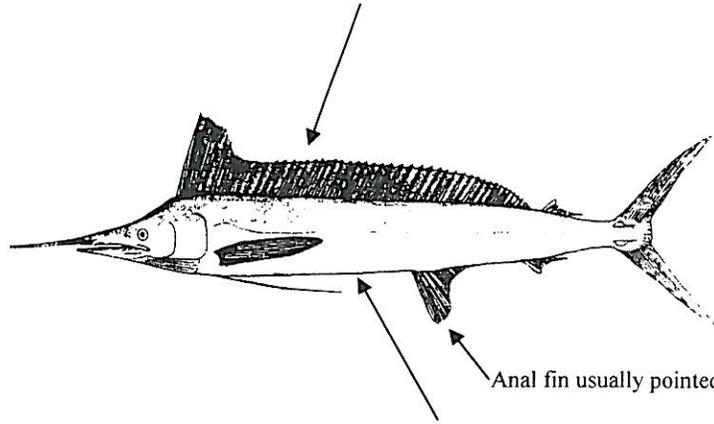


FEMALE:



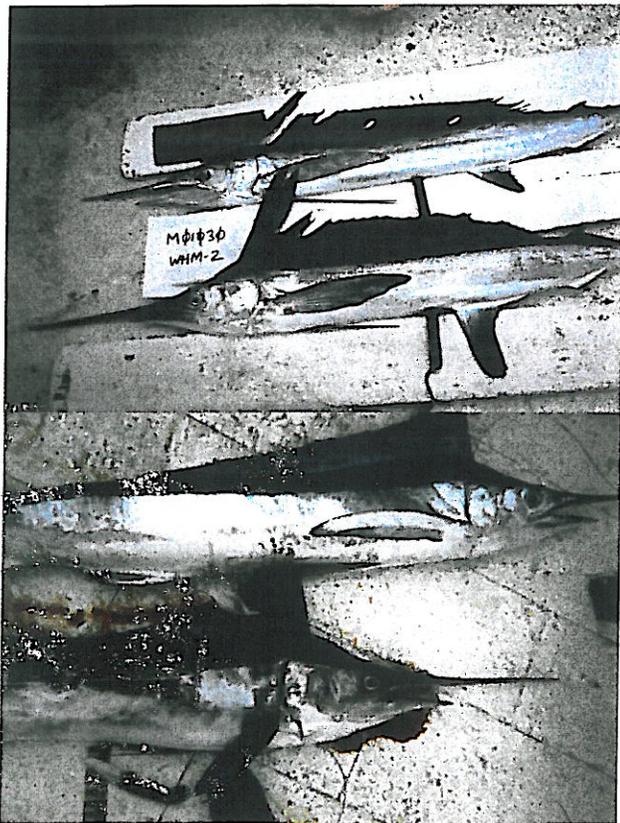
Longbill Spearfish

Dorsal fin usually pointed, with no spots. Posterior portion relatively high off body.



Anal fin usually pointed (unlike in this)

Anal opening about the same distance as anal fin height

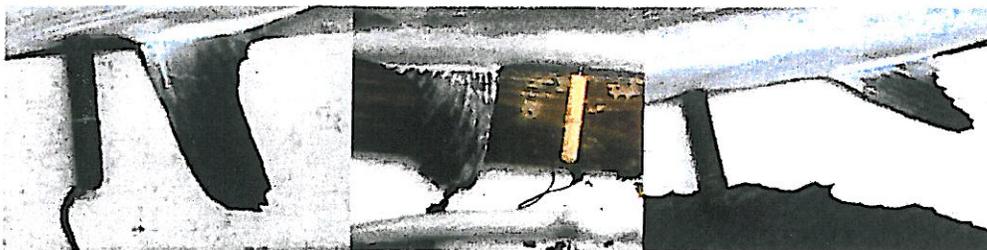


Longbill

White

Roundscale

White



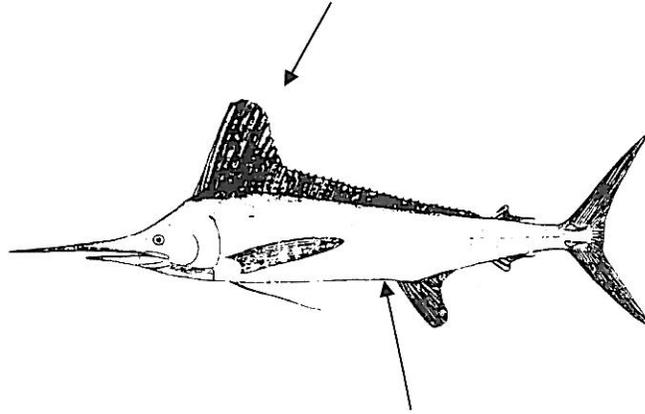
White

Roundscale

Longbill

WHITE MARLIN

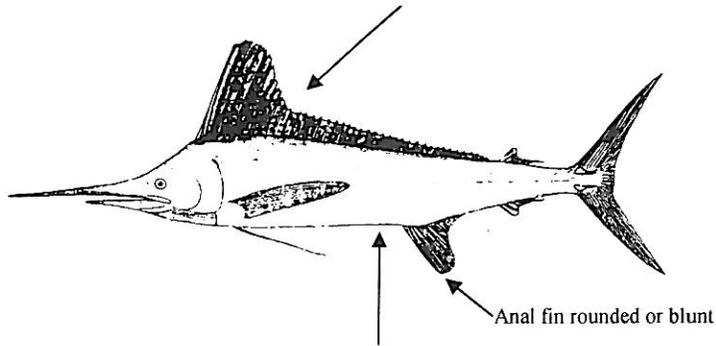
Dorsal fin rounded or blunt, usually but not always with many distinct dark spots.



Anal fin rounded or blunt, anal opening very close to anal fin; less than one half height of anal fin

ROUNDSCALE SPEARFISH

Dorsal fin usually blunt with no distinct spots.



Anal fin rounded or blunt

Anal opening about half to $\frac{3}{4}$ the anal fin height

BIRD LIFE HISTORY FORM MANUAL

10/11 12-15-09

INTRODUCTION

The Bird Life History Form is used for recording biological data on seabirds. These data will be used to determine the number, species, size and condition of birds involved in the fishery. Other data are recorded on the movements and preferred habitats of the various populations of seabirds. These data are critical to the development of conservation and recovery strategies for these seabirds.

GENERAL INSTRUCTIONS

Complete a Bird Life History Form for every seabird brought aboard or released along side of the vessel. If you are unable to positively identify the species, try to take photographs and record it on the data sheet as "unknown". Even if you think you know the species, take a photograph if you can in order that your identification can be validated. Also, try to photograph all hooked or entangled birds that are not brought aboard. Record tag data if tags are present. Also, you may be requested to take biological samples.

If the animal has gear attached, remove the gear immediately, as the severity of the interaction can increase with prolonged exposure to the gear.

We have tried to minimize the amount of writing required. If given a choice, circle the answer to a question or check the appropriate box. Some boxes require a written response.

CAPTURE INFORMATION

Trip Number: Record the unique number assigned by the Observer Program Coordinator or projects principle investigator.

Year, Month, Day: Record the year, month, and day of the recovery of the animal.

Set / Haul / Tow: Record the set, haul, or tow number of the trip.

Specimen Number by trip: Record a three digit consecutive number. Your bird specimen numbers on this trip begin with BR001 and continue sequentially. Bird specimen numbers are kept separate from all other specimen numbers for other species groups.

Gear Type: Indicate which gear is being fished. If gear is something other than the listed types, write in gear type.

Target: Indicate target species for the set/haul/tow. If not one of the two listed, write in species (one or more common name).

Time: Record the time of day (24 hr clock) when the seabird was brought alongside the vessel.

Water Temperature: Record the water temperature at the location where the bird was brought alongside the vessel.

Latitude: Record the degrees and minutes of latitude at the time of the actual recovery of the bird. Circle N or S for north or south of the equator.

Longitude: Record the degrees and minutes of longitude at the time of the actual recovery of the animal. Circle E or W for east or west of the prime meridian.

Was the set on which the bird was caught made in relation to an oceanographic feature feature? Circle Y for Yes and N for No.

Was the set on which the bird was caught made in relation to a bathymetric feature feature? Circle Y for Yes and N for No.

Did seabird slide out/escape from gear? Circle Y for Yes or N for No. If the seabird had to be cut loose from the gear, then the correct answer is No.

Was seabird brought on board? Circle Y for Yes or N for No.

Identification

Species: Check the appropriate box that corresponds to the species of the captured bird. With experience, birds seen close up generally become easier to identify. See back of data sheet for identification criteria and Appendix A for more information.

Number of Photos Taken? Record the number of photos taken. Photograph every seabird! At least one picture must be taken illustrating the location of any attached gear. Take at least three photographs: (1) a full-size photograph that shows any color/markings patterns, ventral (front); (2) full-size, dorsal (back); and (2) a close up (i.e., from 4 ft.) of the head and bill profile. Place a centimeter scale near the bird (head area is best) where it will appear in the photograph to provide a sense of scale. These pictures will assist in understanding how the bird interacted with the gear, better categorize the interaction for post hooking mortality, and provide information for reducing the interactions in the future, as well as provide confirmation of species ID or allow identification by an expert. For the first picture of every bird on board, include the dive slate in the picture. Collection information should be written on the slate to identify the bird: trip #, specimen #.

Be mindful of the minimum distance required to take clear pictures (depth of field). Most disposable cameras need a distance of at least 4 ft from your subject; otherwise the picture will be out of focus.

Condition of Bird

Check the appropriate box that best corresponds to the condition of the bird when it was recovered. In the notes section, record specific notes about any injury to the bird.

Previously Dead: The bird was already dead when it was captured.

Fresh Dead: The bird does not smell and does not have rigor mortis. Likely it died as a result of the fishing operation.

Alive, injured, describe: The bird is alive but is injured (e.g., hook captures). All hooked birds are injured. Describe in detail how the bird is hooked on the back of the form. Any lesion constitutes an injury.

Alive, uninjured: The bird is alive and apparently is not injured (e.g., net captures or entangled in line) and there are no lesions.

Alive, injury unknown: The bird is alive but the observer cannot determine if it was injured. This may happen when an animal isn't boated and the observer did not get a good view of the animal, but did know that the animal was alive.

Other (describe): The condition does not fit any category described above. Explain on back of form.

If gear is a form of hook and line, complete this section, as applicable:

Hook Type: Circle or check "J" or Circle. If hook type is neither, select Other (describe).

Manufacturer/Style No. Write in the manufacturer and style number (e.g., Mustad #39968D).

Hook Size: Write in size of hook, (e.g., 9/0, 18/0).

Degree Offset: Write in the degree offset of hook (e.g., 0E, 5E, 10E).

Bait: Circle or check Squid, Mackerel, Sardine, Unknown or Other (describe).

Size: Write in the bait size. *If two baits involved, include both sizes. See examples below.* Using values recorded on the haul log for each bait kind, first calculate an individual bait weight (box weight/bait number) and round to nearest hundredth of a pound. Then, convert to grams (1 lb = 450 grams) multiplying by 450.

-Squid: 200lbs/400 baits = 0.50 lbs each $0.50 \times 450 = 225$ grams, record as 225 grams

-Mackerel: 300 lbs/ 400 baits = 0.75 lbs each $0.75 \times 450 = 337.5$ grams, record as 338 grams

-Sardines: 60 lbs/400 baits = 0.15 lbs each $0.15 \times 450 = 67.5$ grams, record as 68 grams

Was there a light stick on the hook? Circle Y for Yes, N for No, or U for Unknown. If Yes, circle the color of light stick.

Gangions to next light stick: If answer above was no, record the number of gangions to the **next** light stick (not necessarily nearest) and circle the appropriate color.

Number of gangions to next float: If a bird is caught, record number of gangions to the **next** float (not necessarily nearest).

Did gangion that caught bird have leaded swivel? Circle Y for Yes, N for No, and U for Unknown.

Hook location

If the bird has been hooked, **circle the specific location** (in the text and on the bird diagram) if it can be determined. If specific location cannot be determined, note the general location of the hook and check the appropriate code box. Describe hook and its location in the notes section. Note if there is more than one hook involved. All hooks, except those deep in the esophagus or stomach, should be removed. Only swallowed hooks should not be removed, but any visible portion of them should be cut off and removed. (See Appendix F, F-5 Boated Animals of the Turtle Manual for specific hook removing guidelines.) Indicate if the animal is **Not Hooked**, **Not Known if Hooked**, or **Hooked, but location is totally Unknown** and record details in the comments section. Otherwise follow the directions for **Internal** or **External** hooks, as follows.

Internal: (circle the specific location, if known, and circle the general location if specifics not known)

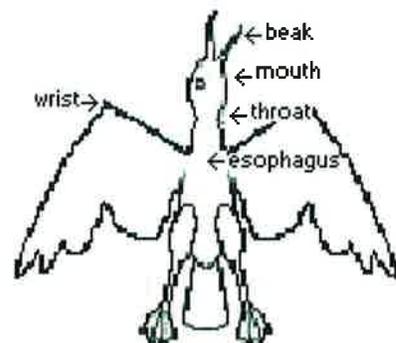
Unknown, internal: The animal has been hooked internally, but the location cannot be determined. This may be the case when an animal cannot be boated.

Beak/Mouth: The bird was hooked in the upper/lower bill/ mouth corner, roof, or floor. Describe hook and location in the notes section. Most hooks should be removed. Be as specific as possible, use notes section if necessary

Throat: Indicate if the bird was hooked in the throat.

Swallowed (esophagus): The bird “swallowed” the hook. The barb of the hook is lodged in the esophagus (or lower in the digestive tract), and the barb is not visible. Part of the hook eye or shank may be visible in the open mouth and any visible portion of the hook should be removed.

Please circle the furthest extent to which the hook is visible. Circle visible to insertion point, partially visible or the hook is not visible.



External (circle the specific location, if known, and circle the general location if specifics not known). All hooks should be removed.

Unknown, external: The animal has been hooked externally, but the location cannot be determined. This may be the case when an animal cannot be boated.

Beak/Head/Neck: The bird is hooked in the neck or head, including the external beak area. Describe location in notes section. All hooks should be removed.

Wing: The bird is hooked in the wing. Circle left or right wing on bird and area of wing on bird diagram. All hooks should be removed.

Leg: The bird is hooked in the left or right leg. Describe which side (right or left) in the notes section and circle area on bird diagram. All hooks should be removed.

