

Characterization of the US Gulf of Mexico and Southeastern Atlantic Otter Trawl and Bottom
Reef Fish Fisheries

Observer Training Manual



National Marine Fisheries Service
Southeast Fisheries Science Center
Galveston Laboratory

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NATIONAL OVERVIEW

From: Our Living Oceans, 1999.

The conservation and management of living marine resources (LMR's) in the US is entrusted to the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), which carries out its charge under many laws, treaties, and legislative mandates from the US Congress. Most of the agency's stewardship responsibilities come from five statutes:

1. Magnuson-Steven's Fishery Conservation and Management Act (MSFCMA) regulate fisheries within the US Exclusive Economic Zone (EEZ);
2. Endangered Species Act (ESA) protects species that are in danger of extinction or likely to become endangered;
3. Marine Mammal Protection Act (MMPA) regulates the taking of marine mammals;
4. Fish and Wildlife Coordination Act (FWCA) authorizes collection of fisheries data and coordination with other agencies for environmental decisions affecting LMR's; and
5. Federal Power Act provides for concurrent responsibilities with the US Fish and Wildlife Service (USFW) in protecting aquatic habitat.

NMFS regulates fisheries from 3 to 200 nautical miles (Federal EEZ) off the 48 contiguous states, Alaska, Hawaii, and US affiliated islands. Within the 0-3 nautical miles or territorial seas, management jurisdiction belongs to coastal states and multi-state fisheries commissions. Territorial waters extend 9 nautical miles off Texas, Florida's west coast, and Puerto Rico. Applicable international laws and multilateral agreements among sovereign governments regulate international waters, outside the US EEZ, and the agency places an important role on behalf of the US in the implementation of international arrangements. Federal resource conservation laws require the best scientific information be used as the basis for management actions. NMFS scientists collect and analyze much of these data. From these data bases, the agency prepares reports and makes technical presentations to fishery managers, industry groups, and the public for used in formulating sound policies governing the long-term protection and sustainable use of the Nation's living marine resources.

The Secretary of Commerce has management responsibility for most marine life in US waters. Fishery resources are managed largely through fishery management plans (FMPs). These plans are generally developed by finfish management councils (Councils) through extensive consultations with state and Federal agencies, affected industry sectors, public interest groups, and, in pertinent cases, international science and management organizations.

FMPs for stocks within the EEZ originate through the MSFCMA, which established eight regional Councils. The Councils represent diverse interest through their members who are nominated by state governors in each region and appointed by the Secretary of Commerce. For

most marine fishes and for federally protected marine mammal and sea turtles. FMPs and protected species recovery plans may be developed by NMFS with input from the public and by direction of the Councils.

The Southeast Region covers the Gulf of Mexico, the Southeast Atlantic, and the Caribbean Sea. Its important resources are Atlantic sharks, Atlantic and Gulf of Mexico coastal migratory pelagics, Atlantic and Gulf of Mexico reef fish, drum and croaker, menhaden, invertebrates, highly migratory pelagic fishes, and near shore resources. Menhaden rates first by weight. Penaeid shrimp rank first in terms of value.

Penaeid Shrimp

From: Our Living Oceans, 1999.

Penaeid shrimp (brown, white and pink) account for 90% of the total Gulf of Mexico shrimp catch. In 1997 alone, these three species produced 84,967 tons valued at over \$437 million. They are found in all US Gulf waters inside 120 m depths. Most of the offshore brown shrimp are taken at 20-40 m depths; white shrimp are caught in 10 m or less; and pink shrimp are taken in 20-30 m. Brown shrimp are most abundant off the Texas-Louisiana coast, and the greatest concentration of pink shrimp is off southwestern Florida. In the South Atlantic, white shrimp landings are about 21% of their Gulf counter parts, while brown and pink shrimp are 6% of the Gulf yield.

Regulations in the Gulf of Mexico Shrimp FMP restrict shrimp by closing two shrimping grounds. There is a seasonal closure of fishing grounds off Texas for brown shrimp and a closure off Florida for pink shrimp. There are also size limits on white shrimp caught in Federal waters and landed in Louisiana. (BRD's are required in all trawl nets fishing in the EEZ, with the exception of Florida's waters east of Cape San Blas).

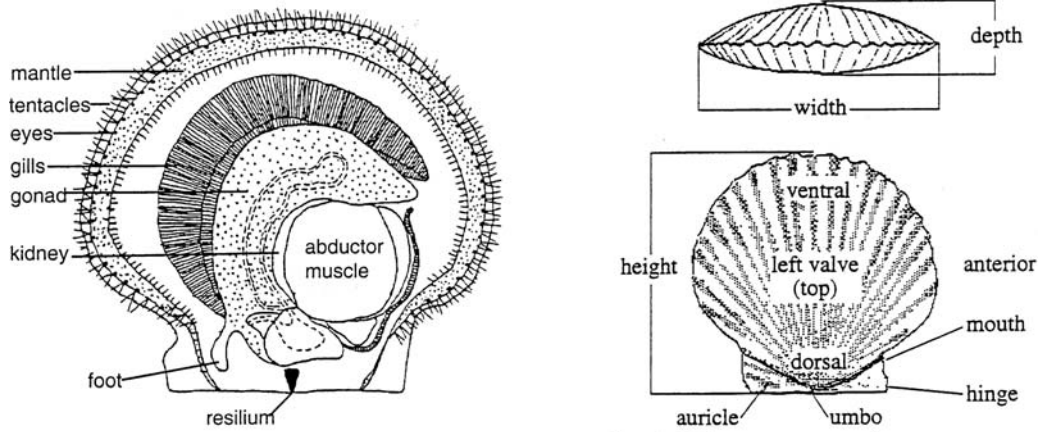
Calico Scallop

From: Fishery Management Plan for the Calico Scallop Fishery in the South Atlantic Region, 1998.

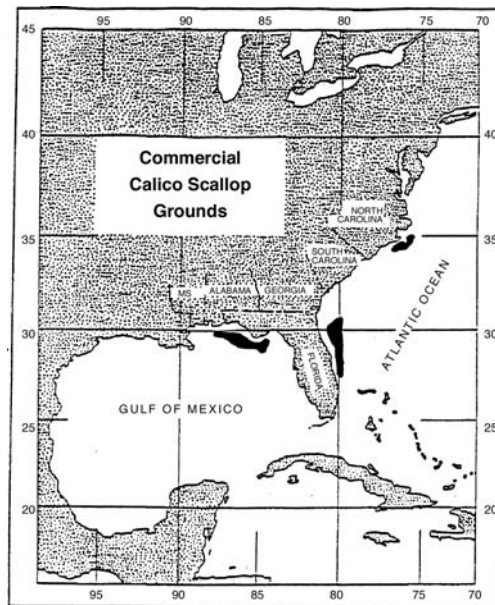
Three commercially important species of scallops include (1) the Atlantic sea scallop, *Placopecten magellanicus*, a deepwater species found in the northwest Atlantic along the continental shelf from extending as far south as Cape Hatteras, at depths of 25 to 100 m (82-328 ft); (2) the bay scallop, *Argopecten irradians*, generally restricted to shallow water less 6 feet along the continual shelf of the western North Atlantic and the Gulf of Mexico; and (3) the calico scallop, *Argopecten gibbus*, occurring most often at moderate depths of 18-73 m (59-240 ft) and restricted generally to the continental shelf of the western North Atlantic and Gulf of Mexico between 35 degrees N and 20 degrees N latitude.

Identification of calico scallops can be made from shell color and morphology. The upper (left) value has red or maroon calico marking over a white or yellow base; the lower (right value) is more lightly pigmented. The calico markings on the shell distinguish this scallop form

the solid gray or brown upper valve of the bay scallop, which resemble the calico scallop in size. Calico scallop shell morphology varies with locality, but generally the species reaches 40 to 60 mm (1.6 to 2.4 inches) in shell height (a straight-line measurement of the greatest distance between the umbo and ventral margin), with the maximum size reported to be about 80 mm (3.2 in) in shell diameter (a straight-line measurement of the greatest distance between the anterior and posterior margin). The shells are almost equally convex, deeply ridged, with 17 to 23 ribs on the right valve.



Concentrations of calico scallops and principal fishing areas are located off North Carolina, northeast and southwest of Cape Lookout; off the east coast of Florida from Ft. Pierce northward to the St. Johns River; and in the northeastern Gulf of Mexico between Carrabelle, Florida and Mobile, Alabama (Cummins, 1971).



Spawning in calico scallops is related to age rather than size with scallops as small as 19 mm (0.75 in) shell height were found to be ripe based on gonad color. Spawning in the calico scallop varies between years suggesting that changes in water temperature affect spawning. Calico scallops are hermaphroditic, ejecting sperm and then eggs into the water where

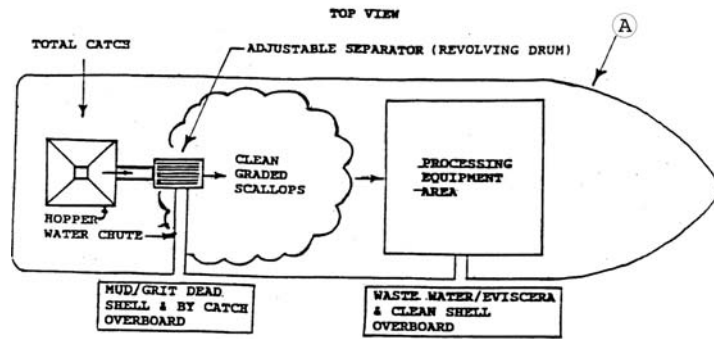
fertilization takes place. Calico scallops have a very short life span, living 18 to 24 months. After fertilization of the scallop eggs, larvae develop which are distributed vertically throughout the water column. Development, as described from laboratory studies, takes 14 to 16 days from fertilization until time of settlement. Upon setting, the larvae, termed spat, attach to substrates by byssal threads. The spat shells differ in shape and color from those of adult scallop. After setting, the spat remain attached to the substrate until they grow to about 25 mm (0.98 in) in shell height, then detach. Small scallops swim more than large scallops, and adult scallops are able to swim about 46 cm (1.5 ft) off the bottom and resettle 30 cm (1.0 ft) away.

Since 1973 trawls have been the only gear employed in the calico scallop fishery (former gear was sea scallop dredges). The following description of a scallop trawl is from Rivers (1962). The otter trawl net commonly employed in the calico scallop fishery is similar to the two-seam, semi-balloon design used in the shrimp fishery with modifications to maximize contact with the substrate while minimizing damage to the net's webbing. Unlike traditional shrimp trawls, the scallop trawl net was designed so that it fishes with either side down (i.e., there is no overhang, and top and bottom sections are identical). This feature increases the longevity of the equipment in that when the original bottom section becomes worn, the trawl may be turned over so that the relatively unworn top becomes the new bottom. The 25 to 35 foot scallop trawl nets are fitted with a "Texas drop chain" on the footrope and one to three "tickler chains".

The trawl is usually set and dragged from outrigger booms in the familiar shrimp-boat fashion. At the end of a drag, the splitting strap is brought to the rail of the boat and hooked to the hoisting tackle. The codend is brought aboard, and the catch dumped on deck. The trawl is then reset. By limiting drags to 15-30 minutes or less, the catches usually fit well within the codend, and little loss is experienced.

Scallop production and meat yield is so variable that the only meaningful measure is the pounds of finished product (edible meats) produced. Double-rigged shrimp-type vessels typically make four or five single-day trips per week, weather permitting. Drags are normally of short duration (10 minutes or less). Vessels are paid on a yield basis (i.e., on the amount of meats processed from landed shell stock), which reportedly ranges from two to six pounds per bushel. When large amounts of "trash" (old, broken or empty shells) are encountered the yield is much lower. Processors are now starting to grade according to size (meat count) with larger meats commanding high prices. It is possible for a good shell stock vessel to produce several hundred 8-pound gallons per day.

There is currently one processing vessel (i.e., not shell stock) engaged in the fishery. This vessel is owned by Mr. William Burkhardt who serves on the South Atlantic Fishery Management Council's Calico Scallop Advisory Panel. Mr. Burkhardt's description and diagrams of the separation and evisceration process are shown below. Mr. Burkhardt reports that on the average when scallops are harvested from a typical bed one half of shell stock is unwanted old dead shell.



THE ADJUSTABLE SEPARATOR IS DESIGNED TO DO THE FOLLOWING:

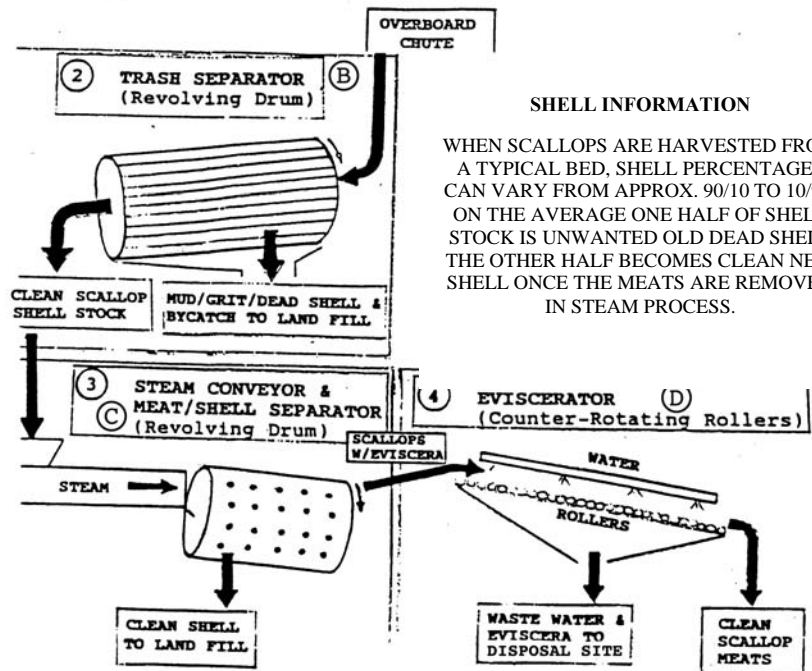
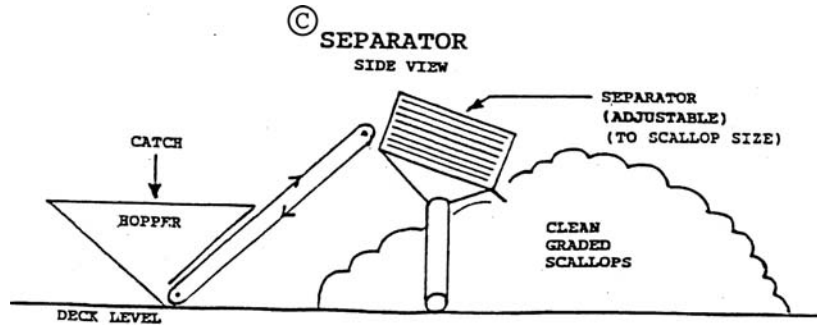
A SELECT THE TARGETED SCALLOP SIZE. ADJUST TO VARYING SHELL SIZE/ MEAT SIZE WITH A SIMPLE MECHANICAL ADJUSTMENT.

B IMMEDIATELY RETURN TO THE SEA ALIVE, SMALL SCALLOPS UNDER THE TARGETED SIZE ATTACHED SPAT & OTHER SPECIES BYCATCH. RESEARCH HAS SHOWN THAT MOST WILL LIVE IF QUICKLY RETURNED TO THE SEA.

SEPARATE THE CLEAN SCALLOPS AND IMMEDIATELY DISCHARGE OVERBOARD THE MUD, SHELL & BYCATCH.

ADVANTAGES:

- 1 REDUCES WEIGHT IMPROVING VESSEL SAFETY.
- 2 IMPROVE PRODUCT QUALITY BY REMOVING BACTERIA IN THE WASHING PROCESS.
- 3 REDUCE OR ELIMINATE SAME SPECIES, & OTHER SPECIES BYCATCH.
- 4 RETURNS SHELL TO THE ORIGINAL BED.



SHELL INFORMATION

WHEN SCALLOPS ARE HARVESTED FROM A TYPICAL BED, SHELL PERCENTAGES CAN VARY FROM APPROX. 90/10 TO 10/90. ON THE AVERAGE ONE HALF OF SHELL STOCK IS UNWANTED OLD DEAD SHELL THE OTHER HALF BECOMES CLEAN NEW SHELL ONCE THE MEATS ARE REMOVED IN STEAM PROCESS.

Below are some of the primary objectives as listed in the Calico Scallop FMP:

Increase yield from the calico scallop resource.

Obtain the necessary information to ascertain the best approach to solving the problem of periodic nematode infestations.

Collect necessary data to develop, monitor, and assess biological, economic, and social impacts of management measures designed to prevent over fishing, and address the other stated problems.

Rock Shrimp

From: <http://www.floridamarine.org> (FLORIDA MARINE RESEARCH INSTITUTE)

Rock shrimp, *Sicyonia brevirostris*

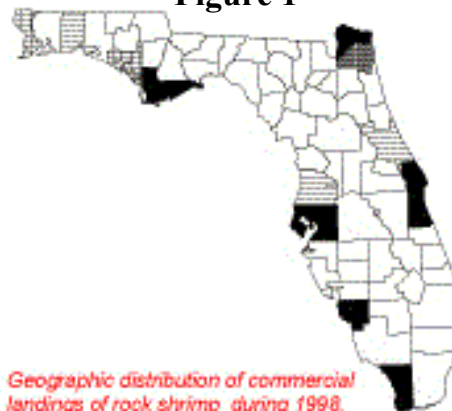


Rock shrimp, Sicyonia brevirostris

Rock shrimp occur from about Norfolk, Virginia south throughout the Gulf of Mexico to Cabo Catoche, Yucatan. They are typically found in water 33-240' deep but exploitable populations occur between 112' and 180'. The planktonic stage (from spawning until the first postlarval stage) lasts for about 30 days (Cook and Murphy 1965) and can be retained within coastal gyres (Criales and Lee 1995). Maximum life span was estimated to be 20-22 months. Females mature when as small as 0.7" carapace length (CL) with nearly all mature by 1.0" CL. Spawning occurs during November-January off East-central Florida and females may spawn up to 3 times in one season (Kennedy et al. 1977).

In 1998, rock shrimp landings in Florida totaled 4,387,093 pounds. Atlantic coast landings of rock shrimp were highest in Duval, Nassau and Brevard counties (Fig. 1).

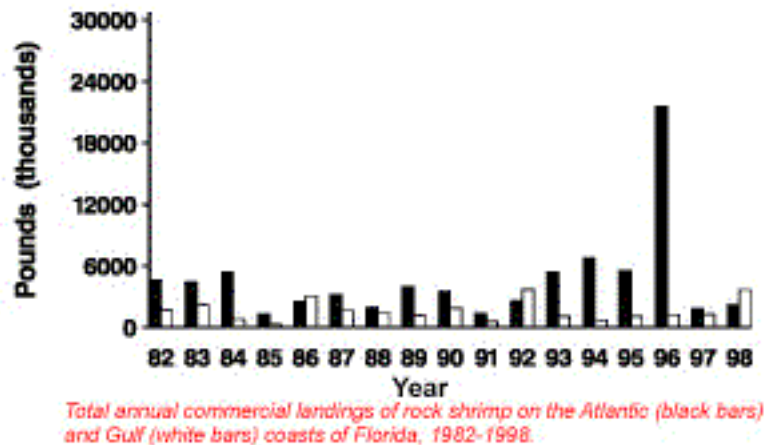
Figure 1



Geographic distribution of commercial landings of rock shrimp during 1998.

Gulf coast landings were highest in Monroe, Hillsborough, Pinellas, Franklin, and Lee counties. Landings made during 1993-1995 on the Atlantic coast were higher than historic levels but the landings reported in 1996 were four times these historically high levels. On the Gulf coast, landings have fluctuated widely without trend.

Standardized annual catch rates for rock shrimp follow trends similar to those found in the landings. On the Atlantic coast, commercial catch rates increased dramatically in 1996 then declined in 1997, 1998, and 1999 after a portion of the fishing grounds was closed to protect the *Oculina* reefs. Gulf coast catch rates have been consistently low, except in 1992 and 1998.



Flynet - From: Personal Communication Northeast Fisheries Science Center, 2001.

The peak season for the flynet fishery for croaker and weakfish appears to be January and February. Fishermen typically go back and forth between flynetting for croaker and weakfish and otter trawling for summer flounder during the same trip. Summer flounder peaks in January.

Fishermen using flynets target croaker and weakfish. The net is huge, with very large mesh in the leader and is considered a mid-water trawl. Once the weakfish and croaker show up in the numbers the fishermen basically search for concentrations of these fish. Tows can be large at times.

The main port of landing is Wanchese, North Carolina. The reason for this is that north of Oregon Inlet there are no TED requirements. Many will fish just over the line making Wanchese the closest port. The main port for these vessels is Wanchese, Beaufort, and Atlantic Beach, North Carolina.

Trip lengths are from 1 to 5 days, with 5 days being rather long for this fishery. A couple of days seem to be the average. Boat lengths are around 75 to 85 feet and there always seems to be a bunk available for the observer.

PROJECT OVERVIEW

Modified from: Scott-Denton, 2000

Project Title

Characterization of the US Gulf of Mexico and southeastern Atlantic otter trawl and bottom reef fish fisheries.

Objectives

The primary objectives of this observer program are to (1) quantify species-specific fishery catch rates, including sea turtles, by area and season from US Gulf of Mexico and southeastern Atlantic otter trawl and bottom reef fish commercial fisheries, and (2) evaluate the effectiveness of bycatch reduction devices (BRDs) and turtle excluder devices (TEDs) in otter trawl fisheries.

Background

Significant declines in commercial red snapper landings in the mid 1980's brought about federal management measures designed to rebuild the red snapper stock in the Gulf of Mexico. Based on a 1988 quantitative assessment of the red snapper stock, the National Marine Fisheries Service (NMFS) concluded that the directed fisheries for red snapper (both commercial and recreational) as well as incidental take of juvenile red snapper by shrimp trawlers were responsible for the decline in red snapper stock (Goodyear, 1988; Goodyear and Phares, 1990). Since 1984, regulatory actions to rebuild the red snapper stock have included size limit restrictions, and quota systems or a total allowable catch (TAC) for the directed red snapper fisheries. In addition to mandatory requirements for TEDs, BRD requirements were enacted in 1998 for the shrimp fishery. The effectiveness of these management strategies has been strongly debated by all affected stakeholders (e.g., NMFS, Gulf of Mexico Fishery Management Council (Council), commercial and recreational red snapper and shrimp industry members, consumers, and non-governmental organizations) and recently challenged in the courts (Florida Wildlife Association, et al. v. William M. Daley, et al., Civil Action No. 4:98CV101-RH).

One significant aspect of the controversy is bycatch. Two species, red snapper in the Gulf, and weakfish in the southeastern Atlantic, have been the primary reduction target species in BRD development for the penaeid shrimp fishery. For the directed commercial red snapper fisheries, release mortality of undersized red snapper is of concern during open seasons. During closed seasons, or when the red snapper quota is reached, the directed fishery targets other reef fish species, predominantly grouper, and red snapper becomes a bycatch species. Mortality rate estimates of both discarded (undersize) target species and non-target species caught by the various gear types, including shrimp trawls equipped with BRDs, are critical for fishery stock management.

Bycatch, stock-size estimation, and sea turtle interactions are a concern in other otter trawl fisheries, including the rock shrimp, calico scallop and flynet fisheries operating off the southeastern Atlantic. Relatively little or no data are available for these fisheries. One of the primary objectives is collection of these data through observer coverage.

Materials and Methods

Observer Coverage: Fishery observers will be placed year-round on otter trawl and reef fish vessels operating in the US Gulf of Mexico and southeastern Atlantic. Sampling effort allocation will be based on current effort trends for all areas. Otter trawl fisheries include penaeid shrimp, rock shrimp, calico scallop, and flynet fisheries. Reef fish fisheries are handline, bandit-reel, and longline.

Vessel, Gear and Economic Data Collection: Vessel length, hull construction material, gross tonnage, engine horsepower and crew size will be obtained for each vessel. For each trawl haul or set (the location of gear placement at a defined time) the type, number and construction material of the fishing gear will be recorded. Economic data relative to fuel, oil, ice, bait and associated vessel costs will be collected on a per trip basis (if requested by program manager and with the captain's consent).

Latitude, longitude, depth, and environmental parameters including water clarity, sea state and bottom type will be recorded at the start of each tow or set. The time the gear remains in the water (soak or fishing time) will also be calculated.

Bycatch Reduction Evaluation

For the penaeid shrimp fishery, observers will collect data for the evaluation of specific BRD designs as related to bycatch reduction criterion proposed for the Gulf of Mexico (Federal Register, July 2, 1997). Observations will be conducted aboard cooperative shrimp vessels during commercial operation in areas and seasons of known juvenile red snapper abundance. Comparisons of catch data for nets equipped with BRD/TED gear combinations (experimental) versus nets with the same type of TED (control) will be conducted. Experimental and control nets (or BRD modifications) will be alternated from starboard to port outboard nets to reduce net and side biases. The total catch weight, and counts, weights and lengths of shrimp and red snapper will be obtained from the experimental and control nets. A subsample of approximately 32 kg (one shrimp basket ~ 70 lbs.) from each net (experimental and control) will be processed for bycatch characterization.

Bycatch Characterization (Otter Trawls)

Onboard data collection for the purpose of bycatch characterization will consist of sampling trawl catches taken from commercial otter trawl fisheries. Most vessels in these fisheries pull either two or four nets, with the exception of the flynet vessels, which pull one. Detailed measurement and written description of BRD, TED, and net type, construction, installation, webbing, and other associated gear characteristics will be recorded at the start and end of each trip, or when adjustments are made. Characterization trips involve obtaining the total weight measurement from the net selected for sampling. A portion (or sample) of the catch from that net will then be obtained with organisms separated to the species level or grouped.

For the penaeid shrimp fishery, one net will be randomly selected for sampling. A 12 kg sample (26 lbs.) will be taken for each hour towed from the selected net (e.g., 3-hour tow, sample weight 48 kg or 79 lbs.). A total weight of the catch from that net will be recorded.

Approximately 20 species (or groupings) will be sorted from the sample, counted, and weighed. All red snapper will be measured, with 30 specimens of each species (not including groupings) measured.

Rock shrimp and calico scallop bycatch characterization methods are similar to those for the penaeid shrimp fishery. One net will be randomly selected for sampling. A 25% sample from the total weight of the selected net will be processed (e.g. total weight, 100 kg; sample processed, 25 kg). All of the sample catch will be identified to the species level, with 30 specimens of each species measured.

The flynet fishery targets croaker and weakfish. The gear consists of one large mid-water trawl. A 25% sample of the total weight of the haul will be processed as described above for the rock shrimp and calico scallop fisheries.

Reef Fish Characterization

Fishery-specific data will be obtained from each set made aboard reef fish vessels (bottom longline, handline and bandit rigged). If a set cannot be sampled due to time constraints or weather conditions, a minimum of location, depth and fishing time will be recorded. Non-target and undersized target species will be processed first, recording length, weight and fate prior to release (alive, dead, or unknown). Air bladders of live fish will be punctured in the same manner as demonstrated by the captain and crew. Retained species will then be processed, recording length and weight. Sightings of sea turtles and marine mammals will be documented.

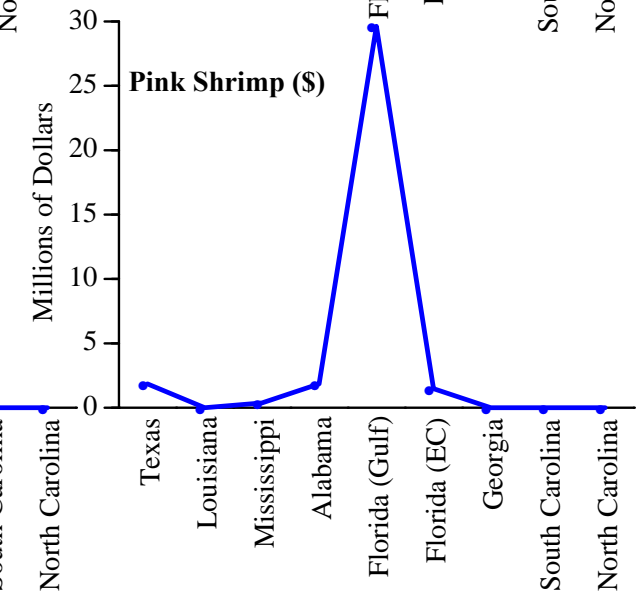
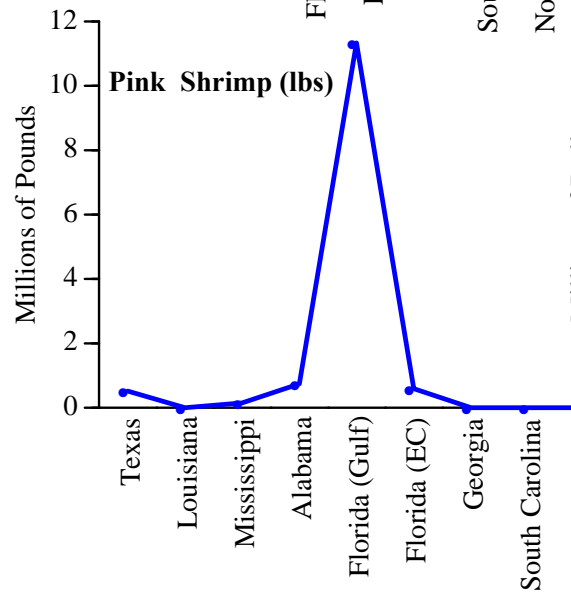
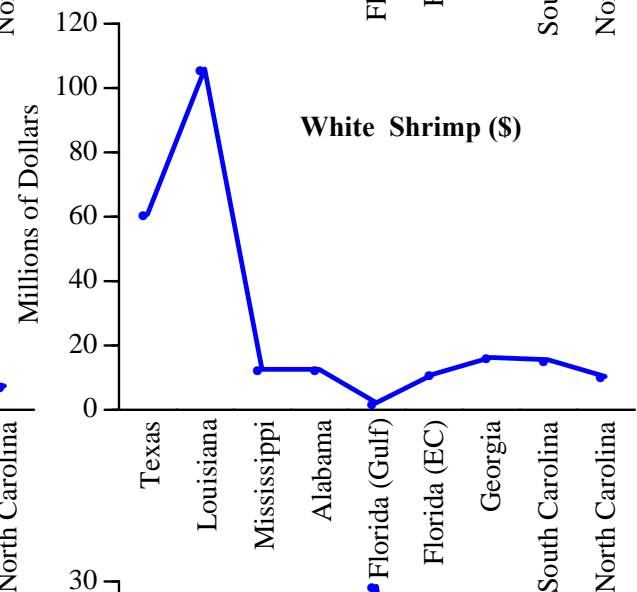
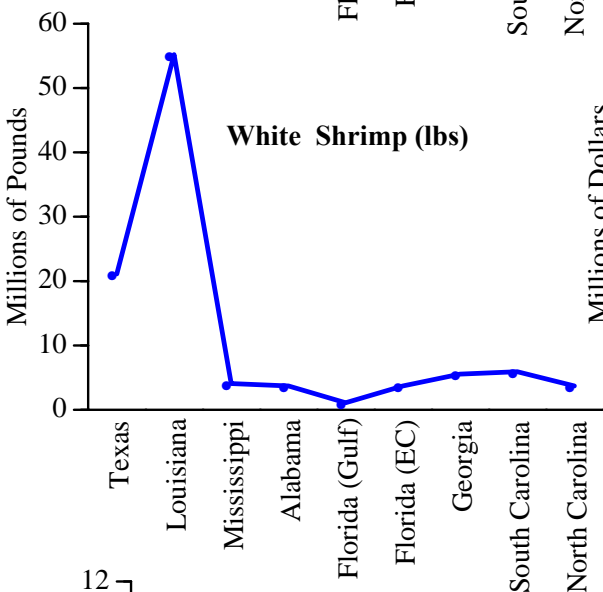
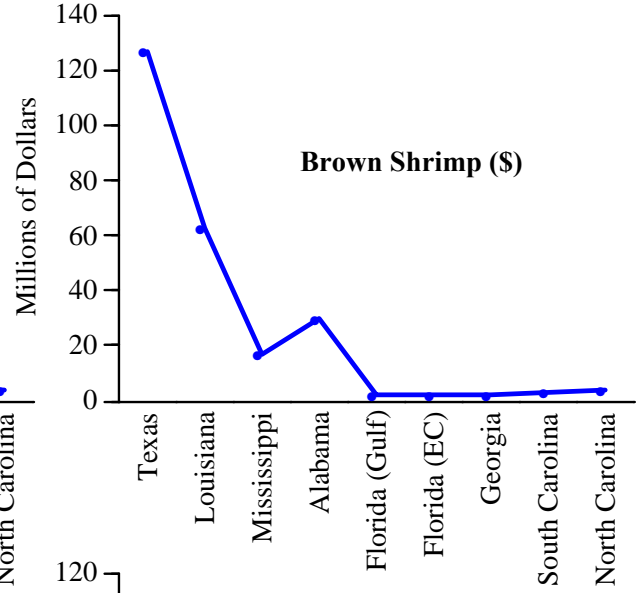
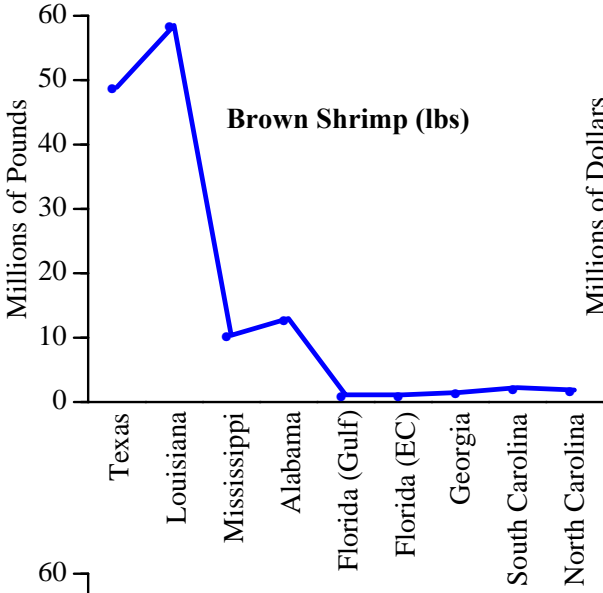
Data Analysis

Data will be computerized, edited and archived on a per trip basis. The final analyses will include t-tests, ANOVA, linear and/or multiple regression, spatial statistics, ration estimation, and Bayesian procedures.

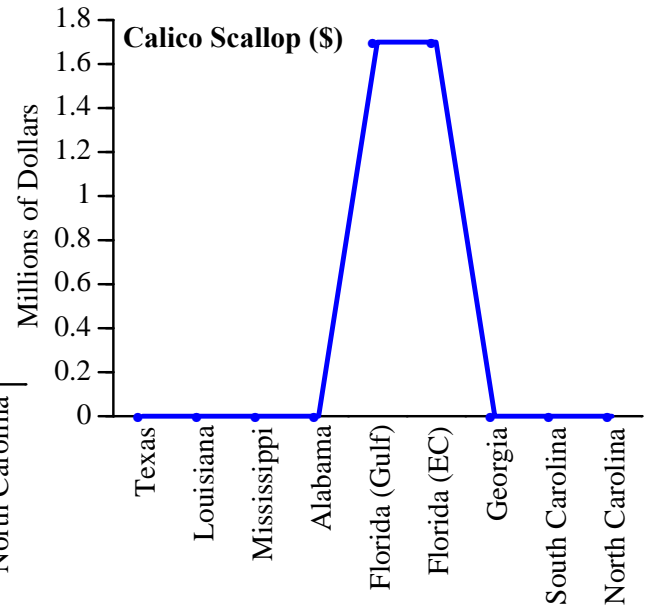
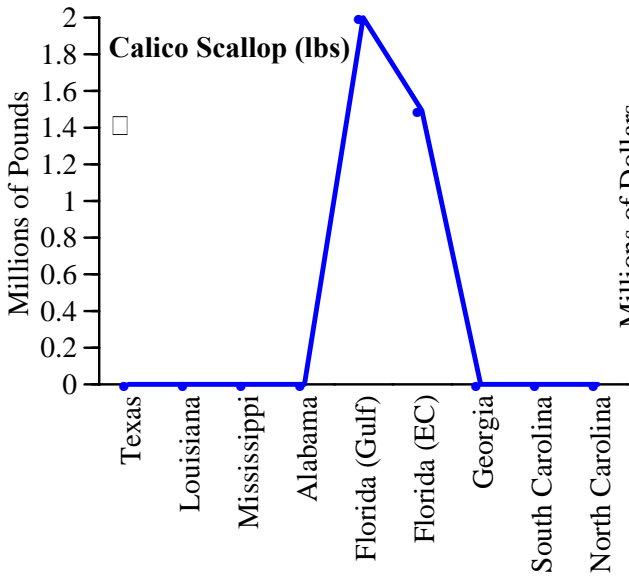
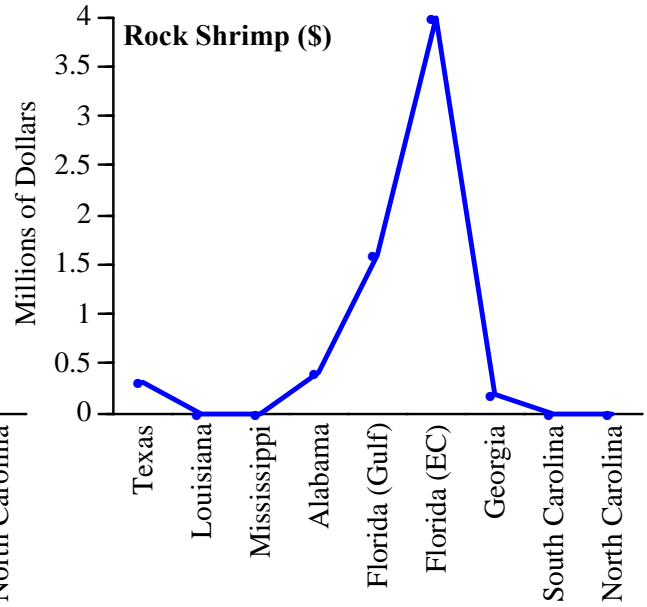
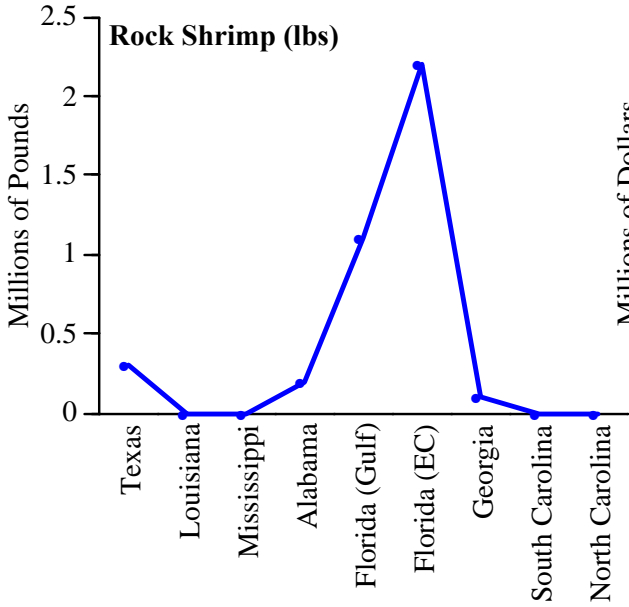
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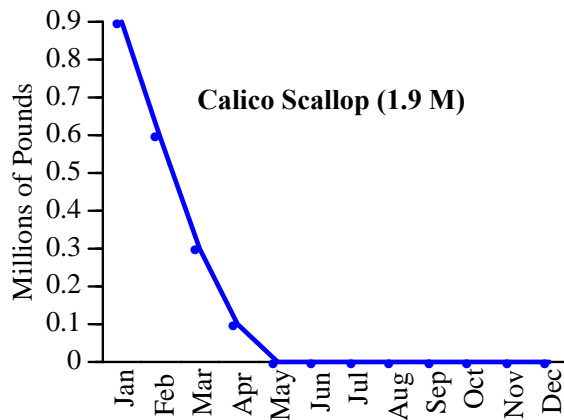
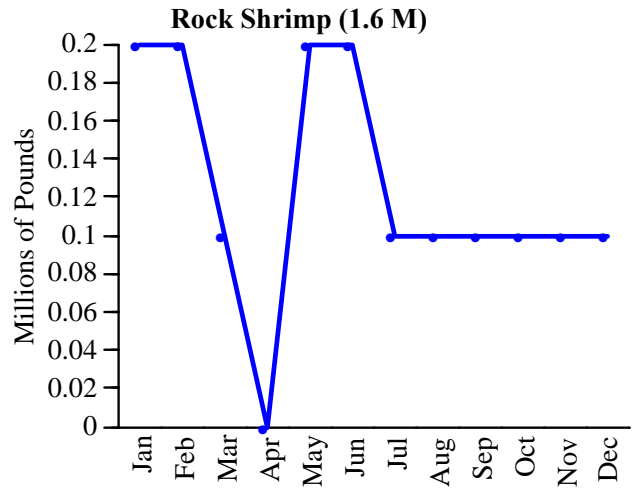
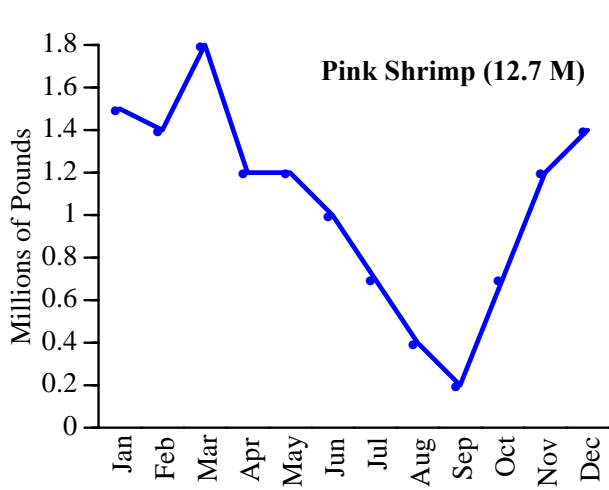
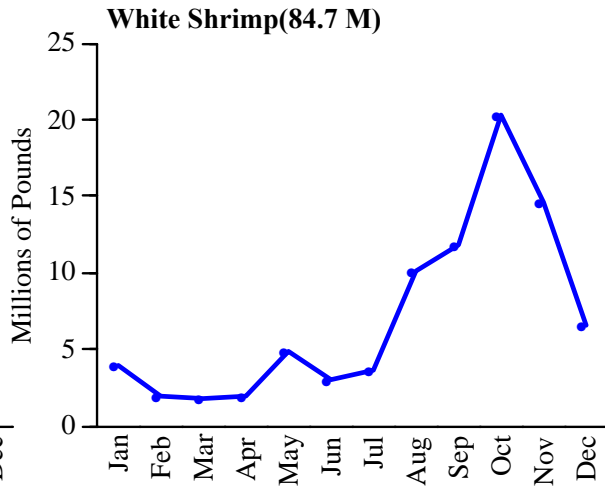
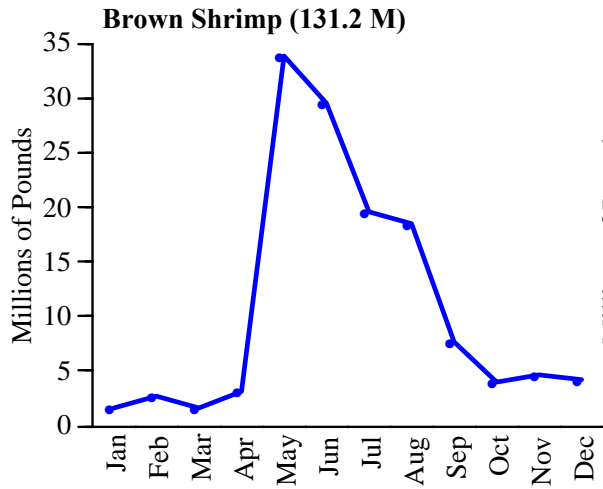
US Shrimp Landings and Value in 1999