Body: The bird has been hooked externally in the body region

Was hook removed from this animal? Circle Y for Yes, N for No, U for Unknown, or Not Applicable. If animal is 'Not Hooked' then choose Not Applicable. If animal is 'Not Known If Hooked', determine whether the hook was retrieved and answer Yes, No, or Unknown accordingly (even though it is not positive that the hook penetrated the animal).

All gear types complete this section, as applicable.

Was animal entangled in gear at capture? Circle Y for Yes, N for No, and U for Unknown.
At release? Circle Y for Yes, N for No, and U for Unknown.

How much gear (linear feet) was left on bird when released? Estimate or measure the amount of gear line left on bird when released. For hook and line fisheries, this is the measurement of line from the eye of the hook, including crimp, left on the bird. For lengths less than one foot, record the decimal fraction remaining. Record a zero if all line is removed.

BIOLOGICAL INFORMATION

Pre-catch condition: Does the bird appear to be emaciated or does it appear to have been well-fed? This can be determined by pushing your finger into the center of the bird's chest. If you can feel the breast bone, then the bird is emaciated. If you cannot feel the breast bone, then the bird is well fed. Check one or the other. This can only be determined with the bird on board and possibly only if the bird is dead or unconscious. Check "unknown" if you cannot address the question or are unsure.

BIRD DIMENSIONS (all straight-line)**If bird is not boarded:**

If the bird cannot be brought on board, you can estimate wing span and total length in feet or centimeters, but be sure to indicate which units you are using by circling either the ft or cm that follows the blanks for the numbers.

Estimated Wing Span (ft): Estimate the wing-tip to wing-tip distance in feet if the wings were fully spread.

Estimated Total Length (ft): Estimate total length of bird in feet if not brought on board vessel. Note that the above estimates are in feet if not brought on board while if boarded the dimensions are recorded in centimeters.

If bird is boarded (cm):

If you bring the bird on board, take the dimension measurements in centimeters, to the nearest 0.1 cm (straight), using a tape measure (total length, wing span) and calipers (wing chord, bill length).

Wing Span (straight-line distance, fully spread): Record the distance between wing tips of the bird's full wing extension (straight) in centimeters.

Total length (straight-line distance from bill tip to mid tail tip): Record the distance from the tip of the birds bill to the tip of mid tail. Be sure to record length (centimeters) in a straight line.

Wing chord (the straight-line distance between the bend in the wing [wrist] and the tip of the longest primary feather). This has also been described as the chord of the closed wing. This applies to the outer wing. The "wrist" of the bird is the outermost major bend in the wing. It is the most noticeable bend in the wing. Be sure to record the straight-line distance, not the curved distance. Measure in centimeters.

Bill Length (upper mandible tip to feathered base, straight line): Record the bird's total bill length from the upper mandible to the base of the forehead feathers in a straight line and in centimeters.

Tagging Bands

Look for existing bands. One or more metal or plastic band may be found on the bird's left or right leg. Record the type of band by circling metal or plastic and write in the band's color. In addition, record the band's number, contact name listed, and contact phone number. If unreadable or phone number or name missing, write unknown.

Identifying Characteristics

On sheet provided, please check the characteristic observed at each step (each letter of the alphabet) to determine the taxonomic group.

Key for Identifying Seabirds in the Western North Atlantic

A. Feet Fully webbed (palmated).....B.

A. Feet not fully webbed.....H.

B.All four toes joined in webbing
.....**Pelecaniformes (gannets, pelicans, cormorants)**.....

B.Only three front toes joined in webbing.....C.

C. Nostrils tubular (tubes on top of bill)
.....**Procellariiformes (fulmars, petrels, shearwaters, storm petrels)**.....

C. Nostrils not tubular.....D.

D. Inside of bill has tooth-like ridges or serrations
.....**Anseriformes (ducks, mergansers)**.....

D. Inside of bill does not have tooth-like ridges or serrations.....E.

E. Legs inserted far behind middle of body; tarsi compressed.....F.

E. Legs not inserted far behind middle of body; tarsi rounded, no swollen mass (cere) and no
nail-like hook, bill either plainly hooked or sharply pointed
.....**Charadriiformes (gulls and terns)**.....

F. Back toe (hallux) present
.....**Gaviiformes (loons)**.....

F. Back toe (hallux) absent.....G.

G. Swollen mass at base of upper mandible (cere) and upper mandible with sharp hook
.....**Charadriiformes (skuas and jaegers)**.....

G. No swollen mass (cere) at upper mandible base, short tail, pointed bill (thick in some taxa)
.....**Charadriiformes (auks, murre, dovekie, puffins)**.....

H. Feet have four toes (3 front and 1 back).....I.

H. Feet have only three toes
**Charadriiformes (plovers, sandpipers, sanderlings)**.....

I. Nails flattened and elongated
**Podicipediformes (grebes)**.....

I. Nails not flattened and elongated, front 3 toes lobed, bill <3.8 cm long
**Charadriiformes (phalaropes)**.....

Notes

Additional information regarding the seabird’s identification and life history may be recorded in the Notes section.

Descriptive Features

Tail Shape: Record the shape of the bird’s tail: forked, square, rounded or streamers. If unsure check unknown.

Bill Shape: Record the shape of the bill. Circle thick or thin, straight or hooked, or tip pointed or tip blunt.

Bill Length relative to Body Length: Observe the Bill length in reference to the overall body length of the bird. Circle short or long bill relative to the animal’s body length.

Bill Color: Observe color of bird’s bill: red, orange, yellow, pink, black and check off color. If color of beak unlisted, check empty box and write in color.

Legs: Record whether the bird’s legs extend beyond its tail tip. Circle Y for yes and N for no.

Leg Color: Record the leg color of the bird by checking the box for the color observed on the bird’s legs. If color isn’t listed, check empty box and write in color seen on bird’s legs.

Leg Attachment: Record where bird’s leg is attached in reference to the body. Circle if at center of body or near the posterior of the bird’s body.

Color Patterns-(if distinct white, black, or other color patches are present)

Note: consider white and black as “colors” in below instructions. Read across to supply information for upper and lower body, wing tips, tail coverts.

Body

Upper: Describe the location, shape, extent, and color (how much of the upper body does this area cover?) of any distinct color pattern on the bird’s upper body.

Lower: Describe location and shape of any distinct coloration on the bird’s underside. Also record how much of the lower body is covered by this distinct coloration.

Wing Tips

Upper: Describe the location and shape of the distinct coloration on the bird’s upper wing tip. Also record the extent, or how much of the wing tip is covered by this distinct coloration.

Lower: Describe colors and color patterns on lower wing tips

Coverts (base of tail)

Upper: Describe the location and shape of the distinct coloration on the bird’s tail base. Also record the extent, or how much of the upper tail base is covered by this distinct coloration.

Under: Describe any color pattern on the underside base of the tail.

Is a Head cap present?: Record whether a distinct head cap is present on the bird. Circle Y for yes and N for no. Check the color of the head cap. If the color isn’t listed, check the empty box and write in the color observed.

Check patch: Does the bird have a distinctly colored cheek patch? Circle Y for yes and N for no. If a cheek patch is present, record the color of the cheek patch by checking the box in front of the color observed. If the cheek patch color is unlisted, check the empty box and write in the color seen.

Other color patch information: If additional color patches are present on the bird, they may be recorded in this area. In addition, if more space is needed for distinct colorations from the previous areas of the body, it may be recorded here. If additional space is needed, use the NOTES section above.

SEA BIRD LIFE HISTORY FORM

12/04/2009

CAPTURE INFORMATION

Trip

Set/Haul/Tow

Water Temp. (°F) .

Latitude deg min N / S

Longitude deg min E / W

Gear Type: Surface Longline Bottom Longline Drift Gillnet Other _____

Target: Swordfish Yellowfin Tuna Other _____

Set relative to oceanographic feature? Y / N / U Set relative to bathymetric feature? Y / N / U

Did bird slide out/escape from gear? Y / N Was bird brought on board? Y / N

IDENTIFICATION (see back)

Number of Photos Taken?

(Get full photo of body, upper and lower, and separate profile of head)

Greater Shearwater

Laughing Gull

Other Seabird:

Cory's Shearwater

Herring Gull

Name _____

Other shearwater:

Other Gull:

Name _____

Name _____

Unknown seabird:

(provide 3 photos and fill in available info on this form where indicated)

Northern Gannet

Adult

Juvenile

CONDITION OF BIRD

Previously dead

Fresh dead

Alive, injured (describe) _____

Alive, uninjured

Alive, not known if injured

Other (describe) _____

Unknown

HOOK TYPE

"J" Circle other (describe) _____

Size /0

Manufacturer/Style No. _____

Degree Offset °

BAIT

Squid

Mackerel

Sardine

Unknown

Other (describe) _____

Size . kg / g

Was light stick on hook? Y / N / U If yes: White, Pink, Blue, Green, Black, Red, Yellow, Purple, Aqua, Other, Unk

If No, number of gangions to next light stick

Light Stick Color (circle)? White, Pink, Blue, Green, Black, Red, Yellow, Purple, Aqua, Other, Unk

Number of gangions to next float Did gangion that caught bird have leaded swivel? Y / N / U

HOOK LOCATION (circle location; draw to illustrate; check box if specifics are not known):

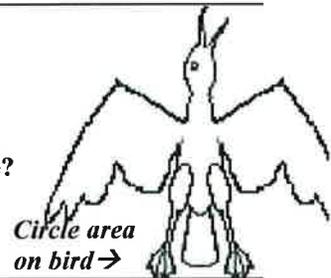
Not Hooked Not Known if Hooked Hooked; location Unknown

Internal: Unk, internal Bill / Mouth / upper/lower / corner/roof/floor? Throat

Swallowed (Esophagus): Hook Visible to insertion point/Partial hook/Not visible?

External: Unknown, external Beak/Head/Neck Wing Leg Body

Was hook removed from animal? Y / N / Unk / Not Applicable



Was bird entangled in gear at capture? Y / N / U; at Release? Y / N / U; Line length attached at release

. ft / cm (estimated/measured) | Pre-catch condition: emaciated well-fed Unk

BIRD DIMENSIONS

IF NOT BOARDED : estimated wing span: . ft / cm; total length (beak tip to mid-tail tip): . ft/cm

IF BOARDED: Wing span (fully spread) . cm; Total length (bill tip to mid tail tip, straight) . cm;

Bill length (upper mandible tip to base at feathers, straight) . cm; Wing chord: . cm

BIRD BANDED? Metal / Plastic Band color: _____ Band no.:

Band contact name: _____ Band contact phone no: _____

IDENTIFYING CHARACTERISTICS		TotLen (cm)
A1	Feet fully webbed (palmated)	
B1	All four toes joined in webbing	71-102
B2	Only three front toes joined in webbing	
C1	Nostrils tubular (tubes on top of bill)	15-45
C2	Nostrils not tubular	
D1	Inside of bill has tooth-like ridges or serrations	30-183
D2	Inside of bill does not have tooth-like ridges or serrations	
E1	Legs inserted far behind middle of body; tarsi compressed	
F1	Back toe (hallux) present	61-97
F2	Back toe (hallux) absent	
G1	Swollen mass at base of upper mandible (cere) and upper mandible with sharp hook	51-61
G2	No swollen mass (cere) at upper mandible base	20-46
E2	Legs not inserted far behind middle of body; tarsi rounded	
	No swollen mass (cere) and no nail-like hook, bill either plainly hooked or sharply pointed	23-76
A2	Feet not fully webbed (sempalmated, lobed, or plain)	
H1	Feet have four toes (3 front and 1 back)	
I1	Nails flattened and elongated	
I2	Nails not flattened and elongated, front 3 toes lobed, bill < 3.8 cm long	19.5-22

NOTES:

DESCRIPTIVE FEATURES (check box or circle one of each, as indicated)
TAIL SHAPE: Forked Square Rounded Streamers Other
BILL LENGTH RELATIVE TO BODY LENGTH: Short / Long **BILL SHAPE:** Thick / Thin Straight / Hooked Tip pointed / Tip blunt
LEGS (Do they extend beyond tip of tail?): Y / N **BILL COLOR:** Red Orange Yellow Pink Black
LEG ATTACHMENT: At center of body / Near rear of body **LEG COLOR:** Red Orange Yellow Pink Black

DESCRIBE COLOR PATTERNS (If distinct white, black, or other color patches are present, describe location, shape, and extent)
Upper body _____ Lower body _____
Wing tips: Upper _____ Lower _____
Tail coverts (base): Upper _____ Lower _____
Head cap? Y / N Black White Brown
Cheek patch? Y / N Black White Brown
Other color pattern information: _____

MARINE MAMMAL INCIDENTAL TAKE FORM INSTRUCTIONS

01/01/2010

INTRODUCTION

The Marine Mammal Incidental Take Form is used for the collection of information on marine mammals incidentally taken in the Atlantic pelagic longline fishery. It was revised in 2006 to reflect recommendations of the Atlantic Pelagic Longline Take Reduction Team to improve and enhance information on the nature and frequency of interactions, specifically how and where animals are hooked or entangled, actions taken by the vessel to release the animal, amount and type of gear remaining on the animal upon release, and the condition of the animal upon release. It was also revised to collect information on the presence of other marine mammal at the time of capture and any actions taken by the captain or crew to deter marine mammals. Data collected on this form is critical to the development and refinement of conservation and recovery strategies for reducing incidental takes of marine mammals in the pelagic longline fishery, and for reducing the impact of these interactions on the short and long-term survival of released animals.

GENERAL INSTRUCTIONS

Complete a Marine Mammal Incidental Take Form for each marine mammal taken during pelagic longline fishing operations. In the case of long and short-finned pilot whales, and other species that can be difficult to distinguish in the field, it is important to attempt to collect a biopsy sample for genetic analysis, if possible. Photographs of the animal are also helpful in confirming species identification and for other analyses. When an animal has been hooked or entangled, every effort should be made to thoroughly document the activities taken by the captain and crew to dehook or disentangle the animal.

The layout of the form represents an attempt to reduce the amount of writing required by observers as much as possible. If given a choice, place a check mark next to the answer to the question. Some answers do require a written description, or explanation. When filling in these data fields be as complete as possible.

INCIDENTAL TAKE INFORMATION

Observer/Trip ID: Record the 6 character observer/trip identifier number assigned for this trip. It is the same identifier recorded on all logs within a single trip.

Haul #: Record the number of the haul in which the incidental take occurred.

Year, Month, Day: Record the month, day, year in which the incidental take occurred.
Example: 07/30/2006.

Time: Record the time of day (24 hr clock) when the incidental take occurred.

Location of Take: Latitude: record the degrees and minutes of latitude at the time of the incidental take, circle N or S for north or south of the equator; Longitude: record the degrees and minutes of longitude at the time of the incidental take.