US Rock Shrimp and Calico Scallop Landings and Value in 1999

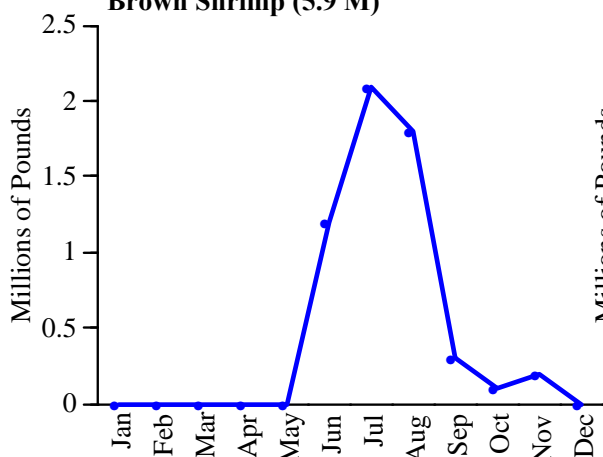


US Gulf of Mexico Landings by Month in 1999

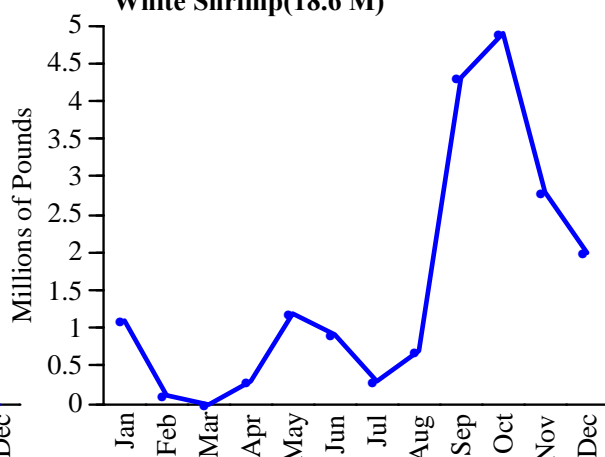


US Southeastern Atlantic Landings by Month in 1999

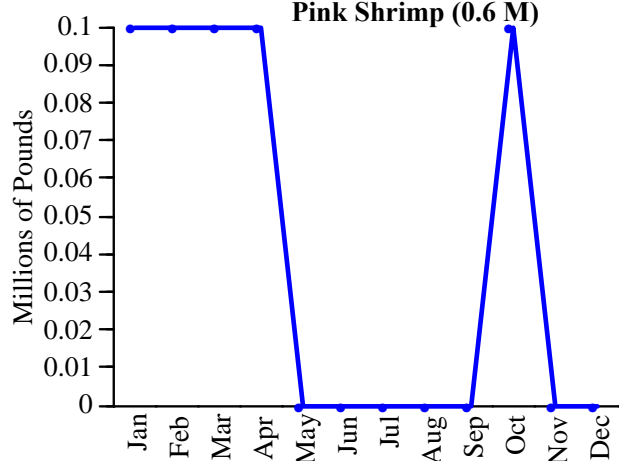
Brown Shrimp (5.9 M)



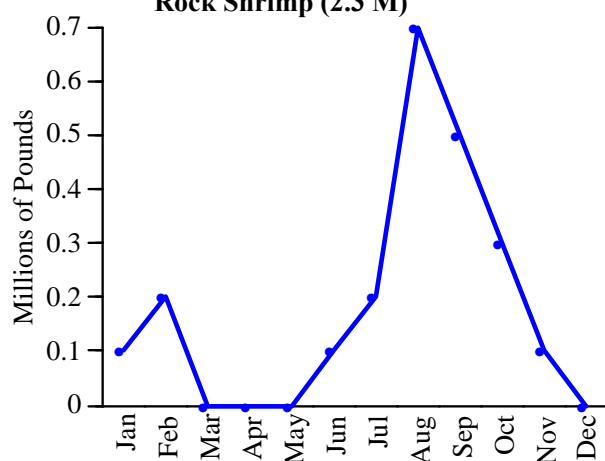
White Shrimp (18.6 M)



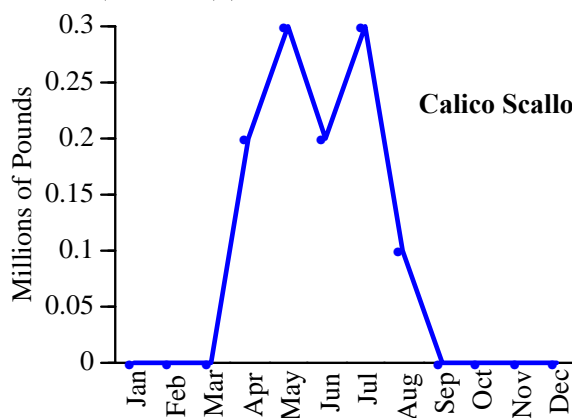
Pink Shrimp (0.6 M)



Rock Shrimp (2.3 M)



Calico Scallop (1.0 M)



OBSERVER PROGRAM GUIDELINES AND SAFETY

Modified from: SEFSC Safety and Conduct Manual Fishery Observer Programs, May 1993 and includes revisions of 9/2/93 and 10/6/93. Safety sections from the North Pacific Fisheries Observer Training Center's Scallop Observer Training Manual (NPFOTC), 2000 have been duplicated or modified for use in this manual.

Observer Safety

Commercial fishing in the US Gulf of Mexico and southeastern Atlantic is a dangerous occupation. Inclement weather and the nature of the gear and equipment being used on a rolling deck make for a hazardous environment. You can greatly increase your chances of safety and survival by considering safety in all that you do and preparing for emergencies ahead of time. You must take responsibility for your own safety and learn as much as you can before an emergency threatens your life. Safety-minded captains who realize the danger of their occupation and consider safety in all that they do operate most fishing vessels. Use the knowledge and experience of the vessel's crew for guidance on safety on your vessel. They are certainly concerned about the safety of an Observer, a guest on their vessel, and will make sure that the dangers for you are minimized. No matter how cautious the crew is it is your responsibility to keep yourself safe and know how to react in an emergency situation (NPFOTC, 2000).

Medical Fitness for Sea

Individuals selected for employment with the Southeast Fisheries Science Center (SEFSC), Galveston Laboratory, as fishery observers--either as NMFS employees or contract--must be fully qualified to safely and efficiently perform the essential duties and responsibilities of their positions. You will be required to complete a Report of Medical History (Standard Form 93) to be held in a confidential file and reviewed only in the event of a medical emergency at sea. You must inform the Program Manager, in writing, of any medical condition or situation, including medications being taken, prior to departing on a vessel.

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. Proper use of personal flotation devices and immersion suits.
2. Abandon vessel procedures and training in life raft deployment.
3. Use of emergency position indicating radio beacon (EPIRB).
4. Use of marine VHF radio, SSB radio, and satellite phone (including distress-calling procedures).
5. Basic first aid and cardio-pulmonary resuscitation (CPR).
6. At-sea and sea-air transfers.

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) or carry more than sixteen individuals. Equipment, instructions and drills all increase your safety. Your assigned vessel almost certainly operates beyond the COLREGS line (an imaginary line drawn from points of lands, or closes passes, bays and inlets). 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 (appendix 1). 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.
3. **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 Observer Program Manager (appendix 2).

Once you have completed your check off list, become familiar with other safety features. Somewhere, in a prominent, place you will find the station bill (NPFOTC, 2000). Below is an example of a typical station bill.

	Person Overboard Signal: 3 long blasts Repeated at least 4 times	Fire Signal: 1 long continuous blast not less than 10 seconds	Flooding Signal: 1 long continuous blast not less than 10 seconds	Abandon Ship Signal: at least 7 short blasts followed by 1 long blast
Position	Station/Duty/Bring	Station/Duty/Bring	Station/Duty/Bring	Station/Duty/Bring
Captain	Wheelhouse, radio, Maneuver vessel	Wheelhouse, radio, Maneuver vessel	Wheelhouse, radio, Maneuver vessel	Wheelhouse, radio, Maneuver vessel
1 st Mate	Throw ring, lookout	Fight fire	Plug hole, pump	Immersion suite, life raft
2 nd Mate	Don immersion suit, safety line	Assist in fire fighting	Assist plugging hole and pumping	Immersion suite, life raft
Deckhand	Communicate, assist where needed	Communicate, boundary person, remove hazards, get survival suit	Communicate, assist where needed, secure hatches	Communicate, EPIRB, count crew
Observer	Wheelhouse	Wheelhouse	Wheelhouse	Disembarkation station, immersion suit

There may be other placards posted that describe the procedures for specific emergencies. (i.e., survival craft embarkation stations, fire and emergency signal and the abandon ship signal, and detailed instructions on how to make distress calls (MAYDAY). Regulations require that instructions be available, but they may not be posted. Be sure to ask for these and review them. There should be instructions available for fires, person overboard, rough weather, and flooding.

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ABANDON SHIP

SIGNAL

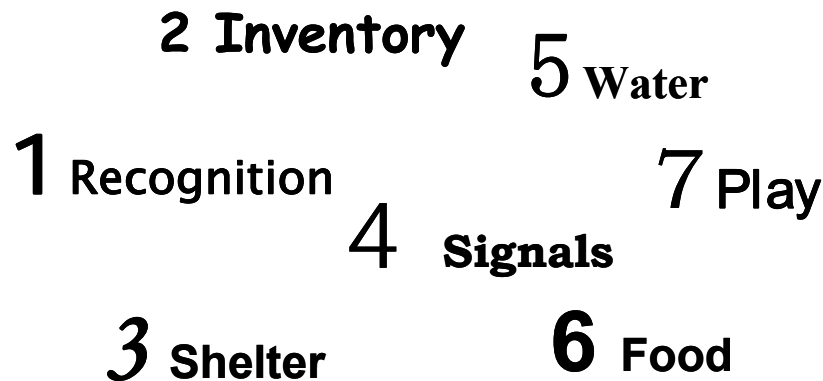
Seven short blasts followed by one long blast

1. Preparations should include the following as time and circumstances permit:
 - a. General **Alarm & Mayday**
 - b. All **personnel don immersion suits/PFD's**, warm clothing if time permits.
 - c. **Prepare to launch life raft.** Attach sea painter to vessel.
 - d. Assemble **signal devices** - EPIRB, flares, smokes, flashlights, handheld radios, etc.
 - e. **First Aid Kit**
 - f. **Water**
 - g. **Food**
2. Muster at embarkation station
3. When sinking is imminent or remaining onboard is inappropriate:
 - a. Launch & board liferaft.
 - b. Keep sea painter attached to vessel. Be prepared to cut sea painter immediately if there is a risk or damage to liferaft or vessel sinks.

Drills and instructions must be conducted at least once a month. Each person onboard who has not participated in the drills and instructions must be given a safety orientation before the vessel is underway. You should take every opportunity to learn or review safety and survival procedures, and participate in any drills that are conducted (NPFOTC, 2000).

THE SEVEN STEPS TO SURVIVAL

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



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.

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

2. Inventory: Stop and assess the situation. Decide what you have that will help you survive. Inventory your equipment, the weather, your skills, your 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 Alaska 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 loss of heat areas such as the head and neck need to be protected the 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. In a shore survival situation, many types of edibles can be found near shore. Almost any animals or green plants in the inter-tidal zones are edible, but avoid mussels or clams they may cause paralytic shellfish poisoning.

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. Plan can be reading, telling jokes or stories, completing a task, or improving your shelter—anything that keeps you mind active and focused.

DONNING an IMMERSION SUIT

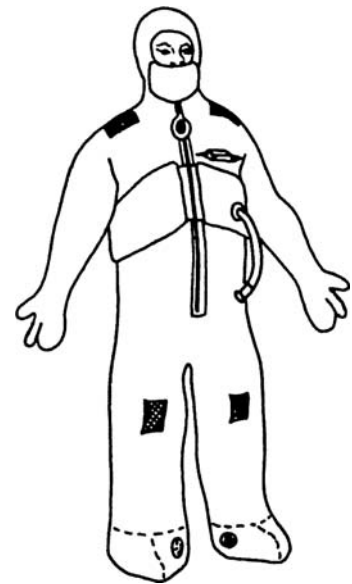
(Modified From: AMSEA, Marine Safety Instructors Manual, 2001)

Sit on deck and work your legs into the suit. You may have to remove your boots to do so. (Putting plastic bags over them may help your legs slide in easier.)

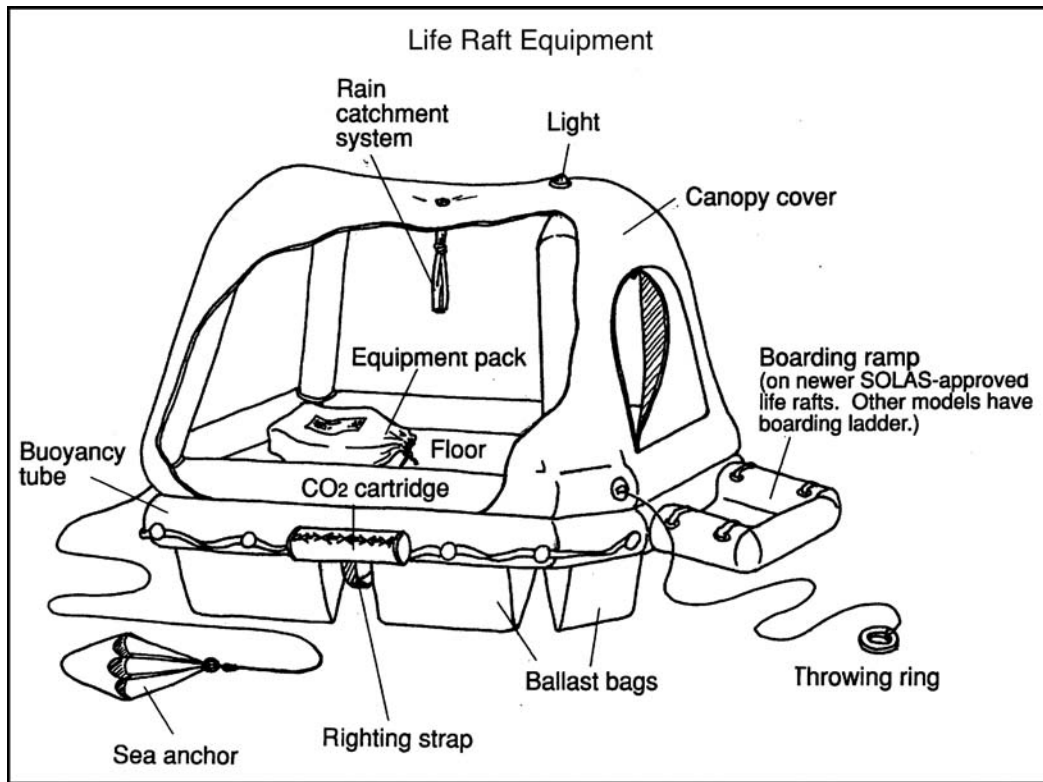


Place your weak arm in first, and then pull the hood over your head (or hood first, then weak arm). If you have long hair, make sure that it is safely tucked in the hood. Then place your stronger arm in the sleeve.

Holding the zipper below the slide with one hand, lean back to straighten the zipper and pull the lanyard with the other hand. Secure the face flap. Do not inflate the air bladder until you are in the water.



Jumping in the water is the last resort. Ease yourself into the water if possible. If jumping, protect your head and keep your feet together to protect from floating debris.



Clothing

Cotton, although very comfortable, offers little protection in a damp environment. Consider taking clothing to sea that has the ability to provide insulation when wet, like wool, polar fleece, or polypropylene. If your clothes are too warm to work in, keep them with your immersion suit. Polar fleece, polypropylene, and similar synthetics cost more than wool, but dry quickly.

Immersion suits

An immersion suit is a shelter that is required by safety regulations for everyone aboard a vessel that operates in cold water. There are different brands and styles, but all are made of neoprene, and are generally a universal size. Vessels are required by law to have an immersion suit for every person onboard. You should find where they are stored and try one on. Be sure that you can find your suit and put it on in less than a minute, even in the dark. The suits should have a working zipper (add some wax to lubricate) and a signal device, such as a strobe light attached. They should be stored in an easily accessible place.

Life rafts

Your assigned vessel will have enough life rafts or lifeboat capacity for all aboard. Life rafts are stored in canisters that allow them to float free and automatically inflate if the vessel sinks. It is much better to manually launch and inflate the raft if there is time. Know where the rafts are stored, how to remove them from the cradle, where to launch them, and how to inflate them.

SAFETY ABOARD VESSELS

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

1. The first day aboard every vessel, note where the lifeboats, PFD's (Personal Floatation Devices), EPIRB (Emergency Position Indicating Radio Beacon), vessel radios, first aid equipment, and other safety devices are kept. Memorize the exit route from your cabin, the galley, and other locations where you may spend a fair amount of time.
2. During your first talk with the captain, ask him to explain to you what to do in the event of a major emergency such as a fire aboard the ship, a collision with another vessel, or other conditions which might require abandoning the ship.
3. You are provided with the required protective equipment and are expected to follow the required safety policies of any vessel you are aboard.
4. 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.
5. 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 make an attempt to remain in the view of others.
6. When conducting nighttime sampling, always let someone else know that you are going out on deck. Never conduct monitoring from an area that you consider unsafe.
7. 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.
8. Always wear gloves when handling fish. Be cautious whenever handling fish since fish spines (especially hardhead catfish) can penetrate boots and gloves and cause a painful wound. Treat all minor cuts especially those on hands, with antiseptic to avoid infection. Poisoning from fish slime is called cellulitis and is a form of staph infection. Should a staph infection be left untreated and allowed to develop, your lymphatic system becomes involved and the threat to your health becomes serious. 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).

SAFETY AT-SEA TRANSFERS

Transfers between vessels are potentially hazardous, especially in rough weather. You must assume responsibility for deciding whether or not to transfer based upon your evaluation of the transfer conditions. There are no hard and fast rules for allowable safety limits during transfers. Conditions such as mode of transfer, vessel size, swells versus waves, current and impending weather affect the decision to transfer. Observers must use their best judgment. Be cautious, not foolhardy. Do not be forced into transferring against your better judgment by an anxious or impatient captain. Usually the captain will determine conditions are too rough for transfer before an observer thinks it is too rough. In these cases, the observer must follow the recommendation of the captain who is responsible for the safety of the vessel and personnel aboard.

Several methods are available for transfers. Transfers between vessels may involve using a swing rope or a personnel basket. Given a choice, select the personnel basket for transfers. The swing rope can be potentially hazardous in anything but calm seas. Whenever possible, be preceded by an experienced crewman. Stepping, climbing, or jumping from one vessel to another must be executed with extreme caution and proper timing. The following general guidelines should be followed during all transfers:

1. Observers will wear PFD's, during all transfers.
2. Observers will not encumber themselves with baggage when transferring. Balance is critical and both hands must be free during transfers. Baggage should be handed across after the transfer is completed or sent across by basket or cargo net.
3. If a personnel basket is to be used, make sure a guide line is attached to the basket and manned for greater control and to reduce swinging when landing the basket on deck. Baggage should be securely stowed in the center of the personnel basket. The following procedures should be used during personnel basket transfers:
 - a. Stand with one foot on the outer ring of the basket, the other on the deck and both hands securely holding the netting.
 - b. As the basket lifts off the deck, bring your foot off the deck and place it on the outer ring of the basket net to your other foot (already on the basket ring).
 - c. Stand firmly on the outer ring with knees slightly bent as opposed to locking your knees to avoid leg or back injury in the event of a hard landing. Carefully step off the basket when it has landed firmly on the deck.

OFF-SHORE COMMUNICATIONS

Most communications from offshore locations are conducted with the use of cellular or satellite phone systems. **While offshore, observers are required to call the office every Monday, Wednesday and Friday to keep your observer coordinator up-dated on your safety status (Appendix 3), location, and progress.** If a cellular or satellite may not be available use the vessel's radio to call the office using the marine radio operator (call collect).

You may also need to use the vessel radio to contact another vessel if your partner is aboard a different vessel monitoring at a different location. Vessel radios are also used to make a distress call during an emergency. Observers should familiarize themselves with the following information regarding vessel radios.

Radio Communications

The radios that you will encounter most often are VHF-FM (Very High Frequency Modulation), used for short range vessel to vessel and vessel to shore communication, and HF-SSB (High Frequency Single Side Band), used for communication when the stations are out of VHF range with each other. Both types offer certain advantages and each requires a specific operating procedure. The use of VHF-FM and HF-SSB radio equipment requires a station license and operator's license as well. Safety is the primary function for a radio aboard a vessel. Certain other uses are authorized but by law these are secondary to safety communications. If the vessel gives you permission to use the radio you must follow the Federal Communications Commission rules for calling and speaking. Always ask first for permission to use the radio and how to operate the radio. Use these pages as a guide for calling.

VHF-FM Radios

The VHF band is divided into 71 channels with a frequency range of 156.000 to 163.000 MHz, including 6 weather channels. By law all VHF stations are required to have at least three of these channels: channel 6, channel 16, and at least one other working channel. **Channel 16 is the International Distress Safety and Calling Channel** and is also monitored continuously by the USCG. Calls to vessels are normally initiated on this channel and then, except in an emergency, switched to a working channel once contact is established with the other vessel. Channel 6 is for ship-to-ship safety use only; it is not to be used for other than search and rescue and for the prevention of collision.

HF-SSB Radios

Radio communications over distances beyond twenty miles, will require you to use a high frequency radio referred to as a Single Side Band (SSB) radio. The signal quality is inferior to VHF and susceptible to slight atmospheric shifts. Lower frequencies are used for medium distances and higher frequencies for greater distances. **All ship SSB radios must be capable of operating on 2182 KHz (the International Distress Safety and Calling Frequency) and at least two other frequencies.** The USCG continuously monitors frequency 2182 kHz as well. Availability of other channels varies from place to place. When using SSB radios you must observe radio silence on frequency 2182 kHz for 3 minutes immediately after the hour and the

half-hour. The purpose of radio silence on the emergency hailing frequency is to clear the airwaves for weak or distant distress signals. No radio silence is used on VHF channel 16.

General Calling Guidelines

Radios are different from telephones in that they cannot transmit and receive simultaneously. Keep in mind that people on other ships can also hear your conversations. Speak directly into the microphone; speaking loudly, slowly, and distinctly -- but not shouting-- can significantly improve the clarity of radio broadcasts. Upon completing a transmission you must sign off by identifying your station and using the words "clear" or "out." If you expect to resume contact with the same station soon you may sign off using the phrase "standing by."

Remember, in cases other than an emergency, when hailing another station on VHF channel 16 or SSB frequency 2182 you must switch to another working channel after initial contact is established. Finally, keep transmissions short and concise, giving the other station a chance to respond, ask questions, or reconfirm an unclear message. Radio transmissions should be limited to 3 minutes except for emergency calls.

General Calling Procedure

1. Make sure radio is on and appropriate channel is selected. Listen momentarily to make sure the channel is not in use.
2. Background static from the radio speaker can be reduced with the squelch control. However, too much squelch can drown out incoming transmissions. Adjust the squelch so that a small amount of static is barely audible or to the point where the static first stops.
3. If there is no traffic on that channel, begin by depressing the button on the microphone and calling the name of the vessel or other station (such as the Marine Radio Operator) you are trying to contact three times, followed by your vessel name and call sign and the channel you are broadcasting on since most ships and stations listen simultaneously to several channels. Example: CANDY WORLD, CANDY WORLD this is CRUSADER WM2418 on channel 16 over."
4. If there is no initial response to your call, wait two minutes before repeating the call. If there is no reply the hail may be repeated at two-minute intervals up to three times, after which you must sign off and wait at least 15 minutes before making another attempt.
5. If contact is established, you must switch to a working channel (VHF) or frequency (SSB) to continue your transmission.
6. When you have temporarily finished talking and are ready to listen, say "over," and release the button on the microphone. When the other party is ready to listen they will say "over."
7. After you have completed your message end with the vessel name, call sign, and the word "out" to signal the end of your transmission. Example: "...CRUSADER WM2418 out."

If you are placing a phone call through the marine radio operator, never use the government calling card number to bill the call. Instead, call the office collect. You should only call the office via radio when there is no cellular or satellite phone system available on the vessel and only for official business.

Distress Calling Procedures

Normally, the captain of the vessel will decide if and when a distress call is required. However, depending on the nature of the emergency you may be the only one able to get to the radio to make the call, therefore, you should be familiar with the procedure. A distress call is used only when a life or vessel is in immediate danger. The procedure is as follows:

1. Make sure radio is on and select channel 16 if using a VHF radio or frequency 2182 kHz if using a SSB radio.
2. Press the transmit button and speak slowly, clearly, and calmly and say, "**MAYDAY - MAYDAY - MAYDAY.**"
3. Say, "**This is (your vessel name and call sign)**" and repeat 3 times.
4. Say, "**MAYDAY (your vessel name).**"
5. **Tell where you are. Give your present position if you know it, or describe any navigational aids or landmarks you are near.**
6. **State the nature of your distress.**
7. **Give the number of persons aboard and condition of any injured.**
8. **Estimate the present seaworthiness of the vessel.**
9. **Briefly describe your vessel providing length, type, hull, and colors.**
10. **"I will be listening on Channel 16/2182"** (use the appropriate channel).
11. End your message by saying, "**This is (vessel name and call sign) over.**"
12. Release the microphone and listen: Someone should answer. **If you do not receive an answer, repeat the above procedure. If there is still no answer, try another channel and begin again.**
13. If your situation permits, stand by your radio to provide information as requested (e.g., closest landmarks, water depth, emergency equipment onboard, etc.).

ADVISE TO WOMEN GOING TO SEA

[Note: This has been adapted from the original version of "Advice" which was prepared by Connie Sancetta and colleagues at Lamont-Doherty Geological Observatory following the rape of a female student on one of Scripps's ships. We believe "Advise" is a balanced statement of potential problems and realistic responses to them that should be helpful to seagoing scientists.]

Sexual harassment occurs at sea, from verbal harassment to assault and rape. Such incidents are frequently not reported, for reasons ranging from a desire to be a good sport in minor cases, to embarrassment in more serious cases. This document is intended to alert you to the different nature of social conditions at sea, and to suggest some actions you should take if you feel uncomfortable or harassed.

Social conditions are different from those on land. Privacy is greatly reduced, and as a result interactions can become more intense, and feelings of intimacy are more quickly established. Small incidents, both pleasant and unpleasant, can quickly take on exaggerated importance, due to the close quarters, the prevalence of gossip, and the sense of isolation from "the real world" back on shore. Furthermore, staffing on a ship brings together people with very diverse backgrounds and value systems. While some of the men are used to the concept of women as professionals, others are familiar with more traditional views of women. For some men, sexual remarks or actions may be considered an acceptable mode of behavior. Also, the value systems of many men change somewhat during the period of time that they are at sea.

The crew of the ship has usually established a workable interaction among themselves, while scientists, who come aboard for a single cruise, are not part of that system. Scientists are therefore particularly apt to draw attention, comment, and speculation.

Sexual awareness and tensions can be heightened at sea, due to the unusual social closeness and deprivation of normal outlets. Behavior and attire that are acceptable on shore can be viewed as provocative at sea and close relationships between people of opposite sexes can strongly affect the atmosphere, in which everyone must work and live. The result often is that a woman on board is subject to far more attention than she would be on shore. While some of the attention may be pleasant and even flattering, some of it is not.

In consequence, it is necessary to be aware of the different social situation and to modify your normal behavior if necessary. At the very least, you should consider the possible consequences on some situations so that you can react appropriately. Below are some examples of the sort of actions you might adopt or avoid:

1. Strictly obey the rules regarding drinking, which can lead to poor judgment, lack of control, and alertness, and hasty actions. At sea you must be prepared for any emergency. Consider yourself on duty 24 hours a day.
2. Refrain from wearing potentially provocative clothing such as halter and tank tops, shorts, and tight clothing such as Lycra.

3. Be aware that if you show more attention to one man than others do, it may be misinterpreted by him or by others.
4. Do not invite a man to your cabin if you are alone, or accept an invitation to be alone with him, ("a friendly chat", and "a little drink"). Leave the cabin door open or go to a public area if a man comes to talk to you without your invitation.
5. Activities such as flirting, joking about sex, or touching may be misinterpreted by the persons involved or by others. Unwanted approaches such as these should be responded to politely but very firmly. You yourself should avoid flirtatious behavior.
6. Do not engage in sexual affairs. Such affairs will distract you and your partner from doing your work, can breed resentment and jealousy and will subject other women to increased sexual pressure, both on your trip and on subsequent trips. Remember, you are at sea to work, not to amuse yourself. Remember, physical or emotional involvement may be considered a conflict of interest and a violation of the federal government employee code of ethics.
7. Make it clear that your interests in male companionship are elsewhere, (some wear wedding rings), or that you are "not available".
8. If you are experiencing unwelcome advances or are in any tense situations, do not stand around on deck or other deserted areas alone at night.
9. In general, be very sensitive to the altered social conditions and their possible implications. Be very conservative. Use common sense.

An assault often occurs with warning signs of milder behavior. If you act firmly and decisively during the early stages, you may reduce the chances of future harassment. Some warning signs to watch for are:

1. A man makes frequent attempts to detain you, to be in your company, or to visit you in your cabin.
2. Mild or casual sexual remarks become more frequent, pointed and/or objectionable.
3. A man attempts any physical contact, even if it appears innocent.
4. Other people warn you about a man who begins to harass you.
5. A man whom you have repeatedly attempted to discourage continues or escalates his advances.

The definition of harassment is subject, making it difficult to identify. Federal law defines sexual harassment as "unwelcome sexual advances, requests for sexual favors, and other verbal

or physical conduct of a sexual nature." Thus, it is your decision at what point you will draw the line.

Many women feel uncomfortable with milder forms of harassment, but tolerate it, not wanting to cause trouble, or appear to be oversensitive or bad sports. The unfortunate result of this passivity is that harassment may continue or increase until it becomes serious. At that point, the woman is open to the charge that she allowed (i.e., encouraged) the previous actions. It is best to take action at the time you first feel uncomfortable. There are a variety of actions you may adopt, which must depend on your judgment. In general, the best sequence to follow is:

1. Indicate to the harasser that you do not enjoy or appreciate his actions. Do not make a joke of his behavior. Speak firmly and coldly, or pointedly avoid him. Do not make the mistake of pretending to ignore it; this invites continuation at a higher level. Losing your temper may be effective in some cases but usually is not, and may even encourage the harasser.
2. If the above measures are not immediately effective in stopping the harassment, bring the matter to the attention of the captain and tell him to immediately solve the problem or you will return to the laboratory.
3. If the problem continues, call your supervisor and report the incident. Inform the captain he will need to make immediate arrangements to return you to port. If arrangements are not immediately made, inform your supervisor.
4. If the harassment advances to the point of assault, it becomes a felony. You should immediately report the offense to the captain and your supervisor who are required by law to take certain actions. Have your supervisor make arrangements for you to leave the vessel immediately or get yourself off of the vessel and inform your supervisor of your actions. Make sure the incident is reported and is not swept under the rug. Failure to report a felony can itself be punishable under law.

Sexual assault and rape have occurred on vessels at sea. These serious offenses might be prevented if appropriate action is taken in the early stages. Never believe that the problem is trivial or that you are over-reacting. If you feel harassed, then it has gone too far. It is your right to complain and even your obligation. By reporting harassment, you are protecting others as well as yourself. The captain does not want trouble on his boat nor face a costly delay. If you inform them that trouble is brewing, they should take appropriate action.

SUMMARY: WHAT YOU NEED TO KNOW ABOUT SEA SURVIVAL (NPFOTC, 2000)

It is true that you could learn much about sea safety and survival from the vessel personnel, who probably have many years of sea experience between them, but you must realize the ultimate responsibility is upon you to survive. It is easy to think "this will never happen to me" and the captain will know what to do," but those thoughts may cost you your life. You must

take the time to learn as much as you can, and consider what your actions will be in emergency situations.

The class time dedicated to these subjects serves only as an introduction to life at sea, and you life is worth far more than any data you could collect in the fishery. The following are some steps to you should take:

1. Pay close attention to all safety related materials presented.
2. Take the recommended clothing and safety equipment.
3. Before you leave the dock, completely tour your vessel, complete the check-off list and the vessel's safety and survival equipment and procedures whether you are shown them or not.
4. Participate in any drills conducted by the vessel and discuss safety procedures with the crew.
5. Read materials and watch safety videos that are on the vessel.
6. Observe the vessel's procedures and be familiar with the inherent dangers before you start sampling and working on deck.
7. **Take vessel safety very seriously.**

DEPLOYMENT ON VESSEL

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.

Guidelines developed from experience are: show respect to others and it will be returned to you. Clean up after yourself and make a conscious effort to maintain a professional appearance. Adaptable observers with an easygoing attitude will likely receive more cooperation than those who criticize and make demands. Observers will inevitably encounter individuals who will take great pleasure in "ribbing" observers with talk of turtle soup recipes and "worthless" turtles. Don't let it bother you. The more attention you give these individuals, the longer they will continue.

Accidents and Illness Aboard

All Accidents and Illness Must Be Reported Within 24 Hours of Happening.

In the event of an emergency such as an injury or serious illness requiring hospitalization, the captain and the USCG should be contacted via radio and they will attempt a rescue and/or advise you on how to proceed. If it is you or another observer that is involved, have the USCG also notify the Galveston Laboratory, and keep them advised.

If you are injured, regardless of how minor you may perceive the injury to be you must document the incident in your log book and report it to your supervisor as soon as possible. If you become seriously injured or ill notify the office immediately. All injuries should be reported to the vessel captain and the medic if one is aboard the vessel. Upon your return to port you

must also fill out an accident report form even if no medical treatment was/is necessary. These measures are for your protection. Do not neglect your responsibilities to report injuries or illness.

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"), available only with a prescription, and Triptone, an oral, non-prescription form. 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"¹. 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. In addition, here are some guidelines for getting through a bout of seasickness. These actions will speed up the process of readapting:

- Try not to think about seasickness, put it out of your mind, and force yourself to think of other things.
- Take heart and build up your confidence.
- Practice releasing the tension in your muscles; as soon as you begin to feel apprehensive try and relax (desensitization).
- Avoid unpleasant smells (especially tobacco, damp clothing, fumes, and vomit). Stay away from the galley.

- Where possible, keep away from enclosed spaces, go up on deck.
- Below deck: lie down, keep your eyes closed.
- In the salon: fix your eyes on a freely suspended object.
- Seek out cool, fresh air and take calm, deep breaths.
- Reduce the amplitude of the motion stimuli: keep amid ship or astern.
- Try not to sit and let your self be rocked passively back and forth with the motion of the boat.
- When standing, avoid leaning against anything, stand erect and make active compensatory movements to keep your balance.
- Try to move your head as little as possible.
- Participate in your normal duties on board.
- At all events see a job through to the end; do not give up on it.

Determine that you will persevere through the mental and physical discomfort due to seasickness. Do not dwell on fear. It is simply a matter of adjustment. If severe discomfort persists for more than a few days let your supervisor know. ¹ Wayne Haack, Motion Sickness (Sea Kayaker magazine, Summer 1986)

OBSERVER CONDUCT

Participation in Fishing/Vessel Operations

You are not a crewmember. You should not participate in fishing/vessel operations typically performed by crew. For instance, you should not operate fishing gear or deck equipment, stand watch in the wheelhouse, or serve as the vessel's regular cook. Observers may, however, assist crew members in catch sorting, clearing the catch from the deck, and hosing down the deck, as part of their normal duties of catch characterization, measuring of catch, and collection of biological samples. Observers may also participate in minimal housekeeping duties aboard the vessel, where housekeeping duties are shared among crew. Remember you are a guest aboard the vessel.

Discussions with the captain, prior to sailing, will clarify your role and the common sense level of assistance that is appropriate on the fishing trip, thus ensuring access to data and samples needed to complete the duties specific to the your assignment. You should not be denied access to areas needed to perform sampling duties, or access to vessel instruments or readings as required for scientific logs. You should find out what areas of the vessel are off-limits to you and how best to minimize interference with fishing operations in performing your duties.

Data Confidentiality and Access

Data collected by observers and recorded on data sheets and/or in scientific logs are classified as confidential. The data will be submitted to your observer coordinator upon completion of the trip. Access to the data is strictly limited because of confidentiality rules. Therefore, the following must be strictly adhered to:

1. All program personnel working with the collection of fishery data will be required to read and sign the NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.
2. You will not release the data to persons other than the Observer Program Manager (or designee), or an authorized enforcement officer. You will not discuss the data with any other persons either during or after a trip, unless specifically authorized to do so by the Program Manager. This precaution is necessary to protect the integrity of the data and to fulfill assurances given on protecting the confidential nature of the data.
3. You must provide data sheets and/or scientific logs if so requested by an authorized enforcement officer. Data, which are collected under the authority of a mandatory data collection, are accessible to authorized enforcement personnel for the investigation of violations. Data, which are collected under a voluntary data collection program also, must be turned over to an authorized enforcement officer upon request. Use of voluntary data in enforcement actions is covered by regulations, which are presently under review.
4. Generally, the confidentiality rules do not allow data with individual identifiers to be released to the public. Only summarized data (which are pooled) are available for public release. Individual data, however, are available for agency use, including use by enforcement officials, when data are collected under mandatory programs. Also, if subpoenaed by a court of jurisdiction, confidential data must be released to other agencies, officials or individuals.
5. If requested by the captain, provide a photocopy of data sheets and allow the captain to view the scientific logs, since he/she is the "supplier" of the data. Requests from crew to look at data should be referred to the captain for his/her permission.
6. If requested by other persons, you should state that the data are confidential, he/she is not authorized to release or discuss the data, and all requests for release of data should be made to the Observer Program Manager.
7. Requests for confidential data from all other persons should be made to the Observer Program Manager, who will refer the requests to the Laboratory Director who will forward the request to the SEFSC Director and the Regional Data Base Administrator. If the SEFSC Director concurs with the request, he will recommend that the SEFSC Data Base Administrator approve access for the requesting individual. Such access may be on a one-time or more frequent basis as determined by the Data Base Administrator.

8. The Regional Data Base Administrator will implement procedures to ensure compliance with items 5 and 6.

9. Under no circumstances will individual vessel data be released to the general public, verbally or in publication. Pooled data that are not identifiable to individual vessels may be approved for release.

10. Failure of any individual to adhere to the above policy may result in disciplinary action being taken, or dismissal.

Being Subpoenaed to Testify In Court

If you are subpoenaed, bring this immediately to the attention of the Observer Program Manager. The Observer Program Manager will seek guidance through the Laboratory Director, SEFSC and SERO Administrators and from SERO and NOAA General Counsel.

Witnessing the Violations of Laws or Regulations

If you witness violations of the provisions or implementing regulations of the Endangered Species Act, Marine Mammal Protection Act, or Magnuson-Steven's Fishery Conservation and Management Act, record on data sheets or in a scientific log, the pertinent facts relative to the violation (when, what, where, etc.). The use of a code-type system is acceptable. After documenting the violation(s) you should report the violation as soon as safely possible, or on returning to port.

Depending on the severity of the violation, you should physically present to the captain, without interpretation, a written copy of the applicable law/regulation. Because you are not enforcement agents, you have no authority to and should not attempt to interpret or enforce laws/regulations. You should always act in a professional, non-threatening manner. Copies of current laws/regulations will be provided to you.

Boarding by USCG/NMFS Enforcement Personnel

If a vessel boarding occurs, you should introduce yourself to the boarding party and provide appropriate assistance (for example, species identification) if requested. It is not permissible for you to neither participate in discussions between the boarding party and vessel personnel nor interfere with the boarding. If you have strong objections to boarding party decisions, this should be discussed, in private, with the senior member of the boarding party or with the Observer Program Manager upon returning to port. You should not document in logbooks their objections to boarding party decisions.

If the boarding party requests to meet with you or vice versa, arrange to do so in private. To the maximum extent possible, you should avoid speaking with the boarding party in front of the captain and crew, particularly if it relates to incidents of threats, abuse or assault by the captain or crew as discussed above. If the boarding party is unwilling to discuss such matters in private, ask if they will accept a written statement instead. Whether verbal or written, the information provided should be factual, complete and accurate. Should an authorized enforcement agent

request data sheets and/or scientific logs, you must turn over such records. If for any reason you feel in danger if they stay on the vessel, they should get off the vessel with the boarding party.

Threats, Abuse, or Assaults by Captain or Crew

The captain of a vessel is responsible for the conduct and actions of the crew. If you are threatened, physically or verbally abused, or assaulted by crew, the incident should be documented, in writing, and reported to the captain. Similar incidents by the captain will also be documented. All such incidents are to be reported to the Observer Program Manager immediately, both verbally and in writing.

For mandatory observer programs, the FBI and USCG will investigate such incidents. For voluntary observer programs, only incidents covered by civil law codes apply. Observers may request the USCG to remove them from the vessel if the circumstances warrant such action.

Personal Behavior

In the performance of your duties, you are official representatives of the U.S. Government and, as such, must act appropriately at all times. Observers are referred to the Standards of Ethical Conduct - for Employees of the Executive Branch. Our program policy prohibits:

1. Drinking alcohol while on duty and while off duty.
2. Using and/or distributing illegal drugs
3. Advocating personal views that are contrary to NOAA official policy.
4. Making threats.
5. Abusing power or authority.
6. Accepting gifts (this includes any part of the vessel's catch).
7. Granting interviews to the press or communications media, without prior approval.

PAY ELIGIBILITY

Following is a detailed explanation of what is considered pay hours. This tends to be an area of some confusion particularly considering that you spend a great deal of time in travel status and offshore.

Work Period Policy

Employees participating in offshore bycatch research cruises are restricted to no more than 16-hour work periods per 24 hours (from 0001 to 2400). At least eight hours (consecutive or intermittent) must be taken for rest and meals. Total overtime per seven-day week cannot exceed 58 hours. This action is mainly necessary to ensure your safety aboard participating vessels. Budgetary constraints are also a factor in overtime limitations. We must ensure that funding allocated for overtime lasts for the project's duration. Again, the primary concern is for your safety.

When observers are on a vessel they are not considered totally indisposed and do not qualify to be paid 24 hours a day. This is a temporary duty station so one does not get paid unless one is working. For example, when on a vessel, the temporary duty station is the vessel. Riding vessels to the sampling site offshore does not qualify as pay status unless you are actually working. Observers get paid for working, which includes sampling catches, filling out data sheets, cleaning gear, assisting the crew, etc. No employee gets paid for eating meals. The government provides a minimum of 0.5 hours for each meal.

Example

An observer is on a vessel and cannot work for three days or is unable to work up to 8 hours per day due to inclement weather conditions. How much pay should be claimed? When at sea on a vessel you will receive a minimum of 8 hours per day. If you were finally able to work from 8 PM to midnight on a given day you get paid for 8 hours. You do not get paid 8 hours because you were unable to work normally from 8-4:30 and then an additional 4 hours for the time put in later. **During the down time period due to weather, you should be doing constructive work like filling in data sheets, proofing those already filled out, preparing trip reports, etc.**

You are not paid for:

1. Talking to crew other than directly related to work.
2. Eating or sleeping.
3. Making observations from inside the wheelhouse of a vessel, or from the porthole of your stateroom.

The time required to eat, drink, sleep, and converse casually with other offshore personnel does not constitute work time.

**NMFS GALVESTON LABORATORY
BRD/BYCATCH and REEF FISH PROGRAM**

RECEIPT

VESSEL NAME: _____

OBSERVER NAME: _____

\$ _____ X _____ SEA DAYS = \$ _____

Captain's Signature _____ Date _____

By signature above, the vendor makes the statement they will not accept a government bank card or government purchase order as payment.

Trip Number _____

Sea Dates _____ **to** _____

Trip Number _____

Sea Dates _____ **to** _____

Trip Number _____

Sea Dates _____ **to** _____

Trip Number _____

Sea Dates _____ **to** _____

Trip Number _____

Sea Dates _____ **to** _____

**BRD/BYCATCH and REEF FISH PROGRAM
RECEIPT**

VESSEL NAME: Enter the full name of the vessel.

OBSERVER NAME: Clearly print your full name.

To calculate the vessels total fee for each trip, complete the following:

\$ _____ X _____ SEADAYS = \$ _____

\$ _____: Vessels are paid **\$25 per day** for Mandatory Observer trips, per regulations this can not exceed \$25 per day. For Experimental Observer trips the dollar amount varies based on the type of experiment, in this case contact your observer coordinator to determine the dollar amount per day.

X _____: Multiple the dollar amount (\$25 for Mandatory Observer trips) by the total number of days at sea. Sea days begin the day your Fishing Vessel departs from the dock and end the day the vessel returns to unload. Any part of a day spent at sea is considered a sea day.

Individual receipt can not exceed \$2500. Generally, this does not occur for Mandatory Observer trips; however, on an Experimental Observer trip this can occur. If the total amount of the trip exceeds \$2500, you will need to generate two receipts for the trip splitting up the amount.

Captain's Signature: The captain must sign all receipts, this is extremely important. Vessels **WILL NOT BE PAID** for a trip if the receipt is not signed by the captain.

NOTE: Photo copies and/or faxes **will not be accepted**; **only** original forms with original signatures are accepted.