Specimen number by trip: Record the abbreviation MAM followed by a two digit consecutive number (e.g., MAM01, MAM02, ...) for each specimen taken during the trip.

Specimen field number: Record the Observer/Trip ID and Specimen number by trip. This specimen number should be recorded on all labels that accompany samples taken from this specimen. Labels should also include date sample taken, species ID, and sample type (e.g., biopsy, tooth).

SPECIES IDENTIFICATION

Species code: Place by the check appropriate species name which corresponds to the species of the animal taken. If you are unable to identify to a species, check one of the four unknown species options (“Unid. marine mammal”, “Unid. beaked whale”, “Unid. dolphin”, “Unid. pilot whale”).

Diagnostic features: Note any determining characteristics of the animal in as much detail as possible, including shape, size, color, form, markings, etc.

Confidence level of species ID: Check the degree to which you are confident in your species identification. “Good,” meaning that you are quite certain you have identified most of the distinguishing characteristics of the species; “Fair,” meaning that you have identified some but not all of the most distinguishing characteristics of the animal; or “Poor,” you were only able to see one or no distinguishing characteristics of the species.

Photos taken?: Circle “Y” if photos were taken of the animal or “N” if no photos were taken.

Number of photos taken: Indicate how many photos were taken. Take a spacer photo after every incidental take.

HOOKING OF MARINE MAMMAL

Was Animal Hooked?: Circle “Y” if the animal was hooked, “N” if the animal was not hooked, or “Unknown” if it is unknown whether the animal was hooked. If you circle “N” skip to the next section.

Number of gangions to next float: Indicate the number of gangions/leaders from the hooked animal to the next float.

Location: Indicate where in the body the animal was hooked.

- If internally hooked, indicate whether the hook is visible by circling “Y” for Yes or “N” for No. Then indicate whether the hook is “Visible to insertion point” if most or all of the hook is visible, “Partial hook” if only part of the hook is visible, or “Not visible” if the hook is not visible at all.

If the hook is in the mouth, indicate “Upper” if it is in the upper part of the mouth, “Lower” if it is in the lower part of the mouth, “Side” if it is in the side or corner of the mouth, “Swallowed” if the hook appears to have been swallowed, or “Other/Unknown” if the location of the hook inside the mouth is unknown (provide an explanation in this case).

- If externally hooked, indicate where on the body the animal is hooked by checking “Front Flipper”, “Dorsal fin”, “Body”, “Head/Neck”, or “Tail.” If the animal is hooked anywhere other than one of these places, or it is not known where the animal is hooked, check “Other/Unknown” and provide an explanation.

Was hook removed from animal?: Circle “Y” if the hook was removed from the animal, “N” if the hook was not removed, or “Unknown” if it is not known whether the hook was removed.

If No, was line intentionally cut?: Circle “Y” if line was intentionally cut, or “N” if line was not cut. Indicate “N” also if line snapped but was not intentionally cut.

Amount of line left trailing (in ft): Record the approximate amount of line left trailing, in feet (ft).

ENTANGLEMENT OF MARINE MAMMAL

Was animal entangled?: Circle “Y” if animal was entangled, “N” if animal was not entangled, or “Unknown” if it is not known whether the animal was entangled. If you circle “N” skip to the next section.

Entanglement location: This refers to the location of gear on the animal’s body. Check all areas of the animal’s body entangled with gear. If the gear is on a part of the body not listed, indicate where under “Other” and provide a description.

Gear Involved: Check type(s) of gear in which the animal was entangled.

Was gear removed from the animal?: Circle “Y” if gear was removed from the animal, “N” if gear was not removed, “Partial” if the gear was only partially removed, or “Unknown” if more gear may exist on the animal that could not be seen.

If No, amount of gear left on animal gear was removed (in ft)?: Record the approximate amount of gear left on the animal, in feet (ft).

Were wraps cut?: Circle “Y” if wraps were cut, “N” if wraps were left on animal intact, “Partial” if all wraps were not completely cut, or “Unknown” for Unknown

Description of gear removal/gear remaining: Record in as much detail as possible what steps were taken to remove the gear, and what amount and type of gear left remaining on the animal upon release. Use additional paper if necessary.

SKETCH OF ANIMAL

Sketch of animal showing where gear was hooked or entangled on body: On the outline of the marine mammal provided, draw the approximate location of where gear was hooked or entangled on the body. Also include any other identifying marks, notches, or scars, as appropriate.

CONDITION OF MARINE MAMMAL UPON RELEASE

Condition of marine mammal upon release: Check “Alive, swam away normally” if animal was alive upon release and swam away normally, “Alive, swam away abnormally” if the animal was listing, not diving and remaining at surface, or otherwise behaving abnormally, or “Dead” if the animal was dead upon release. Use the data sheet and any additional paper needed to provide as much detail as possible to describe the animal’s behavior upon release. For example, did it swim away strong, or did it seem weakened. Did the animal come back, or rejoin a pod, etc. If the animal was dead, all attempts should be made to bring the animal close to the vessel for biopsy sample, photographs, measurements, examination, and a gross or full necropsy, as appropriate.

WAS ANIMAL BOARDED?

Was animal boarded?: Circle “Y” if animal was brought onto the vessel, or “N” if animal was not brought onto the vessel. If No, record the approximate length of the animal, in feet (ft). Length is measured from tip of rostrum to fluke notch. [Note: Extreme caution should be taken in bringing a live animal onto the vessel.]

If the animal was boarded: If the animal was boarded, the following data fields are to be recorded **at a minimum**.

- Total length is measured from tip of rostrum to fluke notch, and is recorded in centimeters (cm). Indicate “Straight” if it was taken as a straight line measurement (preferred), “Curved” if it was taken along the curve of the body, or “Estimated” if the measurement was estimated.
- Sex: Indicate “M” for Male, “F” for female, or “Unknown” if sex could not be or was not determined. In females, the genital slit is longer and more prominent than for males. It encompasses the closer spaced genital and anal openings, and is flanked by a small slit on each side containing the nipples. It is anteriorly directed internally (i.e., an object inserted into the opening will be directed toward the head). In males, the genital slit usually has two openings, one behind the other, separated by a bridge of tissue. It is posteriorly directed internally (i.e., an object inserted into the opening will be directed toward the flukes). Photos should be taken to confirm sex determination.

If possible, a full necropsy should be performed for all dead animals and data from the necropsy recorded on a Level A stranding form. All samples taken must be accompanied by a label indicating Observer/Trip ID, Specimen number by trip, Date sample taken, Species ID, and Sample type (e.g., biopsy, tooth).

Disposition of carcass: For dead animals, indicate what action was taken to dispose of the carcass.

Additional comments: This area may be used to record any additional details regarding the condition, disposition, or unusual features of the animal. If the animal was dead prior to capture, include reference to that here.

BIOPSY SAMPLES TAKEN?

Biopsy samples taken?: Circle “Y” if biopsy samples were taken, “N” if biopsy samples were not attempted, or “Attempted (unsuccessful)” if biopsy samples were attempted but not able to be collected. *Refer to Appendix A for Biological Sampling Protocol.*

If yes, itemize samples: List each sample taken on the form. All samples taken must be accompanied by a label indicating Observer/Trip ID, Specimen number by trip, Date sample taken, Species ID, and Sample type (i.e., biopsy).

PRESENCE OF MARINE MAMMALS

Were other marine mammals present at time of capture?: Circle “Y” if other marine mammals were seen to be present in the area 5 minutes before or after the time of capture, “Did not look” if a search of the area was not conducted, or “Looked but did not see” if a search was conducted but no marine mammals were seen in the area 5 minutes before or after the time of capture.

Number of other marine mammals present: Record the appropriate number for each of the three fields: min, max, and best guess, even if the number is zero.

Same species as animal captured: Circle “Y” if other animals in area were the same species as the animal captured, “N” if different, or “Unknown” if unknown. If the animals are different, indicate species ID or description.

Approximate distance from vessel (in ft): Indicate the approximate distance of the other marine mammals in the area to the vessel, in feet (ft).

DETERRENCE/AVOIDANCE

Were actions taken to deter or avoid animals?: Circle “Y” if actions were taken to deter or avoid marine mammals, “N” if no actions were taken, or “Unknown” for Unknown.

Describe: Describe any actions that were taken, in detail, and indicate whether they were taken before, during, or after the capture, and whether they were observed by you or reported to you by the captain or crew. Use additional sheets if necessary.

APPENDIX A.

Biological Sampling Protocol

The samples collected will be used for genetic species identification. Therefore the following protocol must be followed in order to properly preserve the DNA collected.

To obtain a biopsy sample from a marine mammal requires the use of a 12' anodized aluminum biopsy pole and disinfected stainless steel biopsy corer. Assemble the pole sections. Wearing latex or nitrile gloves clean the end of the threaded stud on the biopsy pole with an alcohol swab. Remove a clean, unused biopsy corer from its vial and screw it tightly onto the end of the pole.

To collect the skin sample, jab the pole at a slight angle to the body so that the biopsy corer is scraped along the surface of the skin and a ribbon of tissue is collected. A forceful jab may be necessary to break the skin and begin the ribbon. Dolphin and pilot whale skin is fairly thin and so it is not necessary to go very deep on these species. Suitable regions on the body include the central back behind or parallel to the dorsal fin, and along the side of the body below the dorsal fin. The head and blowhole regions should be avoided. It may be possible to collect from the tail, particularly if the animal is dead.

When the sample is collected, unscrew the corer from the pole and place the entire corer with tissue into a vial of sodium chloride saturated 20% DMSO. Do not attempt to remove the tissue from the corer. Again, wear gloves. Label the vial with the following information: Observer/Trip ID, Specimen number by trip, Date sample taken, Species ID, and Sample type (i.e., biopsy). Biopsy samples should be kept at room temperature; do not freeze or expose to extreme heat.

Provided by: Patty Rosel, SEFSC Lafayette Lab

MARINE MAMMAL INCIDENTAL TAKE FORM

January, 2010

OBSERVER/TRIP ID _____ HAUL # _____

YEAR (MM/DD/YYYY) _____ TIME (24 hr) _____

LOCATION OF TAKE

LATITUDE _____ deg _____ min N / S LONGITUDE _____ deg _____ min W

SPECIMEN NUMBER (BY TRIP) _____ SPECIMEN FIELD NUMBER _____

SPECIES IDENTIFICATION

- Unid. pilot whale, Risso's dolphin, Bottlenose dolphin, Cuvier's beaked whale, Unid. marine mammal, Atlantic spotted dolphin, Common dolphin, Unid. beaked whale, Pygmy sperm whale, Pantropical spotted dolphin, Unid. dolphin, Striped Dolphin, Other _____

Diagnostic features _____

Confidence Level of Species ID ___ Good ___ Fair ___ Poor

Photos Taken? Y / N Number of photos taken _____

HOOKING OF MARINE MAMMAL

Was animal hooked? Y / N / Unknown (If No, skip to next section) No. of gangions to next float _____

Location Internal: Hook visible? Y / N ___ Visible to insertion point ___ Partial hook ___ Not visible

Location in Mouth: ___ Upper ___ Lower ___ Side ___ Swallowed

___ Other/Unknown (explain) _____

External: ___ Front Flipper ___ Dorsal fin ___ Body ___ Head / Neck ___ Tail

___ Other/Unknown (explain) _____

Was hook removed from animal? Y / N / Unknown

If No, was line intentionally cut? Y / N Amount of line left trailing (in ft) _____

ENTANGLEMENT OF MARINE MAMMAL

Was animal entangled? Y / N / Unknown (If No, skip to next section)

Entanglement Location (check all that apply) ___ Front Flipper ___ Head / Neck ___ Tail/Flukes

___ Body ___ Mouth ___ Other _____

Gear involved (check all that apply) ___ Hook ___ Mainline ___ Gangion/Leader ___ Dropline/Floatline

___ Float Was gear removed from animal? Y / N / Partial / Unknown

If No, amount of line left on animal (in ft)? _____ Were wraps cut? Y / N / Partial / Unknown

DESCRIPTION OF GEAR REMOVAL PROCEDURE / GEAR REMAINING (Use addtl. sheet as necessary)

SKETCH OF ANIMAL SHOWING WHERE GEAR WAS HOOKED OR ENTANGLED ON BODY

(Include other identifying or unusual marks as appropriate)



CONDITION OF MARINE MAMMAL UPON RELEASE

___ Alive, swam away normally ___ Alive, swam abnormally ___ Dead

Description of animal's behavior/condition upon release (use addtl. sheets as necessary) _____

WAS ANIMAL BOARDED? Y / N If No, approx. length of animal (ft): _____

If boarded, complete the following section. If full necropsy performed, use separate necropsy data sheet.

Total length (tip of rostrum to fluke notch, in cm): _____ Straight / Curved / Estimated

Sex: M / F / Unknown Disposition of Carcass: _____

Additional comments: _____

BIOPSY SAMPLES TAKEN? Y / N / Attempted (unsuccessful)

If yes, itemize samples: _____

PRESENCE OF OTHER MARINE MAMMALS AT TIME OF CAPTURE

Were other marine mammals present at time of capture? Y / Did not look / Looked but did not see

Number of other marine mammals present (record all three) ___ MIN ___ MAX ___ BEST GUESS

Same species as animal captured? Y / N / Unknown Species ID if different _____

Approximate distance from vessel (in ft) _____

DETERRENCE/AVOIDANCE

Were actions taken to deter or avoid animals? Y / N / Unknown

Describe (use addtl. sheets as necessary; indicate whether actions taken before, during, or after interaction)

Debriefed: Y / N Debriefed by: _____ Date: _____

U.S. EAST COAST PILOT WHALE SPECIES IDENTIFICATION AND DOCUMENTATION GUIDE

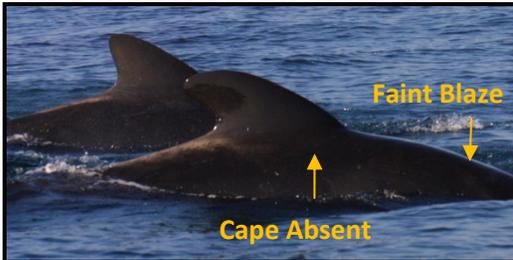
Brenda K. Rone and Richard M. Pace III

Contact information: Brenda.Rone@noaa.gov 206-526-6332

Pigmentation Identification

Long-finned: Overall darker appearance due to lack of individual attributes and pattern of saddle; variation in intensity of pigmentation.

- Saddle: If present, distinct boundary directly posterior to the dorsal fin.
- **Cape: 100% absent.**
- Eye Blaze: present or absent
- Melon: present or absent



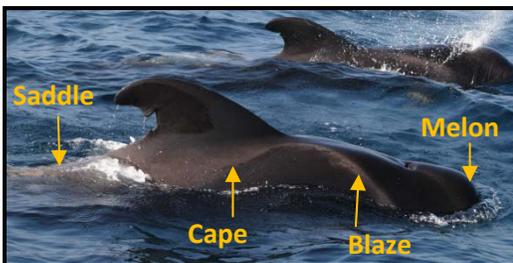
Faint eye blaze, cape absent, saddle present with a distinct boundary directly posterior of dorsal fin.



Eye blaze, cape and saddle are absent.

Short-finned: Light appearance due to presence of all four attributes and pattern of saddle; variation in intensity of pigmentation. Below is an example of bright pigmentation.

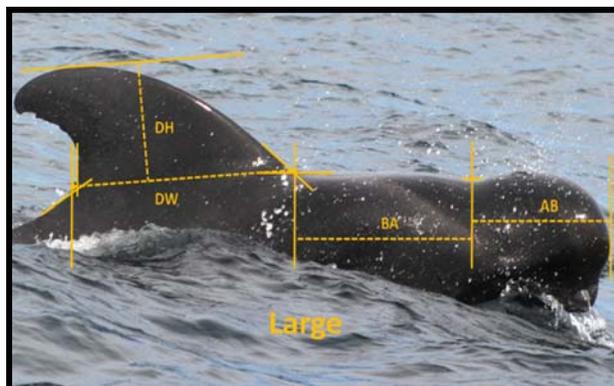
- **Melon, eye blaze, cape and saddle present 100%.**
- Saddle: Lacks a defined boundary just posterior to the dorsal fin; connected from the cape down the dorsal caudal peduncle.



- ❖ Documentation should capture the entire surfacing of both species. Saddles can be difficult to discern depending on lighting condition. Please be sure to document the tail stock to capture the saddle boundary.
- ❖ Calves (see below) are excluded from pigmentation analysis.

Morphometric Documentation

1. **Measurements:** The apex of the melon to the anterior insertion of the dorsal fin must be documented for analysis. Below is an example of the ideal photograph and the measurements required for identification. AB: apex of melon to blowhole; BA: blowhole to anterior insertion of dorsal fin; DH: dorsal fin height; DW: dorsal fin width.



2. **Size Class:** a categorical reference assigned in the field for each animal documented for morphometrics. This is an **essential** component of the equation used for species identification.



- Small: juveniles.
- Medium: adult females and sub-adult males.
- Large: adult males (easily identifiable from their sexually dimorphic characteristics - head and dorsal fin; see above image).

** Note: calves are excluded from analysis but shown here for size reference.

Recommendations

1. When photographing, document as many individuals as possible. There is high variation in pigmentation patterns (long-finned) and intensity (both species) and an overall representation of the group is helpful.
2. Pigmentation is an immediate and easy way to distinguish the two species. However, difficulties arise during challenging lighting conditions. Caution should be used to recognize this! Don't assume the animal is lacking pigmentation. You may not be able to see it (i.e. glare, sunset, flat light)!
3. Always attempt to collect morphometric images, A) this will be your primary method if pigmentation is not discernable real-time or post-analysis and B) or for an additional method to provide support for identification during a difficult sighting (i.e. distant).
4. Morphometric images must be perpendicular or nearly perpendicular ($< 10^\circ$ toward or away from the perpendicular axis of the camera's focal plane).
5. The best method to obtain an image like the above example is to track an animal and as soon as the head breaks the surface, hold down the shutter until the animal's entire body is subsurface. The photographer will be able to obtain an image that contains the profile plus document the entire body for pigmentation analysis.
6. Although we recommend that effort be made to obtain images as close to protocol as possible (i.e. perpendicular, close range, and minimal glare), information can still be obtained from a distant sighting without breaking trackline. Grab a large lens and fire away!
7. Although the melon is completely exposed in the above morphometric example, images where the apex is partially covered due to water are still useable. Do not cull!



SOUTHEAST FISHERIES SCIENCE CENTER SEA TURTLE OBSERVER MANUAL

By
Lisa C. Belskis
Sheryan P. Epperly
Lesley W. Stokes

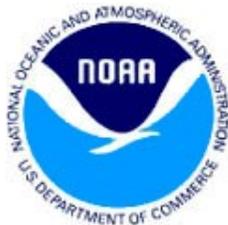


U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149

June 2009 document

Updated January 2013

Cover Photo: Measuring curved carapace length (NMFS/SEFSC photo).



SOUTHEAST FISHERIES SCIENCE CENTER SEA TURTLE OBSERVER MANUAL

By
Lisa C. Belskis
Sheryan P. Epperly
Lesley W. Stokes

National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149

U.S. DEPARTMENT OF COMMERCE
Gary Locke, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Jane Lubchenco, Under Secretary for Oceans and Atmosphere

NATIONAL MARINE FISHERIES SERVICE
James W. Balsiger, Acting Assistant Administrator for Fisheries

June 2009 document

Updated January 2013

This Technical Memorandum series is used for documentation and timely communication of preliminary results, interim reports, or similar special-purpose information. Although the memoranda are not subject to complete formal review, editorial control, or detailed editing, they are expected to reflect sound professional work.

NOTICE

The NOAA Fisheries (NMFS) does not approve, recommend or endorse any proprietary product or material mentioned in this publication. No reference shall be made to NOAA Fisheries, or to this publication furnished by NOAA Fisheries, in any advertising or sales promotion which would indicate or imply that NOAA Fisheries approves, recommends or endorses any proprietary product or material herein or which has as its purpose any intent to cause or indirectly cause the advertised product to be used or purchased because of NOAA Fisheries publication.

This report should be cited as follows:

Belskis, L.C., S.P. Epperly, and L.W. Stokes. 2009 (updated Jan 2013). Southeast Fisheries Science Center Sea Turtle Observer Manual. NOAA Technical Memorandum NMFS-SEFSC-589, 30 pp.

Copies may be obtained by writing:

National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, Florida 33149

Or

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
(703) 605-6000, (800) 553-6847

PDF version available at <http://www.sefsc.noaa.gov/seaturtletechmemos.jsp>.
Updates will be provided periodically at this location.

Minor revisions were made to this document in early February 2010. The revisions were to clarify the response to condition evaluation for turtles not coded “alive”. The original document stated to mark each line with a check mark to indicate a positive reflex/responsiveness and a ‘0’ for no response. This updated document asks for a ‘Y’ for positive response and an ‘N’ for no response. Language was also added to further describe ‘alive’, unresponsive and comatose relative to the reflex tests being conducted to better suit the needs of the observer.

These minor changes only affect pages 3 (Figure 1b), 6 and 16.

Minor revisions were made to this document in November 2010. The revisions were to better document the scenario where a turtle encounters the gear but does not get entangled nor hooked (“holding the bait”). The second update was to allow for experimental fishing (eg. hook timer or “weak hook” study) to be designated on the form and subsequently in the database.

These minor changes only affect pages 2 (Figure 1a), 4 and 8.

Additional minor revisions were made to this document in February 2012. These latest revisions add the field ‘Target Catch’ where the observer will indicate the target catch for the trip where a sea turtle was captured. Minor rewording occurs for the question ‘Was hook removed from this animal?’ which now reads ‘Was hook recovered from this animal?’. The intent of the question is the same although it was pointed out that ‘removed’ is a physical action when for this question we are interested in whether or not the hook was retrieved/recovered. Lastly the spaces for where the PIT tag number is written was extended to 15 spaces as newly available ISO standard tags now have 15 digits.

These minor changes only affect pages 2 (Figure 1a and b), 4, 10 and 14.

Additional minor revisions were made to this document in January 2013. These latest revisions were to clarify intent of two fields. The first, attempted resuscitation was broken into two questions to learn if both aspects of resuscitation (hindquarter elevation and rocking) were conducted. The second, regarding light sticks, was reworded from Was light stick on hook? to Is a light stick on hook? The rewording clarifies we are interested in if a lightstick is on the hook at haul back and not whether the hook was deployed with a lightstick.

These minor changes only affect pages 2 (Figure 1a), 7, 8.

Table of Contents

SEFSC Sea Turtle Observer Manual

Introduction	p.1
General Instructions	p.4
Capture Information	p.4
Identification	p.5
Condition of Turtle	p.6
Hook and Line Gear	p.7
All Gear Entanglement and Removal	p.10
Biological Information	p.10
Dimensions	p.10
Tags	p.13
Biopsy Samples	p.14
Release Information	p.15
Final Disposition	p.15
Additional Comments	p.16
Identification Criteria	p.17
Vessel Captain, Crew and Observer Responsibilities	p.18
Specimen Collection Requirements	p.19
Materials for Collecting Genetic Tissue Samples	p. 20
Instructions for USFWS Form 3-177 (Declaration of Importation or Exportation of Fish and Wildlife).....	p. 21
APPENDIX- Hook Locations.....	p. 23
References.....	p. 30

Acknowledgements

This manual has evolved through several versions. Program coordinators, fishery observers and biologists have assisted in adapting this document for use in multiple fisheries. We sincerely thank the contributors of this and earlier versions: Myrto Argyropoulou, Larry Beerkircher, Carrie Horton, and Dennis Lee. We thank Jeanette Wyneken for her assistance distinguishing internal hooking locations. For their help in defining criteria for the condition of comatose and discussions leading to a standardized evaluation for turtles not coded as “alive” we thank Craig Harms, Joseph Flanagan, Charlie Innis, Tom Jackson, Elliot Jacobson, Molly Lutcavage, Paul Richards, Thierry Work, and Jeanette Wyneken. For the use of the olive ridley carapace and plastron diagrams, Figure 2, we thank Henri A. Reichart and Stanny Handigman.

SEFSC SEA TURTLE OBSERVER MANUAL

INTRODUCTION

The Sea Turtle Life History Form, version 01/2013 (Figure 1), is used to record biological data, including the number, species, size and condition of sea turtles incidentally captured in a fishery. Other data collected, such as tagging information and biopsy samples, may provide information regarding the movements and preferred habitats of the various populations of sea turtles. These data collected by observers and fishery biologists are critical to the development of conservation and recovery strategies for these marine reptiles. This document provides instruction to complete the Sea Turtle Life History Form, as well as a reference for conducting the permitted activities according to SEFSC approved protocols. Since this document originated as a training manual for NMFS fishery observers, much of the language is directed to observers, although the manual can also be used by NMFS fishery biologists conducting research in which turtles could be incidentally encountered.

Two supplementary documents providing valuable reference resources can be accessed at: <http://www.sefsc.noaa.gov/seaturtlechmemos.jsp>. The Sea Turtle Research Techniques Manual, NOAA Technical Memorandum NMFS-SEFSC-579, provides comprehensive training on topics including species identification, handling, resuscitation, oral cavity anatomy, morphometrics, marking, electronic tags, and biopsy sampling. NMFS/SEFSC researchers and fishery observers must follow these protocols to ensure compliance with permit requirements. The Careful Release Protocols for Sea Turtle Release with Minimal Injury, NOAA Technical Memorandum NMFS-SEFSC-580, describes the equipment and techniques for removing fishing gear from incidentally captured turtles and provides guidance for when hook removal should be attempted.

The Endangered Species Act of 1973 prohibits harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting any listed threatened or endangered species. Authorization to “take” (defined as any of the actions listed in the previous sentence) a listed threatened or endangered species must be granted under the provisions of the ESA. Only authorized personnel may conduct the procedures described in this manual while working with listed threatened or endangered sea turtles. When conducting research, authorized personnel must carry all relevant permits and authorization letters and follow all terms and conditions, including reporting requirements, as outlined in the permit(s). The activities described here are conducted under the authority of these NMFS Permit Numbers: 1552 (Observer Programs), 1570 (Gear Research), or 1571 (Resource Assessment Cruises). Additional tasks covered under the authority of NMFS Permit No. 1551 (Directed Research), such as attaching satellite tags, oxytetracycline marking, detailed data collection or blood collection, may be requested in the future and are described in NOAA Technical Memorandum NMFS-SEFSC-579. Biopsy samples or salvaged parts/carcasses are imported from the high seas under the authority of USFWS CITES 09US045532/9.

GENERAL INSTRUCTIONS

Complete one Sea Turtle Life History Form for each turtle brought aboard or released alongside the vessel. Try to photograph all turtles, including those hooked or entangled sea turtles that are not brought aboard due to their large size or for safety reasons. These photographs will be used to confirm species identification and document the gear interaction. Record tag data if tags are present and take biological samples if requested. Note that the amount of writing required when completing the Form has been minimized by offering options to circle the answer or to check a box, although some boxes require a written response.

Handle turtles in accordance with Chapter 2 of the Sea Turtle Research Techniques Manual. Turtles should be processed and returned to the water as soon as possible unless they have been resuscitated. Observers may need to put the turtle safely aside and process it later in order to continue other observer duties. However, if the animal has gear attached, the gear should be removed immediately by the vessel crew at their discretion, as the severity of the injury can increase with prolonged exposure.

CAPTURE INFORMATION

Trip Number: Record the unique number assigned by the Observer Program Coordinator or project's Principal Investigator.

Year, Month, Day: Record the year, month, and day the animal was captured.

Set / Haul / Tow: Record the set, haul, or tow number of the trip.

Specimen Number: Record a three digit consecutive number. The turtle specimen number on each trip begins with 001 and continues sequentially. Turtle specimen numbers are kept separate from all other specimen numbers for other species groups.

Experimental Y / N? If the trip is experimental (hook timer or "weak hook" study, etc.), then please circle Y and then write the project name in the comments. Circle N for normal fishing operations.

Gear Type: Specify which gear is being fished. If the gear type is Gill Net or Trawl, please write in the specific type and note the soak or tow time. If the gear is not listed, write in the gear type.

Gear Depth: Specify whether the gear was being fished at the surface, midwater, or on the bottom. If gear depth is something other than the listed depths, select other (describe).

Target Catch: Record the primary target catch of this trip (e.g., tuna, swordfish, shark). For shrimp trawls indicate *penaeid* (brown, pink, white, ect) or rock shrimp. If it is a mixed target trip, indicate mixed and describe. Be as specific as possible (eg., to species, if known).

Time: Record the time of day (24 hr clock) when the turtle was brought alongside the vessel. If your project uses a different time system than local 24 hr military time, such as GMT or military time in hundredths of an hour, please note this beside the time so that it can be converted.

Water Temperature: Record the water temperature at the location where the turtle was brought alongside the vessel.