**REMEMBER: THE CAPTAIN MUST SIGN ALL RECEIPTS. ONE
RECEIPT CANNOT EXCEED \$2500. ONLY ORIGINAL FORMS ARE
ACCEPTED.**

DATA COLLECTION

The following forms are to be completed for all trip types (By-Catch and Reef Fish). They should be placed in the following order at the beginning of each trip.

1. Cover Sheet
2. Trip Completion Form
3. Observer Feedback Form
4. Safety Check off Form pages 1 and 2 (Station Bill)
5. Vessel Information Form

The Cover Sheet, Observer Feedback Form and the Trip Completion Form are to be completed after the trip has been completed. The Safety Check off Form and Station Bill must be completed and faxed to the observer coordinators at the Galveston Laboratory prior to departure. If the vessel does not pass inspection, contact the Galveston laboratory immediately and do not depart. If the information needed to complete the Vessel Information Form is not provided prior to the trip you can acquire the information from the captain or owner.

COVER SHEET

TRIP NUMBER: _____

VESSEL NAME: _____

DATES OF TRIP: _____

OBSERVER NAME: _____

NUMBER OF TOWS/SETS SAMPLED: _____

OBSERVER SUBMITTING DATA: _____

DATE SUBMITTED TO LAB: _____ / _____ / _____

OBSERVER DATA PROOFS:

DATE 1ST COMPLETE PROOF WAS COMPLETED _____ / _____ / _____

DATE 2ND SCAN PROOF WAS COMPLETED _____ / _____ / _____

OBSERVER SIGNATURE: _____

COVER SHEETS

This form is to be placed on top of your (completed trip) data forms.

Trip No.: Enter the Trip Number provided by Observer Coordinator.

Vessel Name: Enter the full name of the vessel.

Dates of Trip: Enter the start and end date of the trip.

Observer Name: Enter your full name.

Number of Tows/Sets Sampled: Enter the number of tows/sets actually sampled.

Observer Submitting Data: Observer responsible for submitting data to NMFS/NOAA.

Date Submitted to Lab: Enter the date when data were submitted to observer coordinator.

Observer Data Proofs:

Date 1st Complete Proof was completed: Enter the date completed.

Date 2nd Scan Proof was Completed: Enter date scan proof was completed.

Observer Signature: The observer of the trip “signs off” to verify that the data are clean of errors and ready for proofing by observer coordinator.

All regional bycatch data (electronic and hard copies) are archived at the NMFS Galveston Laboratory.

TRIP COMPLETION FORM

Trip #: _____

Observer: _____

Vessel: _____

Trip Summary - Describe trip chronologically from the time it was assigned until you return home or you receive another assignment. Include travel dates and locations.

Date and Location, data sheets were initially completed

_____/_____/_____
Date

Location (i.e. on boat, in motel, or home)

1st complete proof

_____/_____/_____
Date

2nd complete proof (scan for blanks and flow)

_____/_____/_____
Date

Note: You should be proofing as the trip progresses, but that does not constitute a "complete" proof. A complete proof should be done after all of the data sheets have been completed.

Photocopies of trip completed

_____/_____/_____
Date

Note: Always retain all photocopies until observer coordinator gives the okay to destroy.

Data sent to Coordinator/Field Coordinator

_____/_____/_____
Date

Method of Shipping

Who was the data shipped to? (Coordinator/Field Coordinator)

- Data sheets signed by captain
- Receipts completed and signed
- Two complete proofs
- Trip copy made
- All data represented on data sheets is in log book
- All "required" data sheets completed
- New species flagged
- Turtles flagged?
- Pictures included with data set?

Circle One If No, explain:

Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____
Y/N	_____

OBSERVER FEEDBACK FORM

Vessel Name: _____ Vessel I.D.#: _____ Trip # _____

Observer: _____ Date: _____

Sleeping Accommodations: _____

Shower: Yes No _____

Toilet: Yes No _____

Air Conditioning: Yes No _____

Food and Water: _____

Sampling Advice: _____

General Comments: _____

Close Calls / Near misses / Hazards experienced: _____

SAFETY CHECKOFF FORM

Observer Name _____ Trip Number _____
 Vessel Name _____ Vessel Number _____

Safety Check list (Offshore 20+ Miles)

USCG Safety Exam Decal # _____ Date issued: _____ Distance Rating: _____
 Expiration Date: _____

Life Saving Equipment

Life Raft? _____ Type _____ Inspection Date: _____ Capacity? _____
 Expiration Date: _____

Life Raft Hydrostatic Release Expiration Date: _____ Total # of People Onboard: _____
(This number is including the Observer)

EPIRB Location: _____ EPIRB Battery Expiration Date: _____

EPIRB Hydrostatic Release Expiration Date: _____

Personal Flotation Device for each person on board (POB)? _____ Location(s): _____

Immersion Suit for each POB? _____ (only required above 32'00 N latitude)

Orange Ring Buoy(s) with Line attached? _____ Location(s): _____

Distress Flares? _____ Location(s): _____

Expiration Date for each distress flare.

Parachute _____	Smoke _____	Hand _____	Hand _____
Parachute _____	Smoke _____	Hand _____	Hand _____
Parachute _____	Smoke _____	Hand _____	Hand _____

Fire Fighting Equipment

Fire Extinguishers Charged? _____

Location 1: _____

Location 3: _____

Location 2: _____

Location 4: _____

Communication Equipment

Vessel Call Letters: _____

Single Side Band _____ Satellite Phone # (if applicable) _____

VHF _____ Vessel Cell Phone # (if applicable) _____

Other

First Aid Kit? _____ Location(s): _____

Ditch Bag? _____ Location(s): _____

Detailed Description of Vessel and Comments: _____

SAFETY CHECK OFF FORM STATION BILL

Trip # _____

	Person Overboard Signal:	Fire Signal:	Flooding Signal:	Abandon Ship Signal:
Position	Station/Bring/Duty	Station/Bring/Duty	Station/Bring/Duty	Station/Bring/Duty
Captain				
Crew				
Crew				
Crew				
Observer				
Date performed				

Vessel Safety Orientation (check all performed)

Vessel Layout:

- Engine on/off, steering, gear selection, etc. _____
- Shut off and crossover valves. _____
- Alarms: what they are, what they mean, reporting inoperative alarms. _____
- Entrapment: exit routes. _____
- Hazards: hatches, winches, machinery, lines, slippery areas, stability concerns, etc. _____

Emergency Assignments (not on the Station Bill): Each Crew Member's Specific Duties In

- Launching survival craft and recovering life boats and rescue boats. _____
- Donning immersion suits and wearable PFDs. _____
- Making a voice radio distress call. _____
- Using visual distress signals. _____
- Activating the general alarm. _____

Pre-Trip Safety Skill(s)

At least once per month and before each new departure, one safety skill/assignment must be performed and logged. In the space below list the skill (s) performed and/or include safety assignment, then sign and date at the bottom.

To be completed by captain:

Sampling protocol has been explained by observer and is understood. Yes ____ No ____

Observer Signature and Date: _____ / /

Captain Signature and Date: _____ / /

VESSEL INFORMATION FORM

ORG		PRO			

TRIP NO.

--	--	--

VESSEL CODE

--	--	--

OBSERVER

MO		DY		YR	

DATE: START OF TRIP

MO		DY		YR	

DATE: END OF TRIP

VESSEL NAME: _____

OBSERVER NAME: _____

VESSEL ID # _____ VESSEL LENGTH (ft): _____ YEAR VESSEL BUILT: _____

VESSEL TYPE (CIRCLE ONE): FREEZER or ICE BOAT

MATERIAL OF HULL CONSTRUCTION (CIRCLE ONE): STEEL WOOD FIBERGLASS FIBERGLASS/WOOD

GROSS TONNAGE: _____ HORSEPOWER OF ENGINE: _____

CREW SIZE (WITHOUT CAPTAIN): _____

This # does not include observers

OWNER NAME: _____

OWNER ADDRESS: _____

CAPTAIN'S NAME: _____

OWNER'S OR CAPTAIN'S SIGNATURE: _____

VESSEL INFORMATION FORM

Trip No. : The trip number will be assigned to you by the Observer Coordinator. The trip number consists of five or six characters: The first character refers to the organization conducting the project.

G = NMFS, Galveston Laboratory
F = Foundation, Gulf of Mexico
S = Foundation, South Atlantic

T = Texas Shrimp Association
D = Georgia DNR
N = North Carolina Sea Grant/
State Resource Agency

The second character refers to the project type.

By-Catch Project Types:

A = South Atlantic Mandatory Penaeid Shrimp
B = BRD Evaluation
C = Bycatch Characterization
E = Effort
F = Flynets
G = BRD Certification, Gulf of Mexico
L = Skimmer
M = Modified Bycatch Characterization
N = Naked Net (TED alternative)

R = Red Snapper Initiative/
Gulf Mandatory Penaeid Shrimp
S = BRD Certification, South Atlantic
T = TED Evaluation
W = South Atlantic
Mandatory Rock Shrimp
X = Rock Shrimp Characterization
Y = Rock Shrimp BRD Evaluation
Z = Soft TED Evaluation

Reef Fish Project Types:

B = Bandit Reel
H = Handline
L = Longline
J = Modified Buoy (JUG)

E = Electronic Monitoring - Longline
F = Hook Timer
C = Shareholders Alliance Project
S = Spear Fishing

The third through sixth characters identify the number of the trip.

Vessel Code: Enter the vessel number provided by observer coordinator. For repeat trips on the same vessel, use the same code. (Note: if code is not supplied, **leave it blank, do not make one up.** The Observer Coordinator will generate the code and fill in the information when the trip is received at the lab.).

Observer Code: Enter the Observer Code provided by observer coordinator (this code will never change).

Date: Start of Trip: Enter the starting date of the trip (mo/dy/yr).

Date: End of Trip: Enter the ending date of the trip (mo/dy/yr).

Vessel Name: Write the vessel's full name.

Observer Name: Print your full name.

Vessel ID #: Enter the State or Federal vessel registration number.

Vessel Length (ft.): Enter the total or keel length in feet (make note if it's a keel length). Get this information from the Captain.

Year Vessel Built: Get this information from the Captain.

Vessel Type (circle one): Freezer or Ice Boat.

Material of Hull Construction (circle one): Steel, Wood, Fiberglass, or Fiberglass/Wood (fiberglass covering a wood boat).

Gross Tonnage: Get this information from the Captain.

Horsepower of Engine: Get this information from the Captain.

Crew Size (without captain): Enter the number of crew members minus the captain.

Owner Name: Enter the owners' full name.

Owner Address: Self-explanatory.

Captain's Name: Self-explanatory.

Owner's or Captain's Signature: Self-explanatory.

BY-CATCH DATA COLLECTION

BRD Evaluation

Vessel length, hull construction material, gross tonnage, engine horsepower and crew size will be obtained for each vessel (Vessel Information Form). For each trawl haul (the location of gear placement at a defined time) the type, number and construction material of the fishing gear will be recorded (Gear Specification Form).

Latitude, longitude, and depth are recorded at the start of each tow (Station Sheet). The time the gear remains in the water (soak or fishing time) will also be calculated based on Time In (the time the nets are set) and Time On (time at the start of haul back).

Bycatch Reduction Evaluation

Comparisons of catch data for nets equipped with BRD/TED gear combinations (experimental nets) versus control nets will be conducted. Experimental and control nets (or BRD modifications) will be alternated from starboard to port outboard nets to reduce net and side biases. The total catch weight, and counts, weights and lengths of shrimp and red snapper will be obtained from the experimental and control nets. A subsample of approximately 32 kg (one shrimp basket ~ 70 lbs.) from each net (experimental and control) will be processed for bycatch characterization.

Before the boat departs the dock, you will need to get with the captain and crew to discuss the sampling protocol and how to accomplish the objectives of the mission. The following guidelines will help you with some of the items that need to be addressed regarding these procedures.

1. **Gear Measurements:** Before departure, become familiar with the vessel's net gear and rigging. The trawl nets are referenced in the data forms by their "net" position on the vessel (Appendix 4 thru 8). The nets are numbered 1 through 4. Net position 1 denotes the outside port net and number 4 representing the outside starboard net on a 4 net-rigged vessel. On a two- net vessel, the nets are numbered 2 for port and 3 for starboard. On a 4-rig vessel, only sample the number 1 and number 4 positions to eliminate possible bias from the trynet and the engine wash. If the vessel has only two nets, sample those two, but you may have to avoid using the net behind the try net (this should be addressed with your coordinator before your trip). Complete a Gear and TED/BRD Specification form for each net used for testing or sampling. Tell the captain the information and measurements you need to complete the forms and discuss any safety issues concerning gear use (i.e., where to and not to stand when the nets are brought on board the boat).

2. **Mark Nets:** Next you need to mark the sample nets for easy recognition. Discuss this with the captain, but usually a brightly colored piece of twine (a different color for each, experimental and control) tied to the middle of the codends or tie off ropes will work.

3. Electronic Scale Location: Before you begin sampling you and the captain need to determine the best location for weighing your sample baskets. As a general rule, the best location to avoid excessive boat motion is a position near the midpoint of the vessel. However, since on most vessels that location is occupied by the net winches, the only available option is to hang the scale from the "A-frame" or net rack on the stern of the boat. Once a location is located, determine the proper distance the scale needs to be hanging from the deck of the boat. To do this, hang the scale from a rope or hook with the shackle provided. Then take one of the orange shrimp baskets with the longest rope and hang it from the scale hook. The bottom of the basket should swing freely above the deck of the boat. (Remember that the rope is going to stretch some when the baskets are full). The lower the baskets are to the deck the easier it is to lift them onto the scale hook.

4. Net Separation Plan: When the nets are brought on board (decked) the catch from the sample nets need to be dumped independent and separate from the catch of the other nets. It is sometimes difficult to keep the catch separate if the seas are rough, there is an excessive quantity of jellyfish, or the total amount of catch in each net is just too much to prevent the total catch of all nets from piling together, but having a good separation plan will enhance the quality of the data and increase the number of successfully sampled tows during your trip.

Before the vessel begins trawling, discuss and devise a plan to accomplish this goal with the captain. **Keep in mind that before the bags (codends of the nets) are dumped they are often swinging freely over the deck of the boat and often contain stingrays, hardhead catfish or other hazardous marine life. Caution should be observed. In most cases the captain will want the observer to stand clear until the crew has dumped the catch.**

Sampling Procedure

1. Haul Back Time: At the time of haul back (net retrieval) get the following information and enter into your log book; time out, depth out, GPS out, sea state, and pick up direction. (Time in, Depth in and GPS in should have been obtained when the nets were dogged off at the winches at the start of the trawl).

2. Operation Codes and Predator Interactions: While the nets are being retrieved, note the following information for the Condition and Fate form: Predator types? Is anything escaping from BRD opening and if so, what quantity; and if catch is escaping from opening are the predators feeding on the catch and if so, which ones are feeding? During this time also observe for any operation code problems that may have affected the net's performance (i.e., tire blocking #3 net at the TED). Also check with the captain and crew as to any possible problems that could have affected trawl performance and note this information in your logbook.

3. Re-Deployment Time: If the vessel is planning to re-deploy the nets, remember to get "time in", "depth in", and "GPS in" for the next tow.

4. Total Weight of the Catch: Once the catch is dumped onto the deck and separated into piles, set up and "TARE" your scale using one of the orange shrimp baskets. Next, select either the control or experimental side and make sure the catch is evenly mixed. You can do this by mixing with the scoop shovel or by lining up several baskets and putting a small amount of catch in each one until they are all full (this works better for large volumes of catch). If a characterization is to be performed, pick one basket, weigh it, set it aside, and then multiply that weight by the total number of baskets you shoveled to obtain a total weight for that net. Circle or specify the weight of the characterization basket in your logbook to identify it as the "sample weight". Once the total weight has been obtained and entered in your logbook, pour the baskets (except the characterization basket) back onto the deck and separate out any target species of fish, (i.e., Red Snapper). After you have completed obtaining the total weight and removing target fish for this net, repeat these steps for the other net. Once both sides (control and experimental) have been weighed, make sure to designate a separate basket to each pile to obtain the total shrimp weight.

5. Characterization: The first priorities of characterization are to remove the penaeid shrimp and target fish. Next, count and weigh ("head-on") the sample shrimp, (measure 30 if instructed by Observer Coordinator), and then add them to the basket designated for total shrimp weight for that net. (If the crew is heading the shrimp, these shrimp must also be headed before adding to the basket). To accomplish these priorities, take the sample basket full of catch (approximately 30 kg) and place directly in front of you while sitting on the sampling stool. Next, place an empty basket on each side of the sample basket of catch and a small basket designated for target fish directly beside you. Pour out a little of the catch from the sample basket, separate out shrimp and put in one basket, place any target fish in the small basket and finally scoop up the remaining bycatch and put it in the other basket. Repeat until the sample basket is empty. Do this for both sides, experimental and control nets.

After the shrimp and target species have been removed, begin characterizing the remaining bycatch. Start by placing the basket of bycatch directly in front of you. Place several small baskets along each side of you and one large shrimp basket next to the bycatch basket. Use the large basket for the dominant species by volume. This is usually miscellaneous Pisces. Pour a little of the bycatch from the basket and begin sorting out the species and groups listed on the Species Characterization Form. It is typically easiest to separate out one species at a time beginning with the most dominant in the pile. Repeat until the contents of the basket are completely separated. Next, count individual species and get total weights, then obtain weights for grouped species. Finally, remember to subtract the weights of any target (red snapper) or select species found remaining in the sample bycatch basket from the original sample weight obtained.

6. Target Species and Shrimp total Weight: Once total weights and characterizations for each sampled net (control and experimental) have been obtained begin measuring target species (i.e., red snapper) and obtain a total red snapper weight for each net sampled. When the crew of the boat finishes separating the shrimp from the sample nets, obtain a total weight, denote species, and whether "head-on" or "head-off", and return them back to crew and captain for

processing. (Remember to add in the weight of the shrimp from the sample characterization basket if applicable). If time permits, once you are finished with the target species, it makes for good relations and is good experience to help the crew sort through the remainder of the catch.

7. **Data Forms:** As time permits, complete data forms with the necessary information recorded in your logbooks. Remember to fill in all fields, and write legible. **The captain is required to sign the bottom of each station sheet.** At the completion of a trip, the captain may request copies of the data collected aboard the vessel. Depending on the urgency of the request, ask if you can use the dealer's copy machine, go to an office supply and make the copies, or make the copies when you return to the Laboratory. Your trip data must be submitted to your coordinator with the forms in the following order.

COLLECTION of BY- CATCH TRIP REPORT INFORMATION

Complete the following forms for each By-Catch trip made:

1. Trip Report - Page 1
2. Trip Report - Page 2 (Tows not Sampled)
3. Trip Report - Page 3 (Sampled Tow Log)

This information is filled out when the trip is complete. These forms make up a compilation of facts that sum up the trip.

TRIP REPORT - SHRIMP BY-CATCH

TRIP # _____

VESSEL NAME _____ ID # _____ VSCODE _____ LTH _____
(CG DOCUMENTATION #) (LENGTH)

STATE _____ CITY _____

PORT OF DEPARTURE _____ / _____

OBSERVER NAME _____ ORGANIZATION _____

TRIP DATES _____ - _____ YEAR _____ OBSERVER DAYS _____
(dates, total # of travel and sea days allotted for this trip)

DATES AT SEA _____ - _____ YEAR _____ SEA DAYS _____
(dates, total # of days at sea from port to port)

24 HR. DAYS FISHED (including tows not sampled) _____ STARTING TOW # _____
 TOTAL TIME (hours towed) _____ / 24 = _____ ENDING TOW # _____
(DO NOT INCLUDE TOWS NOT SAMPLED)

AVERAGE TOW TIME

TOT.TIME HOURS TOWED [SAMPLED] (1) (1) (2) (3) (4)

TOT.TIME HOURS TOWED [UNSAMPLED] (2) (_____ + _____) / (_____ + _____) = _____

TOT.# TOWS SAMPLED (3)

TOT.# TOWS UNSAMPLED (4)

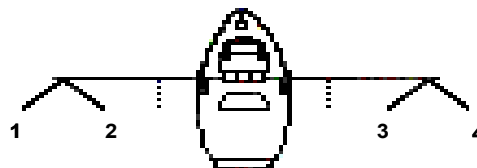
GEAR CONFIGURATION (MAIN NETS)

NET #1 TED _____	BRD _____	APPLICABLE _____
NET #2 TED _____	BRD _____	TOW #S _____
NET #3 TED _____	BRD _____	_____
NET #4 TED _____	BRD _____	_____
NET #1 TED _____	BRD _____	APPLICABLE _____
NET #2 TED _____	BRD _____	TOW #S _____
NET #3 TED _____	BRD _____	_____
NET #4 TED _____	BRD _____	_____

(ENTER N/A FOR NET #s 1 & 4 IF ONLY TWO NETS ARE PULLED BY YOUR BOAT)

TRY NET	
HRL _____	NET# _____ (Location)
FRL _____	APPLICABLE _____
	TOW #S _____

CIRCLE TRY NET LOCATION ON DIAGRAM



AREAS FISHED

STAT.AREA #					
INSHORE					
NEARSHORE ≤ 60'					
OFFSHORE > 60'					

(ENTER APPLICABLE STATISTICAL AREA # THEN THE # OF TOWS "SAMPLED" IN THE APPROPRIATE ZONE BLOCK)

TURTLES CAPTURED

SPECIES	NET #/TYPE *	LAT/LONG	DATE	TOW#
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____

TURTLES SIGHTED

SPECIES	LAT/LONG	DATE
1	_____	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____
6	_____	_____
7	_____	_____

* (ST-STANDARD NET, TB-NET WITH TED AND BRD, T-NET WITH TED ONLY, B-NET WITH BRD ONLY, TR-TRY NET)

SIGNATURE _____

TRIP REPORT - SHRIMP BY-CATCH
TOWS NOT SAMPLED

VSCODE _____

TRIP DATES _____

TRIP # _____

(A TOW WITH AN OPERATION CODE SHOULD NOT BE LISTED AS UNSAMPLED)

NO.	DATE	LATITUDE	LONGITUDE	HOURS TOWED	DEPTH (FEET)	STAT ZONE	REASON NOT SAMPLED
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
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43							
44							
45							

TRIP REPORT FORM

A trip ends when the vessel unloads the shrimp catch. This form is completed at the end of a trip. Upon completion of each trip:

Identify unknown fish or invertebrates and enter appropriate species information on data sheets.