Latitude: Record the degrees and minutes of latitude at the time of the actual recovery of the animal. Circle N or S for north or south of the equator.

Longitude: Record the degrees and minutes of longitude at the time of the actual recovery of the animal. Circle E or W for east or west of the prime meridian.

Did turtle slide out/escape from gear? Circle Y for Yes or N for No. If the turtle had to be cut loose from the gear, then the correct answer is No.

Was turtle brought on board? Circle Y for Yes or N for No.

Identification (see Chapter 1 of the Sea Turtle Research Techniques Manual)

Species: Check the appropriate box that corresponds to the species of the captured turtle. If you are unable to identify the species with certainty, try to take photographs as described below and record the species on the data sheet as “unknown”. With experience, sea turtles seen close-up generally become easier to identify. See back of data sheet for identification criteria and Chapter 1 for more information.

Number of Photos Taken? Photograph every turtle, and record the number of photos taken. There are two purposes of the photographs: (1) confirm species identification and (2) document the gear interaction. These pictures will assist in understanding how the turtle interacted with the gear for post hooking mortality assessments and provide information for reducing the interactions in the future. For easily identified turtles, take one picture to confirm identification. For those with questionable identification, take at least 3 pictures showing dorsal, ventral, and frontal views. In addition to the identification photographs, take a photo showing the gear interaction. Try to photograph the top of the head of leatherbacks to record the “pink spot” and white markings for photo-id.

For the first picture of every turtle, distinguish each new specimen from the previous turtle specimen. Suggested examples include a label such as a dive slate with trip # and specimen # or indicate the specimen number by using the appropriate number of fingers in the field of view. The latter is particularly helpful for turtles not brought on board. Note that most disposable cameras need a minimum distance of at least 4 ft from the subject to take clear pictures (depth of field); otherwise the picture will be out of focus.

Condition of Turtle at Capture

Check the appropriate box that best corresponds to the turtle's condition when it was recovered and record specific notes about any injury to the turtle.

Specify the turtle's injury status as **Injured**, **Uninjured**, or **Unknown**, as described below, by checking the appropriate box:

Injured: The turtle is injured. All hooked turtles are injured. Describe in detail how the turtle is hooked on the back of the form. Any fresh lesion constitutes an injury.

Uninjured: The turtle apparently is not injured (e.g., net captures or entangled), and there are no fresh lesions.

Unknown: The observer cannot determine if the turtle is injured. This may happen when an animal is not boated, and the observer did not get a good view of the animal.

Specify the turtle's condition at capture by checking one of the following and by circling the specific category when it can be determined:

Previously Dead "Dead before interaction": The turtle died prior to and not as a result of the observed fishing interaction.

Note: A **previously dead** turtle will usually have rotting tissue around the eyes and vents, and it may be bloated and foul smelling. It also may have sloughing scutes and scales. However, it may not smell, but may have rigor mortis.

Fresh dead/comatose/unresponsive: At times it is difficult to make the distinction whether a turtle is dead, comatose or unresponsive, particularly in the field with a lack of specialized monitoring equipment. When encountering a turtle that appears unresponsive, test the turtle's response to stimuli and detail findings on the diagram near the comments section on the form. To test eye reflexes, check for a blink response by gently touching the corner of the eye or eyelid. Pinch both front and rear flippers and the tail to check for response. See Condition Evaluation for Turtles Not Coded "Alive" on page 16 and fill in every blank (using a 'Y' for positive response, and 'N' for no response) on the turtle diagram on the back of the data sheet. A lack of bilateral response (reflexes on both sides) for any of these tests may indicate the need for resuscitation. A fully conscious (coded as 'alive') turtle has all bilateral reflexes and has a central (e.g., brain) recognition of the stimulus. An unresponsive turtle will not have full bilateral responses (some but not all lines around diagram will have 'Y' marked). A comatose turtle will have lost all reflexes (all of the lines around diagram will have 'N' marked). This category includes the following scenarios:

Fresh Dead “Dead because of interaction”: The turtle died as a result of the current (observed) fishing operation. The carcass may show signs that it had been alive during the interaction (e.g., multiple wrap entanglement in line or netting, or internal hooking). The carcass may or may not have rigor mortis and may begin to smell. Extended soak times, over several days, may influence the condition, and the carcass may be moderately to severely decomposed when retrieved. Selecting this field indicates that the turtle was assuredly alive when captured in the gear, regardless of the time elapsed before being observed.

Comatose/Unresponsive: Select this category if the turtle is comatose/unresponsive and if there is any indication of life but not obvious directed movements or breaths.

Attempted resuscitation: Hindquarters Elevated? Rocked? Circle Y for Yes or N for No to indicate whether the vessel crew elevated the hindquarters and rocked a fresh dead/comatose/unresponsive turtle. Sea Turtle Resuscitation Guidelines are described in the Federal Register (66 FR 67495, December 31, 2001). The turtle’s hindquarters must be elevated at least six inches (15 – 30 degrees) for a period of 4 up to 24 hours, while the turtle is kept moist and in the shade at a temperature similar to water temperature at capture. Periodically, rock the turtle gently left to right and right to left by holding the outer edge of the carapace and lifting one side about 3 inches, then alternate to the other side. See further resuscitation instructions in Chapter 3 of the Sea Turtle Research Techniques Manual. Note in the comments section the time it took for the turtle to respond and how long the turtle was kept on deck before release. If elevation of hindquarters or rocking side to side was not attempted, please describe the circumstances in the comments section.

Alive: The turtle is alive if it makes directed movements, such as attempting to crawl or bite, and while breathing the carapace raises and lowers. The turtle may be injured, uninjured or unknown as previously described.

Unknown (describe): The turtle was not closely observed, and the condition is unknown. Explain in the comments section on back of form.

Other (describe): The condition does not fit any category described above. Explain in the comments section on back of form.

If gear is a form of hook and line, complete this section, as applicable:

Hook Type: Check “J” or Circle. If hook type is neither, select Other (describe).

Hook Size: Write in size of hook, (e.g., 9/0, 18/0).

Manufacturer/Style No. Write in the manufacturer and style number (e.g., Mustad #39968D).

Degree Offset: Write in the degree offset of hook (e.g., 0°, 5°, 10°).

Bait: Check Squid, Mackerel, Sardine, Unknown or Other (describe) to specify bait type.

Size: Write in the bait size. *If two baits involved, include both sizes. See examples below.*

Using values recorded on the haul log for each bait kind, first calculate an individual bait weight (box weight/bait number) and round to nearest hundredth of a pound. Then, convert to grams (1 lb = approximately 450 grams) multiplying by 450.

-Squid: 200lbs/400 baits = 0.50 lbs each $0.50 \times 450 = 225$ grams, record as 225 grams

-Mackerel: 300 lbs/ 400 baits = 0.75 lbs each $0.75 \times 450 = 337.5$ grams, record as 338 grams

-Sardines: 60 lbs/400 baits = 0.15 lbs each $0.15 \times 450 = 67.5$ grams, record as 68 grams

Caught on hook timer? Circle Y for Yes or N for No. If Yes, fill in time elapsed in the space provided.

Is a light stick on hook, upon haul back)? Circle Y for Yes, N for No, U for Unknown or Not Applicable. Note in comments if you witness the light stick fall off during haul back.

Gangions to next light stick: If answer above was no, record the number of gangions to the **next** light stick (not necessarily nearest).

Light stick type (circle): Chemical or LED. If applicable, circle Chemical for glow sticks or circle LED for a light-emitting-diode requiring an electric current or battery.

Light stick color (circle): If applicable, circle the color of the light stick or write it in if not listed.

Number of gangions to next float: Record number of gangions to the **next** float (not necessarily nearest).

Hook location (See Appendix)

For hooked turtles, circle the specific location if it can be determined. If specific location cannot be determined, note the general location of the hook by checking the appropriate code box. Describe the hook and its location in the comments section. Note if there is more than one hook involved.

Specify if the animal is **Not Hooked (entanglement only)**, **Not Known if Hooked**, **Hooked, but location totally Unknown**, or **Holding bait/hook** (where there is no evidence of hooking or entanglement, and it appears that the turtle “spit out” the bait or hook) and record details in the comments section. Otherwise follow the directions below for **Internal** or **External** hooks.

Internal Hook Location (check general location and circle the specific location, if known).

Unknown, internal: The animal has been hooked internally, but the specific location cannot be determined. This may be the case when an animal cannot be observed closely.

Swallowed (esophagus): The turtle has “swallowed” the hook. The barb of the hook is lodged in the esophagus, as indicated by the presence of papillae, or the hook may be deeper. Part of the eye or shank may be visible in the open mouth. See description of the oral cavity in Chapter 4 of the Sea Turtle Research Techniques Manual.

Swallowed Hook Visible?: Circle the extent to which the hook is visible, choosing from: **visible to insertion point**, **partially visible**, or **not visible**.

Beak/Mouth: The turtle is hooked in the beak internally or the mouth. Circle whether hook is in the **beak** (the hard, keratinized parts of the upper and lower jaw in hardshell turtles) or the **mouth** (soft tissue parts). Hook usually is easily visible, except those lodged in the back of the mouth. Describe hook and location in the comments section. See description of oral cavity in Chapter 4 of the Sea Turtle Research Techniques Manual and Careful Release Protocols for further detail.

Jaw location: Specify the location of the hook in the jaw: **upper**, **lower**, or **side** (mouth only) by checking the appropriate box. Check specific location as it applies if hooked in mouth (**tongue**, **glottis**, **roof of mouth**, or **jaw joint**). Check **other**, if the specific locations listed do not apply. Example: If the turtle was hooked in the lower jaw but was not hooked in the tongue or glottis, check the **beak/mouth** box, circle **mouth**, check **lower** jaw and check **other**. Be as specific as possible, use comments section if necessary.

Internal: Unknown, internal
 Swallowed (Esophagus) **Hook visible?** Visible to insertion point / Partial hook / Not visible
 Beak/Mouth (Circle one) **Jaw Location** (Check one) upper lower side (mouth only)
 Check one for mouth: tongue glottis roof of mouth jaw joint other (describe)

External Hook Location (check general location and circle the specific location, if known).

Unknown, external: The animal has been hooked externally, but the specific location cannot be determined. This may be the case when an animal cannot be observed closely.

Beak/Head/Neck: The turtle is hooked in the neck or head, including the external beak area. Describe location in comments section.

Carapace/Plastron: The turtle is hooked in its carapace or plastron. Describe location in the comments section.

Front Flipper/Shoulder/Armpit: The turtle is hooked in its front limbs, armpits (trailing edge or ventral), or shoulders (leading edge). Describe which side (right or left) is involved in the comments section.

Rear Flipper/Groin/Tail: The turtle is hooked in its rear limbs, groin, or tail. Describe which side (right or left) is involved in the comments section.

Was hook recovered from this animal? Circle Y for Yes, N for No, Unknown, or Not Applicable. If animal is 'Not Hooked' then choose Not Applicable. If animal is 'Not Known If Hooked', determine whether the hook was retrieved and answer Yes, No, or Unknown accordingly (even though it is not positive that the hook penetrated the animal).

All gear types complete this section, as applicable.

Was animal entangled in gear at capture? Circle Y for Yes, N for No, or Unknown.

At release? Circle Y for Yes, N for No, and U for Unknown.

How much gear (linear feet) was left on turtle when released? Estimate or measure the amount of gear line left on turtle when released. For hook and line fisheries, this is the measurement of line from the eye of the hook, including crimp, left on the turtle. For lengths less than one foot, record the decimal fraction remaining. Record a zero if all line is removed.

BIOLOGICAL INFORMATION

Dimensions (see Chapter 5 of the Sea Turtle Research Techniques Manual)

For turtles that cannot be brought onboard, estimate its carapace length in feet.

Estimated Carapace Length (ft): Estimate length of the turtle if not brought onboard the vessel.

For boated turtles, take the carapace measurements in centimeters, to the nearest 0.1 cm, using a tape measure (curved) and using calipers (straight). Standard measurements are described below and illustrated in Figure 2. Measurements over-the-curve (curved) follow the curvature of the carapace. If barnacles, injury, or abnormality affect these measurements, record the details on the back of the form. Nearly all leatherbacks encountered will be too large for the calipers, but straight measurements should be taken if possible. Note: there is no straight notch to notch measurement due to leatherbacks morphology.

For detailed description and landmarks of the following measurements reference Chapter 5 of the Sea Turtle Research Techniques Manual and/or see Figure 2

Carapace Length, curved, notch-to-tip (standard): Record the distance between the center of the nuchal scute and the end of the longest postcentral scute, following the curvature of the dorsal center line. On leatherbacks the measurement is taken alongside (not over the top) of the vertebral (center) ridge.

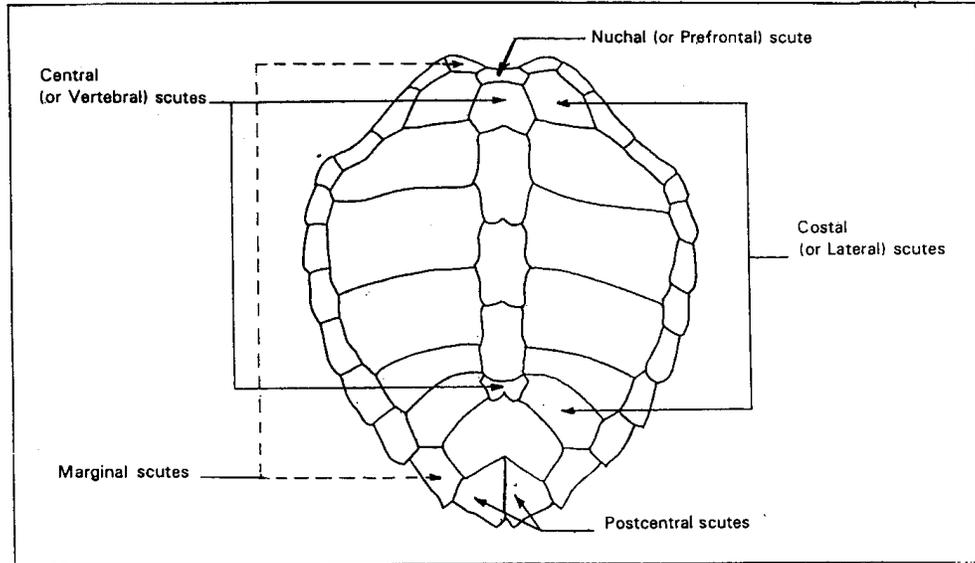
Carapace Length, straight, notch-to-tip (standard): Record the distance between the center of the nuchal scute and the end of the longest postcentral scute.