Triple proof data sheets for:

- blank fields (enter 9's in the fields when data was not collected)
- legibility
- hours towed calculations
- proper data format (do not enter decimals when not required)

Trip No.: Enter Trip Number provided by Observer Coordinator.

Vessel Name: Enter the full name of the vessel.

ID #: (Vessel Documentation Number). Transcribe from Vessel Information Form.

Vessel Code (VSCODE): Enter Vessel Code provided by Observer Coordinator.

Length (LTH): Transcribe from Vessel Information Form.

Port of Departure: Enter the STATE and CITY from where the vessel departed.

Observer Name: Enter your full name.

Organization: Enter the organization conducting the survey (e.g., NMFS, Foundation, etc.).

Trip Dates: Enter month, day, and year that you left the laboratory (or home) and began traveling to the vessel. Enter the month and day that you returned to the laboratory or home. This includes days spent in motels waiting for the vessel to depart and/or transportation and return to the laboratory or home (for example, 3/5-3/10/08).

Observer Days: Enter the total number of days of your trip. For the above example, enter 6. Any part of a day constitutes an observer day.

Dates at Sea: Enter the dates (departure-arrival) that you actually spent at sea (for example, 3/6-3/9/08).

Sea Dates: Enter the total number of days spent at sea (for the above example, 4). Any part of a day spent at sea is considered a sea day. Please double check this value, and be sure you count the starting day.

24 Hr. Days Fished: Enter the total number of hours towed including tows sampled and tows not sampled. Divide this number by 24 to get the total number of 24 hr days fished. For example:

$$\begin{array}{cccccc} (4.4 \text{ hours} + 6.5 \text{ hours} + 3.2 \text{ hours} + 2.6 \text{ hours} + 4.6 \text{ hours}) / 24 = 0.9 \\ \text{sampled} \quad + \quad \text{sampled} \quad + \quad \text{sampled} \quad + \quad \text{unsampled} \quad + \quad \text{unsampled} \end{array}$$

Started Tow No.: This will always be 001. **Tows not sampled are not numbered.**

Ending Tow No.: Enter the last tow number. **Tows not sampled are not numbered.**

Average Tow Time: Compute and enter value in spaces provided. Include tow times for tows not sampled in your calculation.

Gear Configuration (main nets only): Enter the appropriate TED and BRD codes for each net.

Applicable Tow #'s: Enter numbers that this gear configuration applies to (e.g., tow #'s 001-026).

If the gear configuration is changed during the trip, (i.e., different TED(s) or BRD(s)), Complete the second section and enter applicable tow numbers (e.g., tow numbers 027-092) for this new configuration. If more changes are made, use additional sheets as necessary and attach. Enter N/A for net positions 1 and 4 if only two nets are towed.

Try Net

HRL: Enter the headrope length (feet).

FRL: Enter the footrope length (feet).

Net NO.: Enter the net position that the try net is being towed in front of (typically net position 3).

Applicable Tow No(s): Enter tow numbers where try net was used (at this net position).

Areas Fished

Stat. Area No.: Enter the appropriate STAT ZONE (s) where sampled tows occurred (e.g., 18, 20, see appendix 11) these zones should correspond to what is listed on the Station Sheets.

Next, under the stat zone, enter the total number of tows completed **INSHORE** (areas inside the COLREG lines [line of demarcation that closes off bays and barrier islands]). Enter the total number of tows completed.

Enter the total number of tows completed **NEARSHORE** (water depth \leq 60 ft., all waters outside the inshore line outward into the Gulf of Mexico to the 10 fathom contour line). Enter the total number of tows completed **OFFSHORE** (water depth $>$ 60 ft).

Turtles Captured

Species: Enter the species. If a positive identification could not be made enter unknown.

Net Position/Type: Enter the net position and net type that the turtle was captured in ("ST" for standard net, "TB" for a net with a TED and BRD, "T" for a net with only a TED, "B" for a net with only a BRD, and "TR" for a try net).

Lat/Long: Enter the starting latitude and longitude of the tow, or lat/long at the time the turtle is taken onboard (try net capture).

Date: Enter the date of capture.

Tow Number: Enter the tow number that the turtle was captured in. If the turtle was captured on a tow not sampled, list closest sampled tow number and note in comments.

Turtle Sighted

Species: Enter the species if positive identification is made, or unknown.

Lat/Long: Enter the latitude and longitude of the vessel at the time turtle was sighted.

Date: Enter the date of sighting.

Trip Report Form - Tows Not Sampled – Page 2

On page 2 of the trip report re-enter the vessel code, trip dates and trip no.

Enter the date, latitude, longitude, hours towed, depth, stat zone, and reason for not sampling (e.g., sleeping, sick, paperwork, or processing previous tow). A tow with an operation code (i.e., vessel/trawl operational problem) should "NOT" be listed as a tow not sampled, but instead, be a numbered tow with a completed Station Sheet reflecting operational problem (i.e., op code).

Trip Report Form - Sampled Tow Log – Page 3

List, in order, all tows sampled during the trip. Completion of this form will provide a list of the following information: Date of Tow, Tow Number, Time In, Time Out, Hours Towed, Water Depth (feet), State Zone, Experimental net position (EXP NP), Control net position (CONT NP).

It can be utilized to add up tow times for completion of the trip report and is also utilized in office to calculate Sea Days. Utilize as many pages as are needed to list all "sampled" tows. If more than one page is needed, reference the numbers at the bottom of the page.

BY-CATCH DATA FORMS

Complete the following forms for all By-catch trips.

1. Gear Specification Form (page 1) and TED/BRD Specification Form (page 2)
2. Try Net Tow Summary
3. Station Sheet BRD Evaluation
4. Condition and Fate Form
5. Species Characterization Form (four versions of this form are provided, use the one that best fits your needs)
 - BRD Testing Protocol
 - Modified South Atlantic Penaeid Shrimp
 - Modified South Atlantic Rock Shrimp
 - Shrimp Characterization – can be used as page two for the above forms if species not listed on the form are present.
6. Length Frequency Form (Target Species)
7. Sea Turtle Life History Form (Complete only if a turtle is captured or sighted)

GEAR SPECIFICATION FORM

OMB No. 0648 - 0345 Approval Expires - 01/31/2012

Control (C) or Experimental (E)

BRD TESTING PROTOCOL

Gear ID #

ORGPNO

TRIP NO.

VESSEL

TOW NO.

MO DY YR

DATE

NET POSITION

SECTION I

NET GEAR MEASUREMENTS

<p style="text-align: center;">NET TYPE AND HEAD/FOOT ROPE MEASUREMENTS</p> <p>Net Type <input style="width: 100%;" type="text"/></p> <p>Headrope Length <input style="width: 100%;" type="text"/> Feet</p> <p>Footrope Length <input style="width: 100%;" type="text"/> Feet</p> <p>Comments <input style="width: 100%;" type="text"/></p>	<p style="text-align: center;">LEG LINE MEASUREMENTS</p> <p>Top Leg Length <input style="width: 100%;" type="text"/> Feet</p> <p>Bottom Leg Length <input style="width: 100%;" type="text"/> Feet</p> <p>Top Leg Dummy <input style="width: 100%;" type="text"/> Feet</p> <p>Bottom Leg Dummy <input style="width: 100%;" type="text"/> Feet</p>
<p style="text-align: center;">TRAWL BODY</p> <p>Type: Nylon <input type="checkbox"/> Poly <input type="checkbox"/> Sapphire <input type="checkbox"/> Spectra <input type="checkbox"/></p> <p>Mesh Size <input style="width: 100%;" type="text"/> Inches</p> <p>Comments <input style="width: 100%;" type="text"/></p>	<p style="text-align: center;">TRAWL EXTENSION</p> <p>Type: Nylon <input type="checkbox"/> Poly <input type="checkbox"/> Sapphire <input type="checkbox"/> Spectra <input type="checkbox"/></p> <p>None <input type="checkbox"/></p> <p>Mesh Size <input style="width: 100%;" type="text"/> Inches</p> <p>Comments <input style="width: 100%;" type="text"/></p>
<p style="text-align: center;">COD END</p> <p>Type: Nylon <input type="checkbox"/> Poly <input type="checkbox"/> Sapphire <input type="checkbox"/> Spectra <input type="checkbox"/></p> <p>Mesh Size <input style="width: 100%;" type="text"/> Inches Twine Size <input style="width: 100%;" type="text"/></p> <p>Comments <input style="width: 100%;" type="text"/></p>	<p style="text-align: center;">CHAFFING GEAR</p> <p>Type Whiskers <input type="checkbox"/> Mesh <input type="checkbox"/> Metal <input type="checkbox"/> None <input type="checkbox"/></p> <p>Comments <input style="width: 100%;" type="text"/></p>
<p style="text-align: center;">DOORS</p> <p>Type: Aluminum <input type="checkbox"/> Wood <input type="checkbox"/> Steel <input type="checkbox"/> Other <input type="checkbox"/></p> <p>Door Length <input style="width: 100%;" type="text"/> Feet None <input type="checkbox"/></p> <p>Door Height <input style="width: 100%;" type="text"/> Feet</p> <p>Dummy Door Length <input style="width: 100%;" type="text"/> Feet</p> <p>Comments <input style="width: 100%;" type="text"/></p>	<p style="text-align: center;">TICKLER CHAIN</p> <p>Chain Length <input style="width: 100%;" type="text"/> Feet</p> <p>Chain Size (gauge) <input style="width: 100%;" type="text"/> Inches</p> <p>Comments <input style="width: 100%;" type="text"/></p>
	<p style="text-align: center;">LAZY LINE</p> <p>Rigging: Elephant Ears <input type="checkbox"/> Choke <input type="checkbox"/></p> <p>Comments <input style="width: 100%;" type="text"/></p>

SECTION II

BRD MEASUREMENTS

BRD TYPE: Fisheye Jones Davis Modified Jones Davis None

Extended Funnel Composite Other

BRD position: Top Offset Spooker Cone: Yes or No

Codend length (# of meshes):

Circumference of the codend (# of meshes):

Distance of escape opening from elephant ear or choke rings: Feet Inches

Distance of escape opening from tie off rings: Feet Inches

Number of meshes the fisheye is offset from top center:

Fisheye (BRD) escape opening: Height Inches Width Inches

Shape of the escape opening: oval, diamond, square, halfmoon, rectangle, triangle, if other

Specify (check one)

Look from the mouth of the net, is the BRD located in front of, at, or behind the point of attachment of the elephant ears: Front at Behind

What is the length of the elephant ear from the point of attachment to the tip of the ring: Inches

Distance from point of attachment of elephant ear to tie off rings: Feet Inches

TED/BRD SPECIFICATION FORM

OMB No. 0648 - 0345 Approval Expires - 01/31/2012

BRD TESTING PROTOCOL

ORGPRO	VESSEL	TOW NO.	MO DATE	DY DATE	YR DATE	NET POSITION	GEAR ID #
TRIP NO.	VESSEL	TOW NO.	DATE	DATE	DATE	NET POSITION	GEAR ID #

SECTION III		TED MEASUREMENTS				
TED TYPE	<input type="checkbox"/> SOFT	<input type="checkbox"/> HARD				
TED DESIGN (CIRCLE ONE)	WEEDLESS	CURVED BAR	STRAIGHT BAR	UNKNOWN		
TED OPENING	<input type="checkbox"/> TOP	<input type="checkbox"/> BOTTOM				
TED FUNNEL (YES OR NO)	[]		TED MATERIAL	[]		
TED FLAP (YES OR NO)	[]		# OF TED FLOATS	[] []		
TED ANGLE (DEGREES)	[] [] []		FLOAT TYPE	Material: []		
				Shape: []		
TED DIMENSIONS	LENGTH (INCHES)	[] [] []				
	WIDTH (INCHES)	[] [] []				

GEAR DESCRIPTIONS

BRD DESCRIPTION

BRD DIAGRAM

Sketch fisheye including height and width (on the back of this form) or attach cardboard outline (if possible).

GEAR DESCRIPTION

GEAR DIAGRAM

PHOTOGRAPHED (Circle one): Y or N

GEAR SPECIFICATION FORM

A Gear Specification Form must be completed once for each net used in the control and experimental positions during trawling operations. If any gear setting or configuration changes are made, then additional form(s) must be completed by the observer for the affected net(s). If either of the two test nets is torn and repaired, then the repaired net must be re-measured for possible changes. All measurements should be recorded in feet and inches. Measurements should be converted to decimal form prior to data entry (10 feet and 6 inches = 10.5 feet, 3/4 inch = 0.75 inch). Detailed instructions for the Gear Specification Form are as follows:

Trip No.: Enter the Trip Number provided by the Observer Coordinator.

Vessel: Enter the Vessel Number provided by Observer Coordinator.

Tow No.: Enter the starting tow number for a given vessel. If net or gear changes are made, enter the starting tow number when these changes occurred. For example: a net is hung up and lost on Tow 5 and a new net is put on. The next gear sheet will start on Tow 6.

Date: Enter the starting tow number date, or the date when the changes occurred.

Net Position: Enter 1 for outside port net; 2 for inside port net; 3 for inside starboard net; or 4 for outside starboard net (if only 2 nets are pulled then they will be designated 2 and 3).

Control-Experimental: Enter "C" for control net (BRD typically closed) or "E" for experimental net (BRD typically open).

SECTION I – NET GEAR MEASUREMENTS (see Appendices 4 – 8 for picture referrals) Net Type and Head/Footrope Measurements

Net Type: semi-balloon, balloon, balloon w/bib, flat, mongoose, Jib, etc.

Headrope Length: Measure the length of the trawl headrope (feet and inches in decimal form) where webbing is attached.

Footrope Length: Measure the length of the trawl footrope (feet and inches in decimal form) where webbing is attached.

Comments: Enter comments relative to net type or rope measurements (e.g., changed net type, replaced headrope or footrope).

Leg Line

Top Legline Length on Door: Measure the length of the top legline (feet and inches in decimal form) on the trawl's standard door. Top legline length is measured from the point of cable attachment at the door to the point where the first mesh on the net is tied to the cable.

Bottom Legline Length on Door: Measure the length of the bottom legline (feet and inches in decimal form) on the trawl's standard door. Bottom legline length is measured from the point of cable attachment at the door to the point where the first mesh on the net is tied to the cable.

Top Legline Length on Dummy Door: Measure the top legline length (feet and inches in decimal form) on the trawl's dummy door.

Bottom Legline Length on Dummy Door: Measure the bottom legline length (feet and inches in decimal form) on the trawl's dummy door.

Trawl Body

Type: Select the appropriate answer: nylon, poly, sapphire, or spectra.

Mesh Size: Measure the stretched length to the nearest 1/8".

Comments: Enter comments relative to trawl body (e.g., changed net).

Trawl Extension

Type: Circle the appropriate answer: nylon, poly, sapphire, spectra, or none.

Mesh Size: Measure the stretched length to the nearest 1/8".

Comments: Enter comments relative to trawl extension (e.g., none used).

Cod End

Type: Circle the appropriate answer: nylon, poly, sapphire, or spectra.

Mesh Size: Measure the stretched length to the nearest 1/8".

Twine Size: Ask captain (if unknown enter 9's).

Comments: Enter comments relative to cod end (e.g., new cod end).

Chaffing Gear

Type: Select the appropriate answer: whiskers, mesh, metal, or none.

Comments: Enter comments relative to chaffing gear (e.g., none used).

Doors

Door Type: Select the appropriate answer, aluminum, wood, steel, other, or none. If other, identify in the comments section.

Door Length: Measure the length of door (feet and inches in decimal form).

Door Width: Measure the width of the door (feet and inches in decimal form).

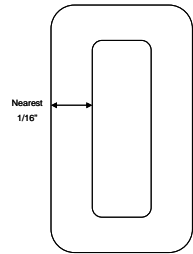
Dummy Door Length: Enter the total length of dummy door (feet and inches in decimal form).

Comments: Enter comments relative to doors (e.g., fiberglass doors).

Tickler Chain

Chain Length: Measure the length of chain (feet and inches in decimal form) from door to door.

Chain Size: Measure the gauge (thickness) of the metal part of the link to the nearest 1/16-inch, in decimal form (do not measure the area where it is connected to another link or an area that has been welded).



Comments: Enter comments relative to tickler chain (e.g., replaced).

Lazy Line

Rigging: Select one, Elephant Ears or Choke (rings).

Comments: Enter comments relative to lazy line.

SECTION II – Bycatch Reduction Device (BRD) Measurements

Type: Select BRD type. Fisheye, Jones Davis, Modified Jones Davis, Extended Funnel, Composite, none, or other (specify in space provided).

BRD Position: Select location, top or offset, from top seam (leave blank if Jones-Davis BRD).

Spooker Cone: Check Yes or No

Codend length (# of meshes): Enter number of meshes.

Circumference of the codend (# of meshes): Enter number of meshes.

Distance of escape opening from elephant ear or choke rings: Measure in feet and inches.

Distance of escape opening from tie off rings: Measure in feet and inches.

Number of meshes the Fisheye (BRD) is offset from top center: self-explanatory.

Fisheye (BRD) escape opening: Measure the height and width in inches.

Shape of escape opening: Circle one: oval, diamond, square, halfmoon, rectangle, triangle, or specify if other.

BRD Position (select one): Looking from the mouth of the net towards the codend, is the BRD in front, centered (at), or behind the (attachment point of) elephant ears?

Distance from point of attachment of elephant ear to tie off rings: Enter in feet and inches.

Section III - TED Measurements

TED/BRD Specification Forms must be completed once for each net used in the control and experimental positions during trawling operations. If any gear setting or configuration changes are made, an additional form(s) must be completed by the observer for the affected net(s). Detailed instructions for the TED/BRD Specification Form are as follows:

Trip No.: Enter the Trip Number provided by the Observer Coordinator.

Vessel: Enter Vessel Code provided by Observer Coordinator.

Tow No.: Enter the starting tow number for a given vessel (001). If net or gear changes are made, enter the tow number when these changes occurred.

Date: Enter the starting tow number date, or the date when the changes occurred.

Net Position: Enter 1 for outside port net; 2 for inside port net; 3 for inside starboard net; or 4 for outside starboard net (if only 2 nets are pulled then they will designated 2 and 3).

TED Type: Check one. Soft (soft TED) or Hard (hard TED).

TED Design: Circle one. Ask captain if unsure and take pictures if possible.

TED Opening: Check one. Top (top opening TED) or Bottom (bottom opening TED).

TED Funnel: Enter Yes or No. The TED funnel is located forward of the TED and is used to accelerate the catch through the TED and toward the codend.

TED Flap: Enter Yes or No. TED flap is extension of mesh behind farthest part of TED opening.





TED Angle: Use a TED protractor (angle finder) to obtain the angle of the TED (with respect to the plane of the net) while the nets are hanging freely (use the non-magnetic side of the angle finder).

TED Dimensions: Enter the total length and width of the TED grid in inches.

TED Material: Enter the material type used in TED construction (e.g., aluminum for hard TED or polypropylene mesh for a soft TED).

Number of TED Floats: Enter the total number of floats attached to TED.

Float Type: Choose the appropriate shape and construction material of the TED floats from the chart below and enter in the space provided.

SHAPES				CONSTRUCTION MATERIAL
				Sponge
Football	Bullet	Cylinder	Round	Foam
				Plastic
				Other

Gear Descriptions

BRD Description / Diagram: Give a written description of the BRD and below sketch a detailed diagram of the BRD and how it is positioned in the net. Provide all length and measurements. (If more space is needed, use additional pages and include trip and tow number). For fisheyes trace an outline of the opening size and shape on the back of this form or piece of cardboard (if possible).

Gear Description / Diagram: Give a written description of all net gear and sketch a detailed diagram of the net gear including TED and BRD positions, location of tie off rings, and elephant ears. Provide all lengths and measurements. (If more space is needed, use additional pages and include trip and tow number).

Photograph BRD and gear configurations and attach to the TED/BRD Form. Circle Yes or No on the bottom of the form to denote if pictures were taken.

TRY NET TOW SUMMARY BRD/CHARACTERIZATION

TRIP #

VESSEL CODE

HEADROPE LENGTH (feet)

FOOTROPE LENGTH (feet)

TED TYPE (IF APPLICABLE)

STATE

TOW # CHECK ONE: INSHORE NEARSHORE OFFSHORE

TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)	TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

COMMENTS: _____

TOW # CHECK ONE: INSHORE NEARSHORE OFFSHORE

TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)	TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

COMMENTS: _____

TOW # CHECK ONE: INSHORE NEARSHORE OFFSHORE

TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)	TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

COMMENTS: _____

TOW # CHECK ONE: INSHORE NEARSHORE OFFSHORE

TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)	TRY NET TOW #	TIME IN	TIME OUT	TURTLE (X)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

COMMENTS: _____

TRY NET TOW SUMMARY FORM

Observers are required to complete a Try Net Tow Summary Form for each trip. With the existing work load and operation speed it's understandable that not all try net tows time can be recorded; however, you're required to record as many as possible during duty hours.

Trip No.: Enter the Trip Number provided by the Observer Coordinator.

Vessel Code: Enter the Vessel Code provided by Observer Coordinator.

Try Net Headrope Length: Measure the length of the try net headrope (feet and inches in decimal form) where webbing is attached.

Try Net Footrope Length: Measure the length of the try net footrope (feet and inches in decimal form) where webbing is attached.

Try Net TED Type: If present, enter the type of Try net TED used (e.g., hard, curved, bottom =HCB).

Station Tow #: Enter try net tow number of sampled and unsampled tows (enter 9's).

Stat. Zone: Enter the appropriate statistical zone, **At Time In** (see appendices 11). If vessel is trawling seaward of a statistical zone enter the closest zone and note "outside statistical zone" on comments section.

Area Fished (check one): Enter the appropriate location **INSHORE** (areas inside the COLREG lines, **NEARSHORE** (water depth \leq 60 ft., all waters outside the inshore line outward into the Gulf of Mexico to the 10 fathom contour line), or **OFFSHORE** (water depth $>$ 60 ft).

Try Net Tow #: Try net tow numbers should begin at one for each new **Station Tow Number**.

Time In: Enter the time that the try net was set.

Time Out: Enter the time at the start of haul back.

Turtle (X): Check space provided if turtle interaction occurred.

Comments: Enter any appropriate information to the try net tow.

STATION SHEET BRD EVALUATION

Station ID#

BRD TESTING PROTOCOL

<small>ORG PRO</small>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
TRIP NO.		VESSEL		TOW NO.		OBSERVER				
<small>MONTH</small>	<small>DAY</small>	<small>YEAR</small>	<small>DEGREE</small>	<small>MINUTE</small>	<small>SECONDS</small>	<small>DEGREE</small>	<small>MINUTE</small>	<small>SECONDS</small>	<small>DEPTH IN (FEET)</small>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
START DATE			TIME IN		LATITUDE IN		LONGITUDE IN		DEPTH IN (FEET)	
<small>MONTH</small>	<small>DAY</small>	<small>YEAR</small>	<small>DEGREE</small>	<small>MINUTE</small>	<small>SECONDS</small>	<small>DEGREE</small>	<small>MINUTE</small>	<small>SECONDS</small>	<small>DEPTH OUT (FEET)</small>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
STOP DATE			TIME OUT		LATITUDE OUT		LONGITUDE OUT		DEPTH OUT (FEET)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<small>HOURS</small>	<small>KNOTS</small>	<small>STAT</small>	<small>1</small>	<small>2</small>	<small>3</small>	<small>4</small>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
TOWED	VESSEL SPEED	ZONE	OPERATION CODE				TOTAL NETS	SEA STATE	NET RETRIEVAL DIRECTION	SCALE TYPE
									<small>up (U), down (D), or Cross (C) Sea</small>	<small>Digital (D), Mechanical (M), Both (B) or Unknown (U)</small>

COORDINATOR COMMENTS

<small>Gear ID#</small>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
NET POSITION	EXPERIMENTAL (E), or CONTROL (C).	BRD OPEN or BRD CLOSED (circle one)	SAMPLE WEIGHT (kg)				
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>		
TOTAL CATCH WEIGHT (kg)	SHRIMP TOTAL WEIGHT (kg)	SHRIMP		HEAD ON (O), HEAD OFF (X)			
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>			
RED SNAPPER TOTAL WEIGHT (kg)	RED SNAPPER TOTAL NUMBER	<i>Attach length frequency form for red snapper</i>		<input type="text"/>			
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>			
		NO. OF RED SNAPPER ≤ 100 mm		NO. OF RED SNAPPER > 100 mm			

Comments: _____

<small>Gear ID#</small>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
NET POSITION	EXPERIMENTAL (E), or CONTROL (C).	BRD OPEN or BRD CLOSED (circle one)	SAMPLE WEIGHT (kg)				
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>		
TOTAL CATCH WEIGHT (kg)	SHRIMP TOTAL WEIGHT (kg)	SHRIMP		HEAD ON (O), HEAD OFF (X)			
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>			
RED SNAPPER TOTAL WEIGHT (kg)	RED SNAPPER TOTAL NUMBER	<i>Attach length frequency form for red snapper</i>		<input type="text"/>			
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>			
		NO. OF RED SNAPPER ≤ 100 mm		NO. OF RED SNAPPER > 100 mm			

Comments: _____

Characterization sample completed? YES (Attach species forms). NO

Captain's Signature _____

STATION SHEET

This form is split into two sections, the first part is for location information and the second part is for sample information. For both sections, 999's should be entered as a default code for all numeric fields where data are not available, with an explanation given in the comments section. The sample section is divided, half is for the first net being sampled, and the other half is for the second net sampled.

This form must be filled out for both sampled and unsampled sets. For tows not sampled (or unsampled tows) enter the following information: trip number, vessel code, 9 for tow number, start and stop dates, time in and time out, latitude in/out, longitude in/out, depth, hours towed, and reason for not sampling. Remember unsampled tows are not given tow numbers. They are unsampled simply due to time constraints or observer choice (some reasons for not sample are observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

SECTION 1

Trip No.: Enter the Trip Number provided by Observer Coordinator.

Vessel: Enter Vessel Code provided by Observer Coordinator.

Tow Number: Enter the appropriate tow number. The tow number starts at 001 for each trip.

Observer: Enter Observer Code provided by Observer Coordinator.

Start Date: Reference the date the tow started. Using two digits for month, day, and year (MO/DY/YR) enter the appropriate information (e.g., May 6, 2008 is 050608).

Time In: Enter the time that the nets are set (i.e., "dog off" time – dogged off refers to when winches are locked into place by the brake system). Use military time, midnight is 0001, 1 A.M. is 0100, and 1 P.M. is 1300. Military time uses a 24-hour clock for time keeping.

Latitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds. Ask the captain if the LORAN or GPS **unit reads in degrees, minutes, and seconds or in degrees, minutes, and hundredths of a minute**. If the unit reads in hundredths of minutes, multiply the last two digits (as a decimal figure) by 60 to obtain the seconds (e.g., .88 x 60 = 52.8 seconds, this is rounded up to 53 seconds [see appendix 12]). If coordinates are given in LORAN the reading should be written above the space provided for GPS units (leaving GPS units blank). The units will be converted in the lab and filled in by the Observer Coordinator.

Longitude In: Enter the position of the vessel at start of tow time: degrees, minutes and seconds. Remember to correct the data if necessary.

Depth In (in feet): Enter the water depth at the start of the tow. Ask the captain if the transponder is mounted at the water line or on the keel. If the water depth is measured from anywhere other than the water line, then add the depth of the transponder to the depth reading.

Stop Date: Reference the date the tow stopped. Using two digits for month, day, and year (MO/DY/YR) enter the appropriate information (e.g., May 7, 2008 is 050708).

Time Out: Enter the time at the start of haul back (when winches are engaged and nets come off the bottom).

Latitude Out: Enter the position of the vessel at the start of haul back in degrees, minutes and seconds. Remember to correct the data if necessary.

Longitude Out: Enter the position of the vessel at the start of haul back: degrees, minutes and seconds. Remember to correct the data if necessary.

Depth Out (in feet): Enter the water depth at the end of the tow. Remember to correct the data for true depth if necessary.

Hours Towed: Compute the hours towed from Time In to the Time Out. Enter this information in hours and tenths of hours (e.g., one hour and thirty minutes is 1.5 hours). If time in is at 19:48 pm and time out is 02:30 am then hours towed is 6.7 hours towed.

Vessel Speed: Obtain average speed of tow information from Captain, record in KNOTS only.

State Zone: Enter the appropriate statistical zone, **At Time In** (see appendices 11). If vessel is trawling seaward of a statistical zone enter the closest zone and note "outside statistical zone" on comments section.

Operational Code: Select the appropriate operational code for each net (appendix 9). The try net code (Y) is used to designate the position of the try net (if used) and is normally pulled in front of either the #2 or #3 net. For example, ZYZ represents a successful tow for all 4 nets and a try net was towed in the # 3 position. In situations where several problems affect a net, generally the most severe problem is recorded. If all nets were bogged down due to mud, the operational code would read BBBB. Note that the try net code is superseded by all codes except "Z". For unsuccessful tows please give further explanation in the comments section.

Total Nets: Enter the total number of nets trawled (e.g., 2 or 4). Do not include the try net.

Sea State: Enter the number that best describes the sea state (wave height):

1 = 0-2 feet 2 = 3-5 feet 3 = 6-8 feet 4 = 8+ feet

Net Retrieval Direction: Enter the direction (up sea "U" - against the wave direction, down sea "D" - with the wave direction, or cross sea "C" - perpendicular to wave direction) the vessel is heading while retrieving the nets. If the sea is flat, ask the captain the tide direction and use in place of wave direction.

Scale Type: Enter the type of scale use, Digital (D), Mechanical (M), Both (B) or Unknown (U).

SECTION 2

If two nets are sampled fill out the following information for each net in the space provided.

Net Position Sampled: Enter the net position number of the sample net. **Port and starboard are determined by facing the bow of the vessel while on the stern, starboard is on the right and port is on the left.** (Net # 1 is the outside port net and is usually the first recorded on the form).

BRD Open (E) or BRD Closed (C): Enter "E" if net is experimental or "C" if net is the "Control". Circle whether BRD is closed (typically "C") or open (typically "E").

Sample Weight: If a characterization is performed, after mixing the catch, obtain a one-basket sample (approximately 70 pounds) from each net; control and experimental. Then remove all target fish species (e.g., red snapper) and weigh the basket. Enter the weight in kilograms. If a characterization is not performed, enter 99.9.

Total Catch Weight: Enter the weight of the total catch (in kilograms) from the sampled net. Remember to weigh and add any partial baskets. For example: You shovel 9 full baskets and one partial basket. You weigh 1 full basket at 29.73 kg (sample basket) and the partial basket at 14.33 kg. So the total catch weight is as follows: 29.73 kg (sample basket) X 9 (total number of full baskets) + 14.33 kg (partial basket) = 281.9 kg.

Shrimp Total Weight: Enter the weight of all penaeid (brown, white, pink) shrimp. Remember to add in the weight of penaeid shrimp from the characterization sample.

Note: Shrimp species discarded (culled) by the crew (referenced on the characterization form as Penaeus Discard [PENAEUSDISCAR]) are not included in the total shrimp weight; they are only represented in the sample weight. If on a Rock Shrimp trip, Rock Shrimp weights are to be entered on the Station Sheet for total shrimp weights.

Shrimp - Head On or Head Off: Enter "O" if the head is left on the shrimp or "X" if the head is removed. If the vessel is saving both head on and head off shrimp for a particular tow, obtain both weights and enter in comments and the proper conversions will be made back at the laboratory (leave the total shrimp weight blank on the form).

Red Snapper Total Weight: Weigh all red snapper and enter their total weight in kilograms.

Red Snapper Total Number: Enter the total number of red snapper, if none enter zero.

No. of Red Snapper Less Than or Equal (\leq) to 100mm: Enter the total number of red snapper that have a fork length of less than or equal to 100mm (Attach the length frequency form for red snapper). If no red snapper are captured enter zeros and 9's if red snapper were not looked for. **Do Not Leave Blank.**

No. of Red Snapper Greater than ($>$) 100mm: Enter the total number of red snapper that have a fork length greater than 100mm. (Attach the length frequency form for red snapper). If no red snapper are captured enter zeros and 9's if red snapper were not looked for. **Do Not Leave Blank.**

Comments: Enter any appropriate information to the trawl (e.g., nets bogged down with mud, net torn, tire blocking TED). If operation codes other than Z or Y are used add a comment to explain why. **Do Not Write in the Coordinator Comment Section.**

Characterization (one basket) for Each Net: If a characterization was performed, check yes and attach species forms, if not, check no.

Captain's Signature: **THIS IS MANDATORY FOR ALL STATION SHEETS.** At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

CONDITION & FATE FORM

BRD TESTING PROTOCOL

ORG PRO

--	--	--	--	--	--

TRIP NO.

--	--	--

VESSEL

--	--	--

TOW

NUMBER

CONTROL or EXPERIMENTAL NET POSITION <input style="width: 20px; height: 15px;" type="checkbox"/>	CONTROL or EXPERIMENTAL NET POSITION <input style="width: 20px; height: 15px;" type="checkbox"/>
CIRCLE ONE	CIRCLE ONE

CONDITION AND FATE OF BYCATCH PRIOR TO DISCARDING

Check the appropriate boxes.

FISH	FISH
<input type="checkbox"/> MORE THAN 50% OF CATCH ALIVE	<input type="checkbox"/> MORE THAN 50% OF CATCH ALIVE
<input type="checkbox"/> MORE THAN 50% OF CATCH DEAD	<input type="checkbox"/> MORE THAN 50% OF CATCH DEAD
<input type="checkbox"/> NOT DETERMINED (CATCH NOT DUMPED)	<input type="checkbox"/> NOT DETERMINED (CATCH NOT DUMPED)
<input type="checkbox"/> NOT OBSERVED	<input type="checkbox"/> NOT OBSERVED
COMMENTS: _____	COMMENTS: _____
INVERTEBRATES	INVERTEBRATES
<input type="checkbox"/> MORE THAN 50% OF CATCH ALIVE	<input type="checkbox"/> MORE THAN 50% OF CATCH ALIVE
<input type="checkbox"/> MORE THAN 50% OF CATCH DEAD	<input type="checkbox"/> MORE THAN 50% OF CATCH DEAD
<input type="checkbox"/> NOT DETERMINED (CATCH NOT DUMPED)	<input type="checkbox"/> NOT DETERMINED (CATCH NOT DUMPED)
<input type="checkbox"/> NOT OBSERVED	<input type="checkbox"/> NOT OBSERVED
COMMENTS: _____	COMMENTS: _____

PREDATORS OBSERVED

Refer to the table and choose the appropriate number code for each predator type.

PREDATORS OBSERVED	PREDATORS OBSERVED
<input type="checkbox"/> SHARKS	<input type="checkbox"/> SHARKS
<input type="checkbox"/> DOLPHINS	<input type="checkbox"/> DOLPHINS
<input type="checkbox"/> OTHER FISH	<input type="checkbox"/> OTHER FISH
<input type="checkbox"/> SEA BIRDS	<input type="checkbox"/> SEA BIRDS
COMMENTS: _____	COMMENTS: _____

- 0 = Predator not present in area.
- 1 = Predator observed but "not" feeding on organisms exiting BRD.
- 2 = Predator observed "feeding" on organisms exiting BRD.
- 3 = Predator observed but couldn't determine (or could not see) if they were feeding on organisms exiting BRD.
- 9 = Not determined (Observer was not able to check for predator).

ESTIMATED # OF ORGANISMS SEEN EXITING BRD DURING NET RETRIEVAL

Check the appropriate boxes.

ESTIMATED # OF ORGANISMS SEEN EXITING BRD DURING NET RETRIEVAL	ESTIMATED # OF ORGANISMS SEEN EXITING BRD DURING NET RETRIEVAL
<input type="checkbox"/> (1 - 10)	<input type="checkbox"/> (1 - 10)
<input type="checkbox"/> (10 - 50)	<input type="checkbox"/> (10 - 50)
<input type="checkbox"/> (50 - 100)	<input type="checkbox"/> (50 - 100)
<input type="checkbox"/> (100 OR MORE)	<input type="checkbox"/> (100 OR MORE)
<input type="checkbox"/> NONE	<input type="checkbox"/> NONE
<input type="checkbox"/> N/A (BRD Closed)	<input type="checkbox"/> N/A (BRD Closed)
<input type="checkbox"/> NOT OBSERVED <small>(or not able to see.)</small>	<input type="checkbox"/> NOT OBSERVED <small>(or not able to see.)</small>
COMMENTS: _____	COMMENTS: _____

CONDITION and FATE FORM

This form must be completed for each station (TOW)

Trip No.: Enter Trip Number provided by Observer Coordinator.

Vessel: Enter Vessel Code provided by Observer Coordinator.

Tow Number: Transcribe from Station Sheet.

This form is used for both Control and Experimental nets; it is very important that you circle the appropriate type of net. If you have one of each type of net (control and experimental) use the left side of the form for the control net and right side for the experimental net.

Control Net (BRD Typically Closed)

Net Position Control Net: Circle control and enter the net position.

Condition and Fate of Bycatch Prior to Discarding

- 1. Fish:** Select and mark one of the four categories listed: more than 50% of catch alive, more than 50% of catch dead, not determined (catch not dumped), or not observed.
- 2. Invertebrates:** Select and mark one of the four categories listed: more than 50% of catch alive, more than 50% of catch dead, not determined (catch not dumped), or not observed.
- 3. Predators Observed:** Refer to the table on the form and select the appropriate number code for each predator species listed: sharks, dolphins, seabirds, or other fish. Note: if BRD is closed, predators cannot be observed feeding on organisms exiting BRD.
- 4. (Estimated # or Organisms) Seen Exiting BRD during Net Retrieval:** Select and mark one of the seven categories listed: 1 – 10, 10 – 50, 50 – 100, 100 or more, none, N/A (BRD closed), or not observed (or not able to see).

Experimental Net (BRD Typically Open)

Net Position Experimental Net: Circle experimental and enter the net position number of the net. Repeat steps 1-4 for the experimental net.

Note: If observer is sampling only one net for characterization, select either experimental (BRD typically open) or control (BRD typically closed) for the net sampled and complete all fields. For the side not selected, enter "9" for Net Position, "not observed" for Fish and Invertebrates sections of Condition and Fate of Bycatch Prior to Discarding, "9's" for all predator types, and either "N/A (BRD closed)" or "not observed" (whichever is applicable) for Estimated # of Organisms Seen Exiting BRD During Net Retrieval.

SPECIES CHARACTERIZATION FORM

BRD TESTING PROTOCOL

ORG PRO

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TRIP NO.

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VESSEL

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TOW NUMBER

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NET POSITION

Control (C) or Experimental (E)

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COMMON NAME	GENUS						SPECIES						NUMBER		SAMPLE WEIGHT (kg)		SELECT WEIGHT (kg)		
BROWN SHRIMP	F	A	R	F	A	N	T	A	Z	T	E	C	U						
WHITE SHRIMP	L	I	T	O	P	E	N	S	E	T	I	F	E						
PINK SHRIMP	F	A	R	F	A	N	T	D	U	O	R	A	R						
PENAEUS DISCARD	P	E	N	A	E	U	S	D	I	S	C	A	R						
CRABS, LOBSTERS, ETC.	C	R	U	S	T	A	C								1				
OTHER INVERTEBRATES	I	N	V	E	R	T	E								1				
BLACKNOSE SHARK	C	A	R	C	H	A	R	A	C	R	O	N	O						
SPINNER SHARK	C	A	R	C	H	A	R	B	R	E	V	I	P						
FINETOOTH SHARK	C	A	R	C	H	A	R	I	S	O	D	O	N						
BLACKTIP SHARK	C	A	R	C	H	A	R	L	I	M	B	A	T						
ATLANTIC SHARPNOSE SHARK	R	H	I	Z	O	P	R	T	E	R	R	A	E						
BONNETHEAD SHARK	S	P	H	Y	R	N	A	T	I	B	U	R	O						
SMOOTH DOGFISH SHARK	M	U	S	T	E	L	U	C	A	N	I	S							
FLORIDA SMOOTH-NOSE SHARK	M	U	S	T	E	L	U	N	O	R	R	I	S						
LEMON SHARK	N	E	G	A	P	R	I	B	R	E	V	I	R						
OTHER SHARKS NOT LISTED	C	A	R	C	H	A	R												
TROUT	C	Y	N	O	S	C	I												
SNAPPER (OTHER)	L	U	T	J	A	N	U												
LANE SNAPPER	L	U	T	J	A	N	U	S	Y	N	A	G	R						
CROAKER	M	I	C	R	O	P	O	U	N	D	U	L	A						
SOUTHERN FLOUNDER	P	A	R	A	L	I	C	L	E	T	H	O	S						
BLACK DRUM	P	O	G	O	N	I	A	C	R	O	M	I	S						
COBIA	R	A	C	H	Y	C	E	C	A	N	A	D	U						
VERMILLION SNAPPER	R	H	O	M	B	O	P	A	U	R	O	R	U						
RED DRUM	S	C	I	A	E	N	O	O	C	E	L	L	A						
SPOTTED SEATRUT	C	Y	N	O	S	C	I	N	E	B	U	L	O						
KING MACKEREL	S	C	O	M	B	E	R	C	A	V	A	L	L						
SPANISH MACKEREL	S	C	O	M	B	E	R	M	A	C	U	L	A						
LONGSPINE PORGY	S	T	E	N	O	T	O	C	A	P	R	I	N						
OTHER FINFISH-GROUPED	P	I	S	C	E	S								1					
DEBRIS	D	E	B	R	I	S								1					
DOMINANTS / OTHER NOT LISTED																			

SPECIES CHARACTERIZATION FORM - MODIFIED SOUTH ATLANTIC PENAEID SHRIMP

ORGPRO TRIP NO.

VESSEL

TOW NUMBER

NET POSITION

Control (C) or Experimental (E)

COMMON NAME	GENUS	SPECIES	NUMBER	SAMPLE WEIGHT (kg)	SELECT WEIGHT (kg)
BROWN SHRIMP	F A R F A N T	A Z T E C U			
WHITE SHRIMP	L I T O P E N S E T I F E				
PINK SHRIMP	F A R F A N T	D U O R A R			
PENAEUS DISCARD	P E N A E U S	D I S C A R			
BLUE CRAB	C A L L I N E S A P I D U				
CRABS, LOBSTERS, ETC.	C R U S T A C		1		
CANNONBALL JELLYFISH	S T O M O L O M E L E A G				
JELLYFISH FAMILY	C A R Y B D E		1		
OTHER INVERTEBRATES	I N V E R T E		1		
STAR DRUM	S T E L L I F L A N C E O				
ATLANTIC MENHADEN	B R E V O O R T Y R A N N				
SHAD	A L O S A				
SPINNER SHARK	C A R C H A R B R E V I P				
SILKY SHARK	C A R C H A R F A L C I F				
FINETOOTH SHARK	C A R C H A R I S O D O N				
BLACKTIP SHARK	C A R C H A R L I M B A T				
ATLANTIC SHARPNOSE SHARK	R H I Z O P R T E R R A E				
BONNETHEAD SHARK	S P H Y R N A T I B U R O				
SMOOTH DOGFISH SHARK	M U S T E L U C A N I S				
SCALLOPED HAMMERHEAD SHARK	S P H Y R N A L E W I N I				
OTHER SHARKS NOT LISTED	C A R C H A R				
SPOTTED SEATROUT	C Y N O S C I N E B U L O				
SILVER SEATROUT	C Y N O S C I N O T H U S				
WEAKFISH (GRAY TROUT)	C Y N O S C I R E G A L I				
SEATROUT (GENUS)	C Y N O S C I				
SPOT	L E I O S T O X A N T H U				
ATLANTIC CROAKER	M I C R O P O U N D U L A				
SOUTHERN KINGFISH	M E N T I C I A M E R I C				
NORTHERN KINGFISH	M E N T I C I S A X A T I				
RED DRUM	S C I A E N O O C E L L A				
BLACK DRUM	P O G O N I A C R O M I S				
COBIA	R A C H Y C E C A N A D U				
SOUTHERN FLOUNDER	P A R A L I C L E T H O S				
SUMMER FLOUNDER	P A R A L I C D E N T A T				
KING MACKEREL	S C O M B E R C A V A L L				
SPANISH MACKEREL	S C O M B E R M A C U L A				
SCUP	S T E N O T O C H R Y S O				
GAG	M Y C T E R O M I C R O L				
BLACK SEABASS	C E N T R O P S T R I A T				
BANK SEABASS	C E N T R O P O C Y U R O				
ROCK SEABASS	C E N T R O P P H I L A D				
FLORIDA POMPAÑO	T R A C H I N C A R O L I				
BLUEFISH	P O M A T O M S A L T A T				
STURGEON	A C I P E N S				
OTHER FINFISH-GROUPED	P I S C E S		1		
DEBRIS	D E B R I S		1		

SPECIES CHARACTERIZATION FORM - MODIFIED SOUTH ATLANTIC ROCK SHRIMP

ORG PRO TRIP NO.