Carapace Length, straight, notch-to-notch (minimal): Record the distance between the center of the nuchal scute and the notch between the two postcentral scutes.

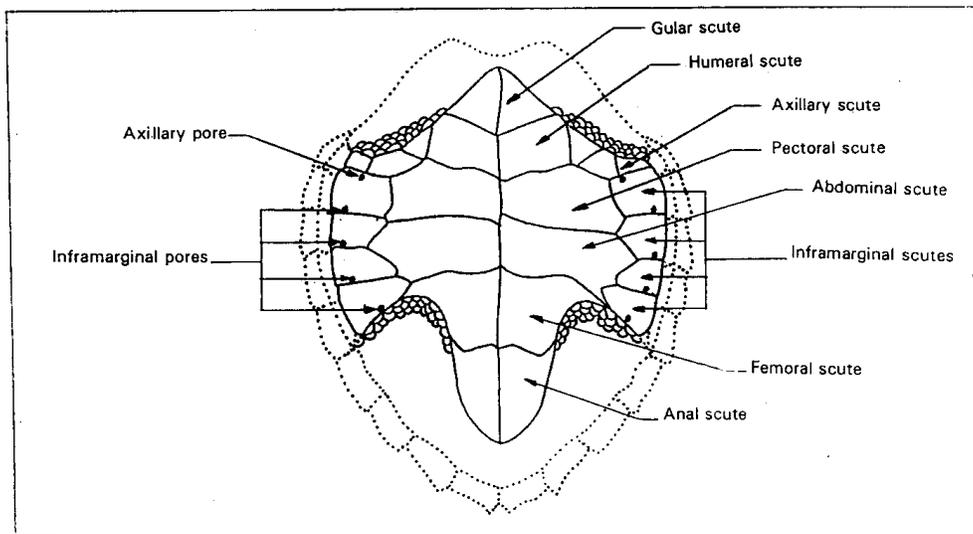
Carapace Width, curved: Record the maximum distance between the lateral edges of the carapace, measured over the curvature of the shell, perpendicular to the centerline of the carapace, at the widest point. On leatherbacks the width is measured from side ridge to side ridge at the widest point.

Carapace Width, straight: Record the maximum distance between the lateral edges of the carapace, perpendicular to the centerline of the carapace. Note: this measurement may be taken at a different place on the carapace than when measured over the curve with a tape measure.

Figure 2. Carapace and plastron illustrating the commonly used morphological names and their locations. (Diagram originally appeared in Reichart 1993.)



Carapace of an olive ridley turtle (*Lepidochelys olivacea*) (Surinam specimen, scaled drawing by S. Handigman)



Plastron of an olive ridley turtle (*Lepidochelys olivacea*) (Surinam specimen, scaled drawing by S. Handigman)

Tags

Look for existing tags. Figure 3 shows examples of tag types and position locations. Metal or plastic tags may be found externally on any of the four flippers. If no rear metal flipper tags are present, apply 2 inconel tags, one to each rear flipper. Living tags may be found externally on any of the lateral scutes, mainly on Kemp's ridley turtles. They are created by surgically removing a small piece of the plastron and implanting it in the carapace, creating a light spot on the carapace. In addition, there may be two types of internal tags (wire and PIT) placed in the shoulders or flippers. Due to additional equipment requirements, wire tagging is not covered in this manual. A PIT (Passive Integrated Transponder) tag is a glass encapsulated microchip carrying a unique code that is inserted into soft tissue. If no PIT tag is present, you will apply one (location varies by species). Generally, all turtles over 30 cm straight carapace length (SCL) should be flipper and PIT tagged if not already carrying tags. Turtles less than 20 cm SCL should only get a PIT tag. For turtles measuring between 20-30 cm SCL, the observer should use their best judgment to determine if flipper tagging is appropriate. See the detailed tag application instructions in Chapter 6 of the Sea Turtle Research Techniques Manual.

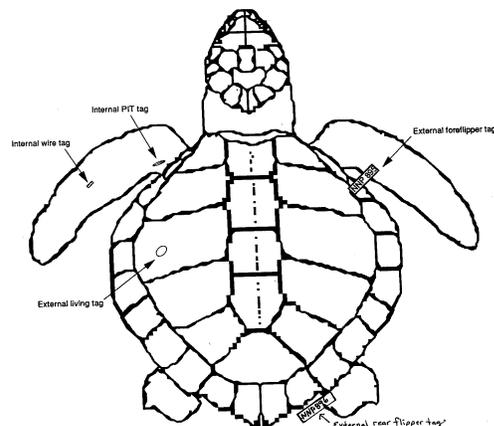
Flipper Tag Number: Record the number of the tag that is already present or that is being applied. If the tag is already present, record the return address of the tag in the comments section. If no tags are on the turtle and none are applied, leave blank.

Tag Type: Metal [1] or Plastic [2]: Identify the type of tag appearing on or to be applied to the turtle. If no tags are on the turtle and none are being applied, leave blank.

Position: The tag may be on any of the four flippers. Observers should apply two tags, one to each rear flipper, if none already are present at that location. Record the location of the tag. If no tags are on the turtle and none are being applied, leave blank.

Figure 3. Examples of typical external inconel flipper tags, living tags, and internal PIT tag position locations.

**Left Front Flipper [LF]
Right Front Flipper [RF]
Left Rear Flipper [LR]
Right Rear Flipper [RR]**



Already Present [1] or Applied by Observer [2]: Specify whether the tag was already present or whether it is being applied by the observer. If no tags are on the turtle and none are being applied, leave blank.

Were Tags Removed?: Circle Y for Yes or N for No to indicate if tags are removed. Any tags present prior to bringing the turtle onboard that are getting hard to read or about to fall off should be removed and, if taken from the rear flippers, replaced with new ones. The removed tags should be collected and provided to the Program Coordinator upon your return. If existing tags are in good condition, leave them in place. If tags were not removed from the turtle, leave blank.

PIT Tag: Scan the 4 flippers and the shoulder and “armpit” area with the PIT tag scanner. Remember when scanning to hold the scanner as close as possible to the turtle and keep the reader protected from the wet environment by sealing it in a water proof bag. There are a few PIT tag types available; these differ by applicator style and the length of the unique tag code. If a tag is found, record the decimal (vs hexadecimal) code, double check the code and ensure it has been written clearly as to not confuse zeros (0) for D’s or 8’s for B’s, etc. Generally the PIT tag codes are 10 or 15 bits long; rarely 9 or 16. Be especially diligent to recheck all 16 bit codes. When no PIT tag is present in either of the front flippers, inject one, see detailed instructions for PIT tag application and preferred placement location by species in Chapter 6 of the Sea Turtle Research Techniques Manual. Record the PIT tag number and attach the PIT tag sticker to the data sheet. If the PIT tag label has more than one code, record the one your scanner displays. Record the position of any existing PIT tag or the position where one is applied (example: LF, RF) and note whether the tag was already present or applied at this capture. If no PIT tags are in the turtle and none are applied, leave blank.

Scanned? Circle Y for Yes or N for No, indicating whether you scanned the flipper, shoulder, and armpit areas with a PIT tag scanner prior to and after application.

Living Tag: Specify whether any living tags are present. Record details, including position, in the comments section and photograph the mark. See Figure 3 for an example of a living tag position; here it is located in the 3rd left lateral scute.

Other Tags: When other types of tags, such as satellite tags, are present or are applied, record the tag number if it has one. Record details, including position, in the comments section and photograph the tag.

Biopsy Samples

Biopsy Samples Taken? Biopsy samples for genetic analysis should be taken from all turtles (see Chapter 8 in the Sea Turtle Research Techniques Manual). Were samples taken? Circle Y for Yes, N for No or Unsuccessful for an unsuccessful attempt. List all samples taken in the comments section. **If you are importing biopsy samples from the high seas (outside the U.S. EEZ), you must have a copy of the CITES permit and complete a USFWS 3-177 form listing all samples imported for that trip.** See page 20 for instructions for filling out a USFWS Form 3-177.

Release Information

Record the location (latitude and longitude) where the animal was released, release time and water temperature at that location. If the entire animal was returned to shore (salvaged or taken to holding facility), leave blank.

Latitude: Record the degrees and minutes of latitude at the time of the actual release of the animal. Circle N or S for north or south of the equator.

Longitude: Record the degrees and minutes of longitude at the time of the actual release of the animal. Circle E or W for east or west of the prime meridian.

Time: Record the time of day (24 hr clock) when the turtle was released.

Water Temperature: Record the water temperature at the location where the turtle was released.

Date: Record the year, month, and day the turtle was released if different from capture date.

Final Disposition

Record the final disposition (fate) of the turtle by checking the appropriate box:

Discarded Dead/Unresponsive Carcass: In some cases, a turtle may have shown signs of life while onboard, but if it is dead or unresponsive at release, it belongs in this category.

Marked? Circle Y for Yes or N for No. All carcasses returned to sea should be spray painted, tagged, or otherwise marked.

Salvaged Carcass/Parts (other than biopsy, explain): Indicate whether the carcass or parts of the carcass were salvaged and make notes in the comments section describing where the samples were taken. Indicate in the comments what part/s or sample/s were salvaged if applicable. **A current CITES permit is required to return with animals or parts taken on the high seas (outside the U.S. EEZ).**

Released Alive

Taken to Holding Facility

Unknown (explain)

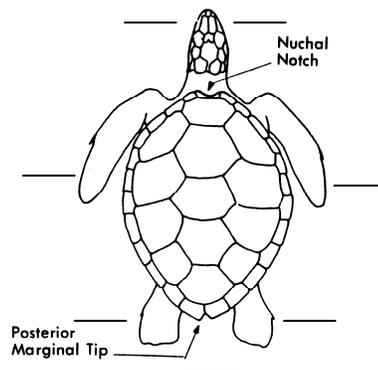
Additional Comments

Use this area to record any comments. Annotate the drawing to indicate any anomalies, location of living tags, etc. Also, be sure to list all biological samples collected. If resuscitation was attempted on the turtle, please record all details in this section (such as length of time resuscitation was attempted, method(s) used, etc.). If the sea turtle was cut free from the gear, disentangled, or a hook was removed, record the equipment used to perform the action. Monitor and record the turtle's behavior and swimming abilities upon release.

Condition Evaluation for Turtles Not Coded "Alive": When encountering a turtle that appears unresponsive, test the turtles' response to stimuli and detail findings on the lines around the turtle diagram, see Figure 4. Write a 'Y' for Yes to indicate a positive reflex/responsiveness, and 'N' for No response. Mark all 7 lines.

To check for a response, stimulate each of the general areas marked with lines on the diagram. To test eye reflexes, check for a blink response by lightly touching the skin around each eye. Position yourself to see both eyes at the same time to determine if the response was bilateral. Firmly pinch each flipper (both front and rear) and tail to check for a response. If there is a positive response, note whether or not it was limited to the stimulated area only or if it evoked a larger response (describe).

Figure 4. Condition evaluation diagram, used to indicate reflex test results for turtles not coded alive.



Rigor Mortis? Circle Y for Yes, N for No, and U for Unknown.

Rotting Flesh? Circle Y for Yes, N for No, and U for Unknown.

Foul Smell? Circle Y for Yes, N for No, and U for Unknown.

Identification Criteria (See Chapter 1 of the Sea Turtle Research Techniques Manual and Figure 2 for reference.)

Number of Left Lateral Scutes: Count and record the number of lateral (costal) scutes on the left side of the carapace.

Number of Right Lateral Scutes: Count and record the number of lateral (costal) scutes on the right side of the carapace.

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

Number of Left Inframarginal Scutes: Count and record the number of scutes on the turtle's left side of the plastron. The inframarginal scutes are those which are in contact with both the marginal carapace and plastron scutes.

Number of Right Inframarginal Scutes: Count and record the number of scutes on the turtle's right side of the plastron. The inframarginal scutes are those which are in contact with both the marginal carapace and plastron scutes.

Overlapping Scutes?: Are there overlapping scutes on the carapace? Circle Y for Yes, N for No, or U for Unknown.

Inframarginal Pores?: Are there pores located within the inframarginal scutes? Circle Y for Yes, N for No, or U for Unknown.

1 Pair of Prefrontal Scales?: Does the turtle have one pair of prefrontal scales? Circle Y for Yes, N for No, or U for Unknown.

Lacks Bony Shell?: Does the turtle lack a bony shell? Circle Y for Yes or N for No.

Nuchal scute: Does the nuchal scute touch the first lateral scute? Circle Y for Yes, N for No, or U for Unknown.

Dorsal Coloration: What is the dorsal coloration of the turtle? Check the most appropriate box choosing from **black**, **orange/red-brown**, **gray-green** or **other**. If **other** is selected, thoroughly describe the dorsal coloration.

VESSEL CAPTAIN, CREW AND OBSERVER RESPONSIBILITIES

Vessel Captain and Crew Responsibilities

The vessel captain and crew's responsibilities are outlined in the Careful Release Protocols for Sea Turtle Release with Minimal Injury, NOAA Technical Memorandum NMFS-SEFSC-580. The animal's safety, gear removal, and decisions whether a turtle is to be boated or resuscitated are the responsibility of the vessel's captain and crew.

Observer & Vessel Captain and Crew Responsibilities

All parties should minimize any possible injury to the animal while on deck, either by the animal bumping into objects on board or by objects falling on the animal due to boat movement. In addition, all parties are responsible for keeping the turtle moist and in the shade, and maintaining an acceptable body temperature. Moisture can be preserved by either covering the animal's body with a wet towel or by applying petroleum jelly on its skin and carapace. The animal's body temperature should not fall below 60° F and should be maintained similar to the water temperature of the capture and release locations.

Observer Responsibilities

The observer is to observe normal fishing operations and complete a Sea Turtle Life History Form for every sea turtle interacting with fishing gear. The observer is responsible for collecting and recording the biological data on the sea turtles (measuring, tagging, biopsying, etc). Crew assistance may be requested to complete these tasks. The animals' behaviors and swimming and diving abilities should be monitored after the release and noted on the form. The observer may educate the crew on known ways to dehook, disentangle, or use mouth openers and gags on an animal but are not to actually participate. On certain trips during experiments, the observer is also responsible for sending daily e-mails to the turtle coordinator relaying data on effort and protected species interactions. The observer will be made aware of such responsibilities if required.

SPECIMEN COLLECTION REQUIREMENTS

If possible, **retain** dead sea turtles after processing for return to port. Consider the size of the sea turtle, and whether freezer space is available. Consider, also, species and size and sampling priorities. These priorities will be given to you by the observer/fishery coordinator. If animals were taken on the high seas (outside the U.S. EEZ), you must have a CITES permit and a completed USFWS 3-177 form (see page 20 for instructions) to import the animal back to the United States.

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

- Leave all existing tags in place.
- Take three photographs; dorsal, ventral, and frontal views, in addition to gear interaction photograph.
- Complete Sea Turtle Life History Form and apply a single flipper tag, if one is not present.

Double bag and chill or freeze all retained samples. Each sample is to be individually tagged and labeled. The label is to be completed using only a “test scoring” pencil (#2). The label is to have the following information: trip number, specimen number, species, and sample identification (e.g., humerus). If many samples are collected from the same animal and placed into a common plastic bag, ensure that each part is properly tagged and labeled. Label the plastic bag with a large tag clearly stating its contents.

If you are importing a carcass from the high seas, notify the observer coordinator that you are returning to port when the date of docking is known, with no less than 48 hours notice.

MATERIALS FOR COLLECTING GENETIC TISSUE SAMPLES AND LABELING INSTRUCTIONS

- * scotch tape to protect writing on the vials
- * pencil to write on label
- * waterproof label, 1/4" x 4"
- * permanent marker to label the vials
- * screw-cap vial of saturated NaCl, wrapped in Parafilm®
- * piece of Parafilm® to wrap the cap of the vial after sample is taken
- * latex gloves
- * plastic board, ~6" x 4"
- * 10% povidone-iodine solution
- * alcohol swabs
- * 4 - 6 mm biopsy punch - sterile, disposable, for boated turtles
- * vial with sterile stainless steel corer for turtles not boated
- * Whirl-pak® to return / store sample vial

Most observer programs or research projects should include two types of biopsy kits in each sampling case: one for turtles not boated and one for turtles brought onboard. The one for turtles not boated can be distinguished by the presence of two types of vials: one for the storage of the dry, sterile corer and one that contains a preservative into which the corer is placed once a sample is taken. The kits for turtles that are boated contain one type of vial and also contain sterile individually wrapped biopsy punches.

Use the pencil to write trip number, specimen number, species id, and carapace length (SCL_{n-t}) on the waterproof paper label and place it in the vial. Label the outside of the vial using the permanent marker with trip number, specimen number, species id, and carapace length (SCL_{n-t}). Apply a piece of clear tape over what you have written on the vial to protect the writing from being erased or smeared by accidental leakage or friction. If a PIT tag was applied to the turtle, it is helpful to place one of the adhesive PIT tag ID labels to the vial in addition to the written information and secure with clear tape. Wrap Parafilm® around the outside of the vial cap by stretching it as you wrap. Do not place Parafilm® between the top of the vial and cap before sealing, and do not use clear tape around the outside of the vial cap. Place the vial within a labeled Whirl-pak® and close.

Submit the vial with your datasheets. Be sure to indicate on your datasheet that a biopsy sample was taken. If you are importing biopsy samples from the high seas (outside the U.S. EEZ), you must have a copy of the CITES permit and complete a USFWS 3-177 form (see instructions on page 20), listing all samples imported for that trip.

INSTRUCTIONS FOR FILLING OUT USFWS FORM 3-177 (Declaration of Importation or Exportation of Fish or Wildlife)

If you are importing a biopsy sample from a live or dead turtle, a carcass or samples/parts from a carcass from the high seas (outside the U.S. EEZ), you must fill out a USFWS Form 3-177 (See provided example, Figure 5) and return it with your biopsy sample vials. If you are unsure whether your samples were collected on the high seas, fill out a form and submit it. One form will suffice for each trip, summarizing the number of samples collected by species. Observers will need to fill in the following blocks:

1. Insert date of import (when the samples come into port).
4. Leave blank
6. Leave blank
7. Fill in FedEx if applicable
8. Fill in the FedEx Air Way Bill if applicable
11. Number of cartons containing wildlife- probably 1
12. Leave blank unless importing a carcass, describe container.
- 16a. Scientific name (reference TM-579, Chapter 1)
- 16b. Common name

If you are importing samples from more than one species under one trip, just list the scientific and common name on different lines, and the number of samples per species in box 19a.

- 18a. SPE for biopsy samples and BOD for whole carcass
- 19a. Fill in Quantity, number of samples per species (unit NO is already filled in)
20. Country of origin- generally "High Seas"
21. Please sign and date the form

See the following example to aid in the completion of the form. Please return this form with your biopsy samples to your project coordinator or Principal Investigator. If you have any questions, please feel free to contact Lesley Stokes at (305) 361-4228 or Lesley.Stokes@noaa.gov.

Figure 5. Example of USFWS FORM 3-177 (Declaration of Importation or Exportation of Fish or Wildlife).

Page ___ of ___

USFWS Form 3-177
(Revised 12/06)
O.M.B. No. 1018-0012
Expiration Date: 12/31/2009



U.S. FISH AND WILDLIFE SERVICE
DECLARATION FOR IMPORTATION
OR EXPORTATION OF
FISH OR WILDLIFE

7. Name of Carrier: Federal Express

8. Air Waybill or Bill of Lading Number:
Master: _____
House: _____

9. Transportation Code: A
N/A
License # _____ State or Province _____

10. Bonded Location for Inspection:
Not Applicable

11. Number of Cartons Containing Wildlife: _____

12. Markings on Cartons Containing Wildlife:
NA

<p>1. Date of Import/Export: (mm/dd/yyyy)</p> <p>2. Import/Export License Number: <u>N/A</u></p> <p>3. Indicate One <input checked="" type="checkbox"/> Import <input type="checkbox"/> Export</p> <p>4. Port of Clearance: <u>MI</u></p> <p>5. Purpose Code: <u>S</u></p> <p>6. Customs Document Number (s)</p>	<p>13a. (Indicate One) (Complete name/U.S. address/telephone number/e-mail address) <input checked="" type="checkbox"/> U.S. Importer <input type="checkbox"/> U.S. Exporter Dep. Comm., NOAA, Natl. Mar. Fish. Serv. Southeast Fisheries Science Center 75 Virginia Beach Drive Miami, FL 33149 USA</p> <p>13b. Identifier Number: _____ ID Type: _____</p>	<p>14a. (Indicate One) (Complete name/foreign address/telephone number/e-mail address) <input type="checkbox"/> Foreign Importer <input type="checkbox"/> Foreign Exporter Not Applicable</p> <p>14b. Country Code: _____</p> <p>14c. Identifier Number: _____ ID Type: _____</p>
<p>15a. Customs Broker, Shipping Agent or Freight Forwarder: (Complete business name/address/telephone and fax number/e-mail address) Not Applicable</p>		<p>15b. Identifier Number: _____ ID Type: _____</p> <p>15c. Contact Name: _____</p>

Species Code (Official Use Only)	16a. Scientific Name	17a. Foreign CITES Permit Number	18a. Description Code	19a. Quantity/Unit	20. Country of Species Origin Code (ISO Code)	21. Venomous Live Wildlife Indicator <input checked="" type="checkbox"/> (Check if yes)
	16b. Common Name	17b. U.S. CITES Permit Number	18b. Source Code	19b. Total Monetary Value		
		Not Applicable	SPE	NO	ZZ	<input type="checkbox"/>
		09US045532/9	W	\$0.00		<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

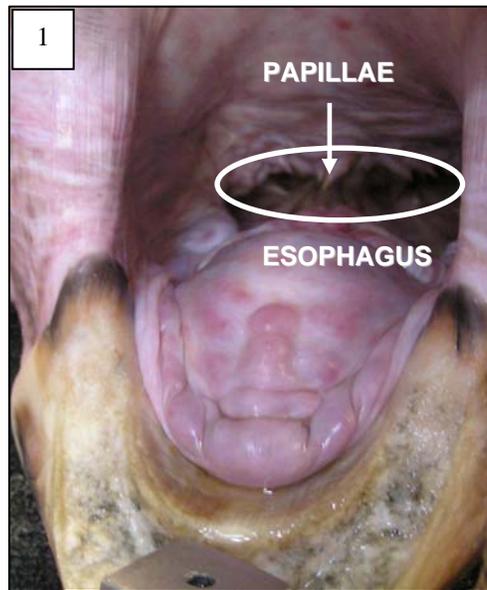
<p>Knowing making a false statement in a Declaration for Importation or Exportation of Fish or Wildlife may subject the declarant to the penalty provided by 18 U.S.C. 1001 and 16 U.S.C. 3372(d)</p>	<p>22. I certify under penalty of perjury that the information furnished is true and correct:</p> <p>_____ Signature</p> <p>_____ Date</p> <p>_____ Type or Print Name</p>
<p>For Official Use Only Action/Comments:</p> <p>Wildlife Declared: Yes No</p> <p>Wildlife Inspected: None / Partial / Full</p>	<p style="text-align: right;">See Reverse Side of this Form for Privacy Act Notice</p>

APPENDIX

Hook Locations

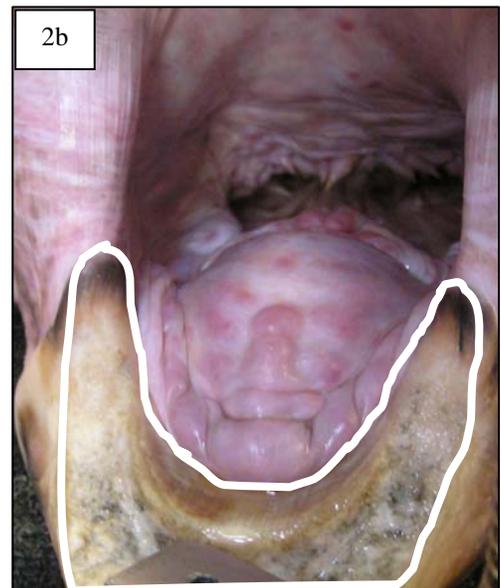
Internal:

1) Swallowed = inside the esophagus, the entrance marked by the presence of papillae. Indicate whether hook is visible to insertion point, partially visible, or not visible.



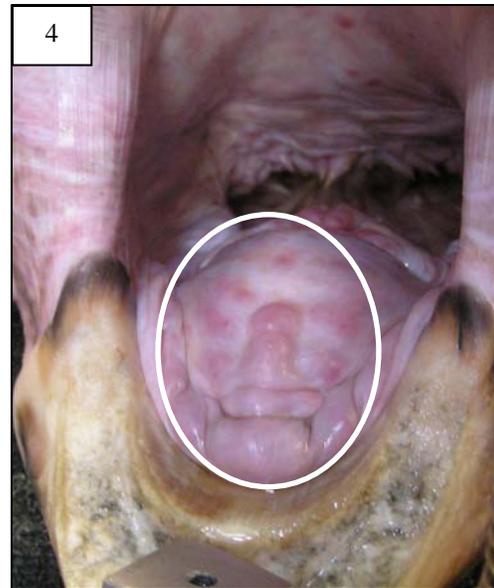
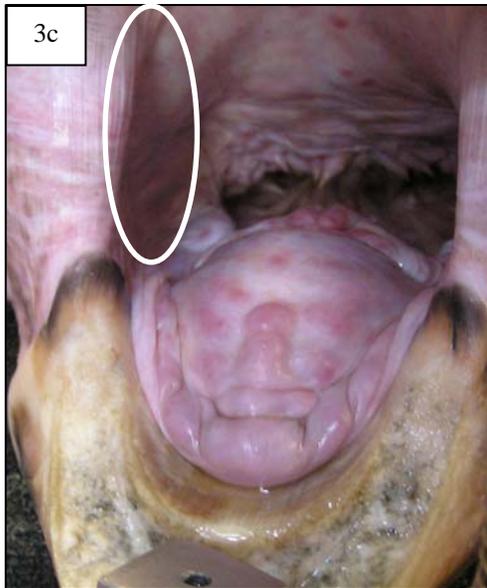
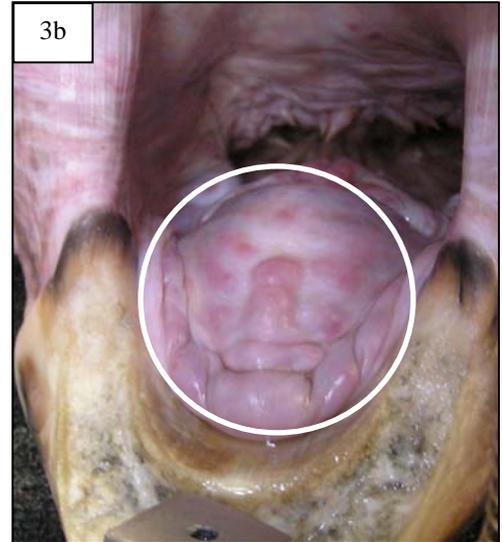
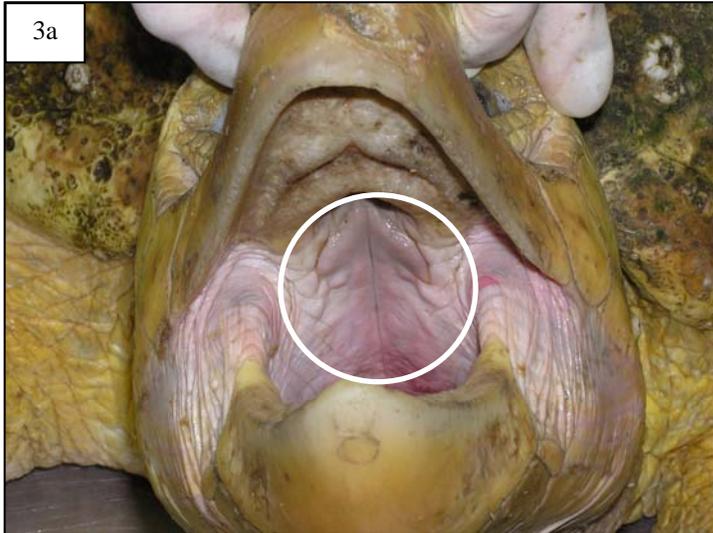
2) Internal Beak (hard keratinized rhamphotheca- hardshell turtles only)

a) Upper or b) Lower

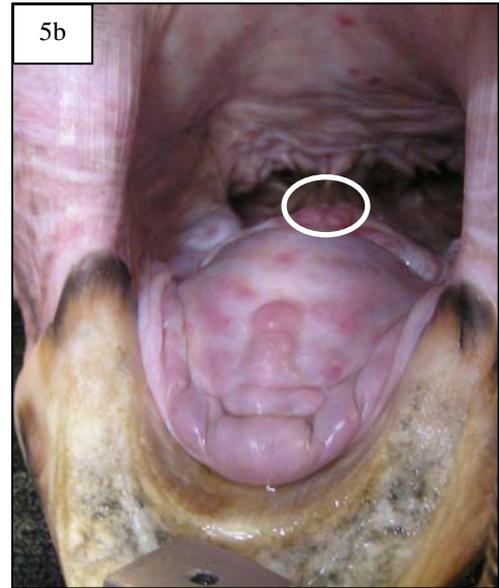
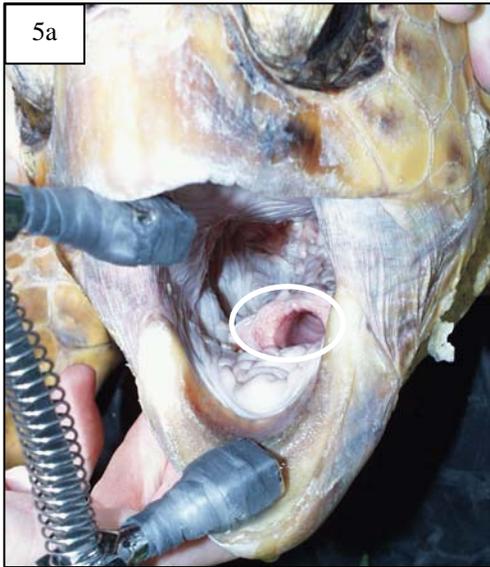


- 3) Mouth a) Upper (should generally be coded as roof of mouth)
 b) Lower (may be tongue, glottis, or other if under or beside the tongue)
 c) Side (could be jaw joint or other)

4) Tongue



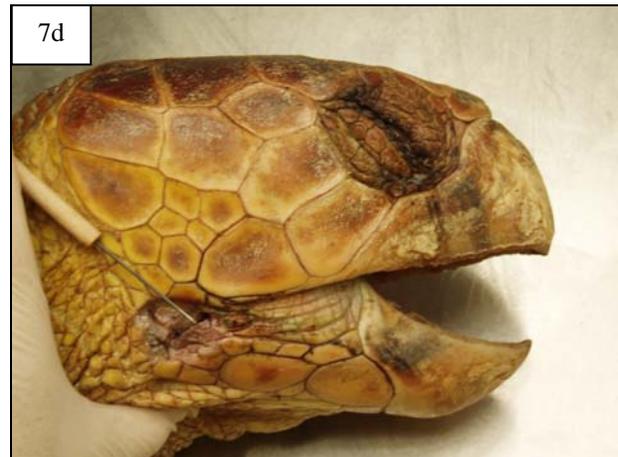
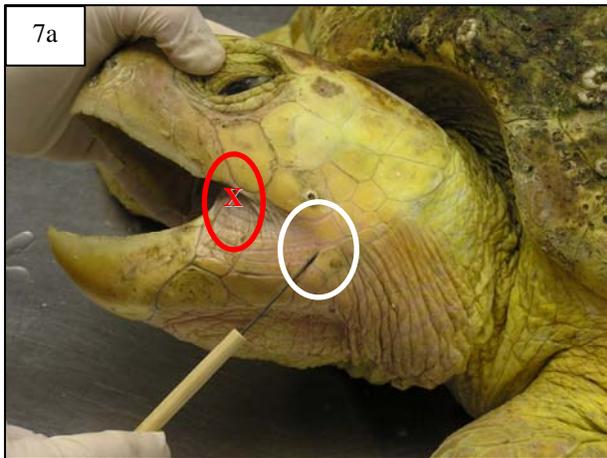
5) Glottis a) Open b) Closed



6) Roof of Mouth



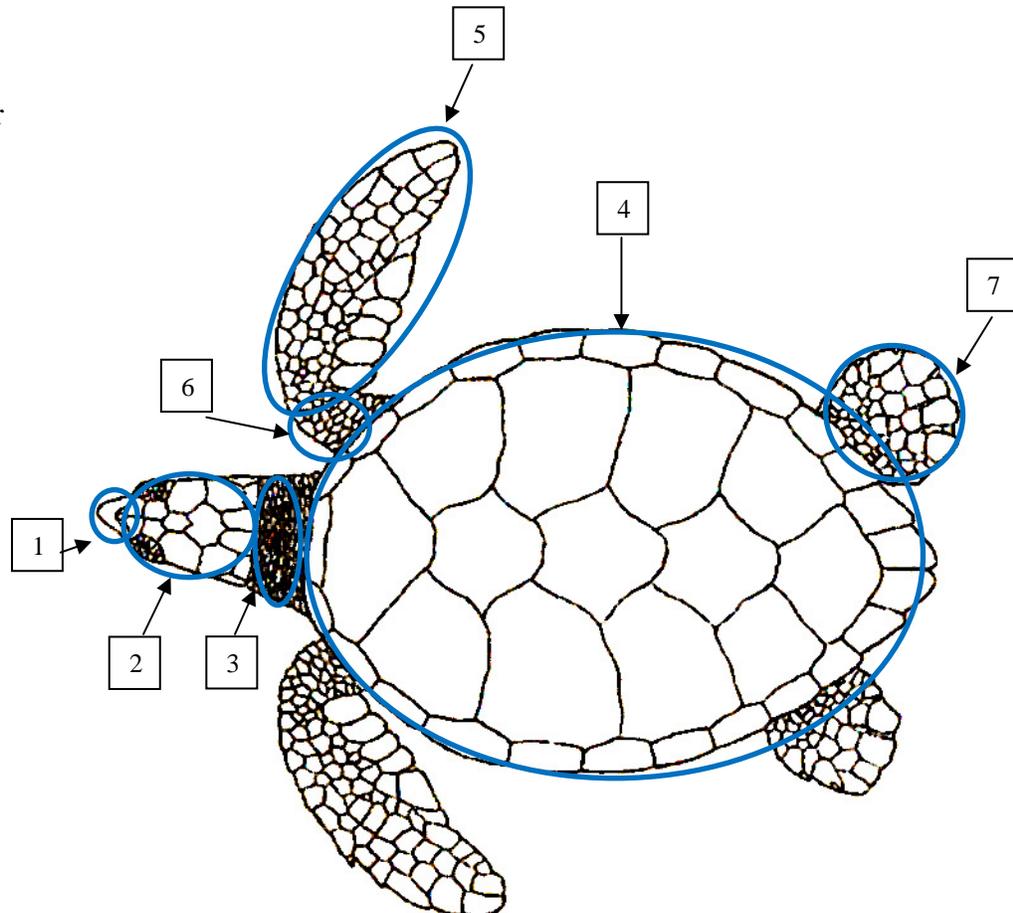
7) Jaw Joint a) external, b) internal, c) dissection depicting jaw joint with jaws closed, and d) dissection with jaws open. Note: this is **not** the corner of the mouth, depicted in Figure 7a by the **red** circle (which shows the “corner of the mouth”). To understand the difference, locate your own jaw joint (just in front of the ear) and notice its position relative to the corner of your mouth (where upper and lower lips meet).



8) Other = Any area not otherwise described here. For example, “mouth, lower, other” might be below the tongue in the soft tissue. “Mouth, side, other” could be the “corner of the mouth,” in the soft tissue connecting the jaws in front of the jaw joint. Describe in further detail in comments if possible.

External hardshell:

- 1) Beak
- 2) Head
- 3) Neck
- 4) Carapace
- 5) Front Flipper
- 6) Shoulder
- 7) Rear Flipper

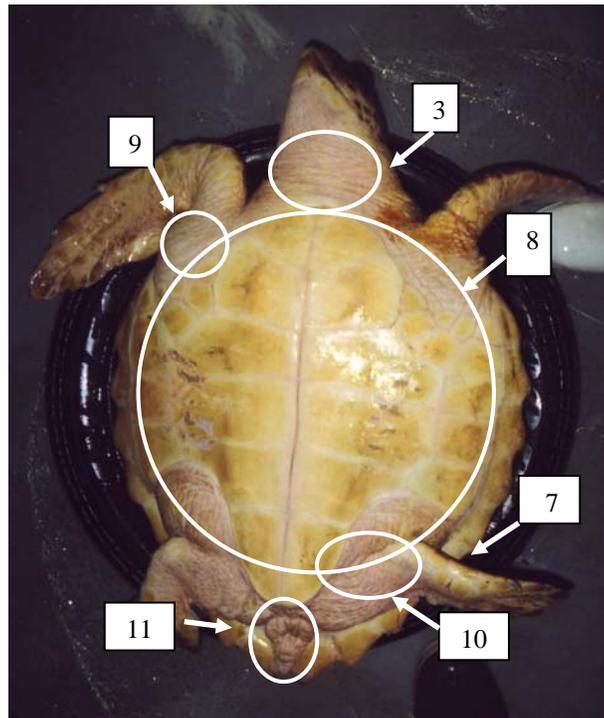
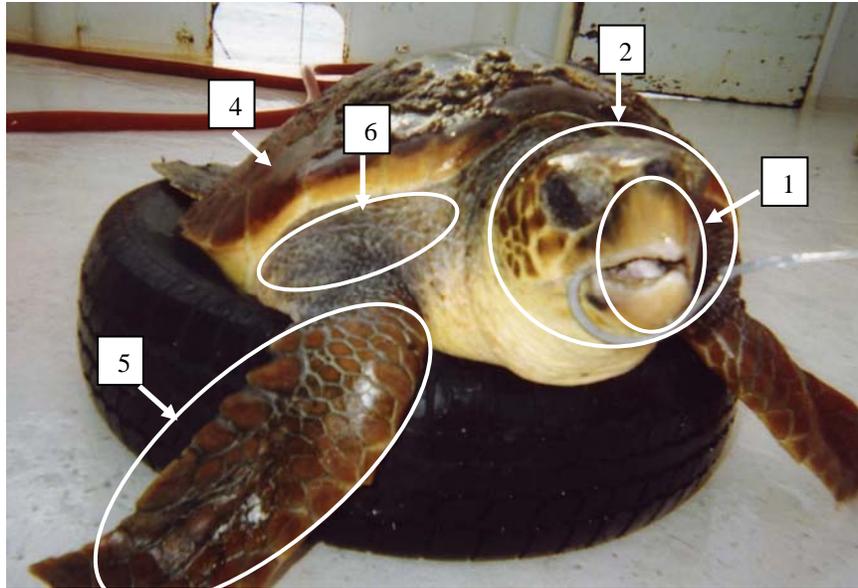


External hardshell:

- 1) Beak (hard keratinized rhamphotheca, either upper or lower, never side)
- 2) Head

- 3) Neck (dorsal and ventral surface)
- 4) Carapace
- 5) Front Flipper
- 6) Shoulder
- 7) Rear Flipper
- 8) Plastron

- 9) Armpit (ventral side and trailing edge of front flipper)
- 10) Groin
- 11) Tail

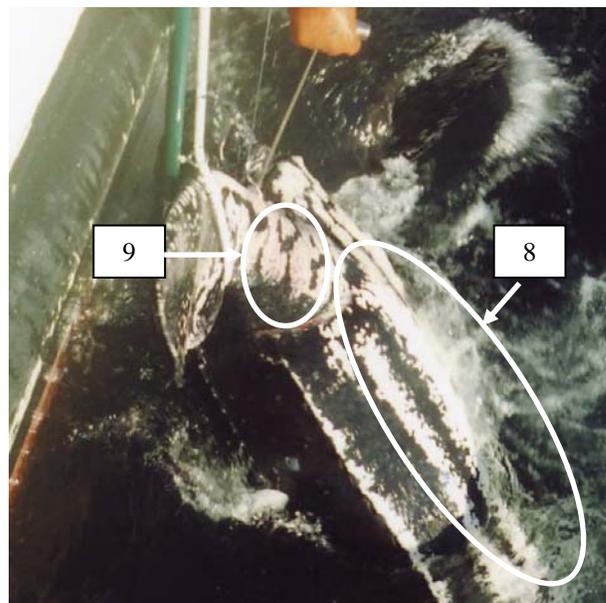
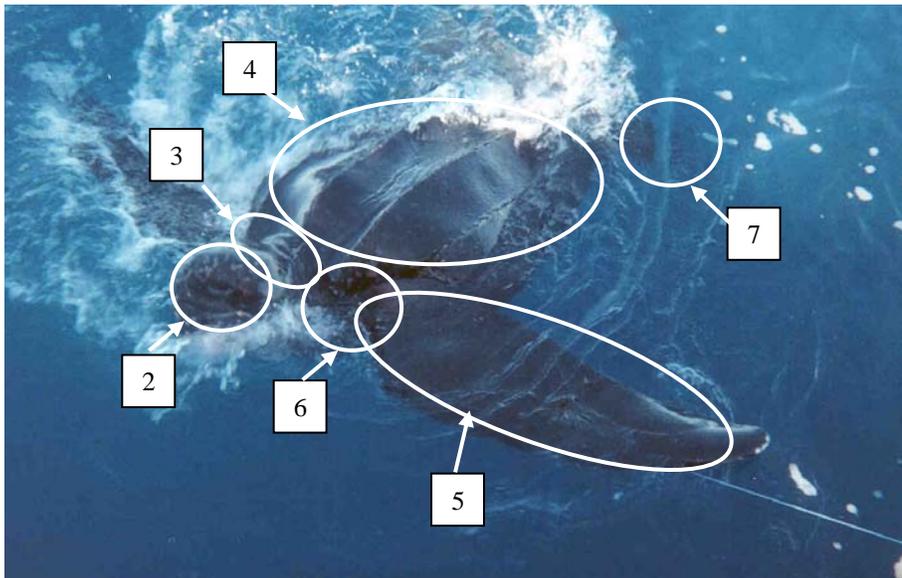


External Leatherback:

1) Beak (Leatherbacks do not have rhamphotheca and should never be coded as hooked in the beak)
2) Head
3) Neck (dorsal and ventral)

4) Carapace
5) Front Flipper
6) Shoulder (dorsal surface and leading edge between front flipper and neck)
7) Rear Flipper
8) Plastron

9) Armpit (ventral surface and trailing edge between front flipper and plastron) and trailing edge of front flipper)
10) Groin
11) Tail



REFERENCES

National Marine Fisheries Service Southeast Fisheries Science Center. 2008. Sea Turtle Research Techniques Manual. NOAA Technical Memorandum NMFS-SEFSC-579, 92 p.

National Marine Fisheries Service Southeast Fisheries Science Center. 2008. Careful release protocols for sea turtle release with minimal injury. NOAA Technical Memorandum NMFS-SEFSC-580, 130 pp.

Reichert, H.A. 1993. Synopsis of biological data on the olive ridley sea turtle, *Lepidochelys olivacea* (Eschscholtz, 1829), in the western Atlantic. NOAA Technical Memorandum NMFS-SEFSC-336, 78pp.