VESSEL

TOW NUMBER

NET POSITION

Control (C) or Experimental (E)

COMMON NAME	GENUS	SPECIES	NUMBER	SAMPLE WEIGHT (kg)	SELECT WEIGHT (kg)
ROCK SHRIMP	S I C Y O N I				
ROCK SHRIMP CULL	S I C Y O N I	D I S C A R			
BROWN SHRIMP	F A R F A N T	A Z T E C U			
WHITE SHRIMP	L I T O P E N S	E T I F E			
PINK SHRIMP	F A R F A N T	D U O R A R			
PENAEUS DISCARD	P E N A E U S	D I S C A R			
IRIDESCENT SWIMMING CRAB	P O R T U N U G I	B B E S			
LONGSPINE SWIMMING CRAB	P O R T U N U S	P I N I C			
CRABS, LOBSTERS, ETC.	C R U S T A C		1		
OTHER INVERTEBRATES	I N V E R T E		1		
DUSKY FLOUNDER	S Y A C I U M	P A P I L L			
INSHORE LIZARDFISH	S Y N O D U S	F O E T E N			
SHAD	A L O S A				
SPINNER SHARK	C A R C H A R	B R E V I P			
SILKY SHARK	C A R C H A R	F A L C I F			
FINETOOH SHARK	C A R C H A R	I S O D O N			
BLACKTIP SHARK	C A R C H A R	L I M B A T			
ATLANTIC SHARPNOSE SHARK	R H I Z O P I T E	R R A E			
BONNETHEAD SHARK	S P H Y R N A T	I B U R O			
SMOOTH DOGFISH SHARK	M U S T E L U C A	N I S			
SCALLOPED HAMMERHEAD SHARK	S P H Y R N A L	E W I N I			
OTHER SHARKS NOT LISTED	C A R C H A R				
SPOTTED SEATROUT	C Y N O S C I N E	B U L O			
SILVER SEATROUT	C Y N O S C I N O T H U S				
WEAKFISH (GRAY TROUT)	C Y N O S C I R E G A L I				
SEATROUT (GENUS)	C Y N O S C I				
SPOT	L E I O S T O X A N T H U				
ATLANTIC CROAKER	M I C R O P O U N D U L A				
SOUTHERN KINGFISH	M E N T I C I A M E R I C				
NORTHERN KINGFISH	M E N T I C I S A X A T I				
RED DRUM	S C I A E N O O C E L L A				
BLACK DRUM	P O G O N I A C R O M I S				
COBIA	R A C H Y C E C A N A D U				
SOUTHERN FLOUNDER	P A R A L I C L E T H O S				
SUMMER FLOUNDER	P A R A L I C D E N T A T				
KING MACKEREL	S C O M B E R C A V A L L				
SPANISH MACKEREL	S C O M B E R M A C U L A				
SCUP	S T E N O T O C H R Y S O				
GAG	M Y C T E R O M I C R O L				
BLACK SEABASS	C E N T R O P S T R I A T				
BANK SEABASS	C E N T R O P O C Y U R O				
ROCK SEABASS	C E N T R O P P H I L A D				
FLORIDA POM PANO	T R A C H I N C A R O L I				
BLUEFISH	P O M A T O M S A L T A T				
STURGEON	A C I P E N S				
OTHER FINFISH-GROUPED	P I S C E S		1		
DEBRIS	D E B R I S		1		

SPECIES CHARACTERIZATION FORM

SHRIMP CHARACTERIZATION

ORG PRO

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TRIP NO.

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VESSEL

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TOW
NUMBER

NET POSITION

Control (C) or Experimental (E)

	COMMON NAME	GENUS	SPECIES	NUMBER	SAMPLE WEIGHT (kg)	SELECT WEIGHT (kg)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
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29						
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31						
32						
33						
34						
35						
36						
37						
38						
39						

SPECIES CHARACTERIZATION FORM

Trip No: Enter Trip Number provided by Observer Coordinator.

Vessel: Enter Vessel Code provided by Observer Coordinator.

Tow Number: Transcribe from Station Sheet.

Net Position: Enter the net position sample was taken from.

Control (C) or Experimental (E): Enter the appropriate code for the sample net.

Procedure

Obtain approximately one basket of catch from each of the experimental and control nets for species characterization purposes. Weigh each basket and enter the weight on the Station Sheet. Target species (e.g. red snapper and mackerels) and select species (a particular species generally of commercial importance or rare [prior to the trip you will be informed of what commercial species, if any, are select]) should not be included on the sample weight. Once the sample weight has been obtained, separate the penaeid shrimp by species (brown, white, pink), count, and weigh (**head on**). Now, add these shrimp weights to the rest of the nets catch to get total shrimp weight for the sampled net (recorded on Station Sheet). **VERY IMPORTANT:** If the vessel is heading the shrimp, remove the heads from the shrimp obtained from the characterization basket and re-weigh before adding in the shrimp weights.

Processing Remainder of Sample

Species Separation

Become familiar with the species listed on the species characterization form. These organisms will be separated by species, counted and weighed. Weight and length measurements are recorded to the hundredths place; if your value is 0.20 (for example) you are required to fill in the leading zero and the hundredth place zero.

COMMON NAME	GENUS	SPECIES	NUMBER	SAMPLE WEIGHT (kg)	SELECT WEIGHT (kg)
LANE SNAPPER	L U T J A N U	S Y N A G R	5	0 . 2 0	. .
LANE SNAPPER	L U T J A N U	S Y N A G R	5	. 2	. .

**CORRECT
INCORRECT**

If a weight or number cannot be obtained (i.e., accidentally discarded organisms overboard before counting or weighing) 999.99 or 99999 should be entered. Enter 888.88 for weights less than 0.01 kg.

COMMON NAME	GENUS	SPECIES	NUMBER	SAMPLE WEIGHT (kg)	SELECT WEIGHT (kg)	
LANE SNAPPER	L U T J A N U	S Y N A G R	9 9 9 9 9	9 9 9 . 9 9		Discarded Before Weighing and Measuring
LANE SNAPPER	L U T J A N U	S Y N A G R	9 9 9 9 9	5 . 0 3		Obtained Weight but not Total Number
PIN FISH	L A G O D O N	R H O M B O		1 8 8 . 8 8		One Specimen Weight less than 0.01 kg

If you catch a new species not listed on the Species List (see page 169) the new species should be flagged for the Observer Coordinator so it can be added to the Data Base.

Gulf of Mexico Fish Species

Blacknose Shark; Spinner Shark; Finetooth Shark; Blacktip Shark; Atlantic Sharpnose Shark; Bonnethead Shark; Smooth Dogfish Shark; Florida Smoothhound Shark; Lemon Shark; Other Sharks not Listed - use these categories for all species of sharks not listed above;

Trout - this includes all species of sea trout except spotted (speckled) sea trout;

Snapper (Other) - is for "Lutjanus" species only (this does not include wenchman snappers);

Lane Snapper - commonly referred to as a "candy snapper";

Atlantic Croaker - very common, sometimes confused with spot (which has a conspicuous spot just above the pectoral fin);

Southern Flounder – take care not to confuse this with other common flatfish;

Black Drum - juveniles sometimes confused with sheepshead;

Cobia - juveniles sometimes confused with shark suckers;

Vermilion Snapper - easily confused with wenchman snapper (which are usually more common in offshore trawls);

Red Drum (Redfish);

Spotted (Speckled) Seatrout;

King Mackerel - deep posterior downward slope to lateral line;

Spanish mackerel - shallow posterior slope to lateral line; and

Longspine Porgy - very common on offshore shrimp grounds.

East Coast Fish Species

Shad - all species of "Alosa" genus;

Spinner Shark; Silky Shark; Finetooth Shark; Blacktip Shark; Atlantic Sharpnose Shark; Bonnethead Shark; Smooth Dogfish Shark; Scalloped Hammerhead; Other Sharks not Listed - use these categories for all species of sharks not listed above;

Spotted (Speckled) Seatrout;

Silver Seatrout - easily confused with weakfish. Pigment on tongue not defined to tip but scattered more uniformly over surface, body silvery without noticeable spots and anal fin generally pale to slightly yellow in juveniles. Anal fin of weakfish typically exhibits a more noticeable yellow color than the silver seatrout;

Atlantic croaker - sometimes confused with spot (which has a conspicuous spot just above the pectoral fin);

Southern and Northern Kingfish (whiting) - easily confused especially as juveniles. Distinctive characteristics of the northern kingfish - typically has an extended second dorsal spine, a dark "v" shaped pattern extending from nape and apexing at pectoral fin followed posteriorly by a series of bars. The southern kingfish lacks an extended second dorsal spine and the two sides of the "v" do not come together to form an apex (the pigmentation of the "v" and subsequent bars is typically considerably lighter or almost faint);

Red Drum (Redfish);

Black Drum - juveniles sometimes confused with sheepshead;

Cobia - juveniles sometimes confused with shark suckers;

Southern and summer flounder - be careful not to confuse with other common flatfish trawls;

King Mackerel - deep posterior downward slope to lateral line;

Scup - this resembles the Gulf of Mexico longspine porgy;

Gag - often confused with black grouper;

Black Seabass;

Rock Seabass; Florida Pompano; Bluefish; and Sturgeon.

All remaining organisms will be separated into the following categories:

A group weight should be obtained for each of the four categories (listed below) and entered on the species characterization form. You do not have to count each organism within a category a default code of 1 has already been entered in the number column. 999.99 should be entered if a weight cannot be obtained (i.e., accidentally discarded organisms overboard before weighing). Enter 888.88 for weights less than 0.01 kg.

1. **Crabs, Lobster, etc. (Crustacea):** includes shrimp other than brown, white, and pink (mantis shrimp, sugar shrimp, and seabobs). Other crustaceans such as crabs, lobsters, etc. should be included in this group as well.
2. **Other Invertebrates:** includes organisms like squid, jellyfish, starfish, sea pansies, shells, etc.
3. **Other Finfish (Pisces):** includes all other fish, skates and rays not listed on the pre-printed Station Sheet. If the dominant fish species in your sample is not listed on the pre-printed station sheet enter the common and scientific name, count and weight for that species group on the pre-printed list under other species not listed.
4. **Debris:** Includes miscellaneous non-living debris such as of mud, rocks, shells, sticks, etc.

Other Species Not Listed

Use this area to note other species of interest (i.e., unusual) or other important species that seem dominant but do not appear on species list (page 169). Shrimp species discarded (culled) by the crew are entered as Penaeus Discard (PENAEUSDISCAR) with the total number and weight.

Select Species

If a particular species is to be selected out of the total catch, and not just the sample, record the species group weight in the select weight column. Select species are not included in the sample weight. Generally this occurs when the species is of commercial importance or rare. The project manager will inform you prior to the trip what commercial species (if any) are select. If a species is rare (i.e., not generally trawl caught) select that species out of the entire catch for the net selected for sampling (Note: If a species is selected out of the total catch you must select it out of both nets to prevent side bias). **If the catch was worked up in its entirety (i.e., less than one basket), all entries will be in the select column.**

The blank Species Characterization Form (Shrimp Characterization) can be used as a page two for the other Species Characterization Forms if space is needed to list species not listed on the forms.

LENGTH FREQUENCY FORM

Length Frequency Form(s) should be completed for all target species present in the sample. Enter length measurements in millimeters. For the Gulf of Mexico, all red snapper in the net should be measured. For the South Atlantic, all weakfish, king and Spanish mackerel should be measured.

Trip No: Enter Trip Number provided by Observer Coordinator.

Vessel: Enter Vessel Code provided by Observer Coordinator

Tow No.: Transcribe from Station Sheet.

Net Position: Transcribe from Station Sheet.

Genus-Species: Enter the first seven characters of the genus and the first six characters of the species name. The highlighted last two squares are for the measurement code, which indicates the type of measurement that should be utilized (appendix 10). The measurement code is 01 (measure fork length) for red snapper and Spanish mackerel. For penaeid shrimp, the measurement code is 03 (measure from tip of rostrum to tip of telson). List the measurements in the columns. Use adjacent column(s) if more than 30 lengths are obtained, and use additional forms if needed. List the number of broken (unmeasurable) specimens in the block below the respective column.

For example,

LUTJANU	FARFANT
CAMPEC01	AZTECU03
99	123
88	110
50	142

NUMBER OF BROKEN (UNMEASUREABLE)	1	NUMBER OF BROKEN (UNMEASUREABLE)	0
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Length Frequency/Weight Form Continued: If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form. (Page 1 of 3 , Page 2 of 3 , etc.)

LIST OF AND ORDER OF BY-CATCH DATA FORMS

Required for the completion of all By-Catch trips:

Cover Sheet

Trip Report – Page 1

Vessel Information Form

Trip Report – Page 2 (Tows Not Sampled)

Trip Report – Page 3 (Sampled Tow Log)

Safety Check-off Form – Page 1

Safety Check-off Form (Station Bill) – Page 2

Observer Feedback Form

Trip Completion Form

Try Net Tow Summary

Gear Specification Form – Page 1

TED/BRD Specification Form – Page 2

Station Sheet (tows not sampled)

Station Sheet (sampled tows)

Condition and Fate Form (sampled tows)

Species Characterization Forms (complete appropriate forms based on type of trip)

- BRD Testing Protocol
- Modified South Atlantic Penaeid Shrimp
- Modified South Atlantic Rock Shrimp
- Shrimp Characterization

Length Frequency Form (Target Species) / BRD Testing Protocol

Sea Turtle Life History Form – Pages 1 and 2 (as required)

REEF FISH DATA COLLECTION

Onboard data collection for reef fish bycatch characterization will consist of sampling catches of commercial fishermen operating in the U.S. Gulf of Mexico. Observers will gather data on species composition and abundance from each set sampled. Personnel at NOAA Fisheries Service's Southeast Fisheries Science Center (SEFSC) Galveston Laboratory have prepared the procedures outlined below for sampling, which are consistent with the Southeast Area Monitoring and Assessment Program's (SEAMAP) data management system. We recommend this protocol for use in all regional reef fish bycatch assessment programs to facilitate the accessibility and analysis of integrated data sets.

Onboard observers will identify all fish to the species level from reef fish sets. An individual weight and length measurement for each specimen as well as fate or health condition of all fish, including discarded individuals, will be recorded. Selected species will be tagged and released. Sets will be randomly sub-sampled if warranted.

Data collected by observers aboard reef fish boats will be completed on the appropriate forms upon arrival at the dock. Captains may request on site photocopies of data, whereby the observer will make arrangements to fulfill this request. Upon returning to the dock, observers must thoroughly review all data sheets (i.e., triple-check all entries). Completed trip data sets must then be mailed promptly to: NOAA Fisheries, 4700 Avenue U, and Galveston, Texas 77551 Attention: Liz Scott. Photocopies of all data, including logbooks, need to be retained in the event that the original data are not received. Observers will retain any and all photocopies until instructed by the Observer Coordinator to properly dispose of them.

A letter of intent explaining project objectives will be provided to the captain and/or owner of each vessel during the initial stages of a trip. The observer coordinators are responsible for talking to the captain/owner **at least once** prior to each trip to ensure clarification of data collection methods.

Each observer is required to read and understand the SEFSC Observer Safety and Conduct Manual (see page 15), as well as general information and safety requirements set forth in the Galveston Laboratory's Observer Program Guidelines.

COMPLETING and SUBMITTING DATA FORMS

Fishery observers will be placed year-round on reef fish vessels operating in the US Gulf of Mexico and southeastern Atlantic. Sampling effort allocation will be based on current effort trends for all areas. Reef fish fisheries are hand line, bandit reel, longline, modified buoy and spear fishing.

Vessel length, hull construction material, gross tonnage, engine horsepower and crew size will be obtained for each vessel. Economic data relative to fuel, oil, ice, bait and associated

vessel costs may be collected on a per trip basis. For each set (the location of gear placement at a defined time) the type, number and construction material of the fishing gear will be recorded.

Latitude, longitude, depth, and environmental parameters including water clarity, sea state and bottom type will be recorded at the start of each set. Soak or fishing time, the time the gear remains in the water, will be calculated.

Fishery-specific data will be obtained from each set made aboard reef fish vessels (hand-line, bandit reel, longline, modified buoy [JUG] and spear fishing). If a set cannot be sampled due to time constraints or weather conditions, a minimum of location, depth and fishing time will be recorded. Non-target and undersized target species will be processed first, recording length, weight and fate prior to release (alive, dead, or unknown). Air bladders of live fish will be punctured in the same manner as demonstrated by the captain and crew. Retained species are then processed, recording length and weight. Captures and sightings of sea turtles and marine mammals will be documented.

Data will be computerized, edited and archived on a per trip basis. The final analyses will include t-tests, ANOVA, linear and/or multiple regression and spatial statistics, ratio estimation, and Bayesian procedures.

In the following sections, copies of each of the data forms are included. It is imperative that you complete each form correctly. The first three forms listed below must be submitted, for each type of reef fish trip (hand line, bandit reel, longline and spear fishing):

- 1. Trip Report Form Page 1**
- 2. Trip Report Form Page 2 (Sets not Sampled)**
- 3. Trip Report Form Page 3 (Sampled Set Log)**

Completion of the remaining 5 data forms is dependent on the type of reef fish trip (bandit reel [BR], hand line [BR], longline [LL], modified buoy [JUG] and spear fishing [SF]). Gear specification forms are required for each trip, however; completion of forms 2 through 5 is dependent on the collection of fishery specific data.

- 1. Gear Specification Form (BR-GS) (LL-GS) (JUG-GS) (SF-GS)**
- 2. Station Sheet (BR-SS) (LL-SS) (JUG-SS) (SF-SS)**
- 3. Length Frequency/Weight Form (BR-LF) (LL-LF) (JUG-SS) (SF-LF)**
- 4. Sea Turtle Life History Form** (only if applicable)
- 5. Tag Reporting Form** (only if applicable)
- 6. Protected Resources Capture Report** (only if applicable)

COLLECTION of REEF FISH TRIP REPORT INFORMATION

Complete the following forms for each reef fish trip made:

1. Trip Report (Reef Fish) Page 1
2. Trip Report (Reef Fish) Page 2 (Sets not Sampled)
3. Trip Report (Reef Fish) Page 3 (Sampled Set Log)

This information is filled out when the trip is complete. These forms make up a compilation of facts that sum up the trip.

TRIP REPORT - REEF FISH

TRIP # _____

VESSEL NAME _____ ID # _____ VSCODE _____ LTH _____
(CG DOCUMENTATION #) (LENGTH)

VESSEL RIGGING : LONGLINE _____ HANDLINE _____ BANDIT _____ JUG _____ SPEAR _____
(CHECK ONE) STATE CITY

PORT OF DEPARTURE _____ / _____

OBSERVER NAME _____

ORGANIZATION _____

TRIP DATES _____ - _____ YEAR _____
(dates, total # of travel and sea days allotted for this trip)

OBSERVER DAYS _____

DATES AT SEA _____ - _____ YEAR _____
(dates, total # of days at sea from port to port)

SEA DAYS _____

24 HR. DAYS. FISHED (including sets not sampled)
 TOTAL TIME (set hours) _____ / 24 = _____

STARTING SET # _____
 ENDING SET # _____
(UNSAMPLED SETS DO NOT GET NUMBERED)

AVERAGE SET TIME

TOT.TIME SET HOURS [SAMPLED]	(1)	(1)	(2)	(3)	(4)
TOT.TIME SET HOURS [UNSAMPLED]	(2)	$(\text{_____} + \text{_____}) / (\text{_____} + \text{_____}) = \text{_____}$			
TOT.# SETS SAMPLED	(3)				
TOT.# SETS UNSAMPLED	(4)				

AREAS FISHED

STAT.AREA #						
INSHORE						
NEARSHORE ≤ 60'						
OFFSHORE > 60'						

(ENTER APPLICABLE STATISTICAL AREA # THEN THE # OF SETS "SAMPLED" IN THE APPROPRIATE ZONE BLOCK)

TURTLES CAPTURED

SPECIES	LAT/LONG	DATE	SET NO.
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____

TURTLES SIGHTED

SPECIES	LAT/LONG	DATE	SET NO.
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____

COMMENTS

SIGNATURE _____

TRIP REPORT - REEF FISH

SETS NOT SAMPLED

VSCODE _____

TRIP DATES _____

TRIP # _____

NO.	DATE	LATITUDE	LONGITUDE	HOURS SOAKED	DEPTH (FT)	STAT ZONE	REASON NOT SAMPLED
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							

TRIP REPORT FORMS

Trip No: Enter Trip Number provided by Observer Coordinator.

Vessel Name: Enter the full name of the vessel.

ID #: (Vessel Documentation Number). Enter the Coast Guard Documentation number.

Vessel Code (VSCODE): Enter Vessel Code provided by Observer Coordinator.

Length (LTH): Transcribe from Vessel Information Form.

Vessel Rigging (check one): Check the appropriate answer(s). Note: If Bandit reels and Handline are used during the same trip check both.

Port of Departure: Enter the STATE and CITY from where the vessel departed.

Observer Name: Print your full name.

Organization: Enter the organization conducting the survey (e.g., NOAA, Foundation, etc.).

Trip Dates: Enter month, day, and year that you left the laboratory (or home) and began traveling to the vessel. Enter the month and day that you returned to your final destination. This includes days spent in motels waiting for the vessel to depart and/or transportation and return to the laboratory or home (ex., 3/5 - 3/10/08).

Observer Days: Enter the total number of days of your trip. For the above example, enter 6. Any part of a day constitutes an observer day.

Dates at Sea: Enter the dates (departure-arrival) that you actually spent at sea (ex., departure at 3:30pm 3/6/08, arrival 2:00am 3/9/08).

Sea Days: Enter the total number of days spent at sea (for the above example, 4). Any part of a day spent at sea is considered a sea day. Please double check this value, and be sure you count the starting day.

24 Hr. Days Fished: Enter the total number of set hours, including sets sampled and sets not sampled. Divide this number by 24 to get the total number of 24 hr days fished. For example, (4.4 hours sampled + 6.5 hours unsampled) / 24 = 0.5

Starting Set No.: This will always be 001 (UNSAMPLED SET ARE NOT NUMBERED).

Ending Set No.: Enter the last set number (UNSAMPLED SET ARE NOT NUMBERED).

Average Set Time: Compute and enter value in spaces provided. Include set times for sets not sampled in your calculation.

Areas Fished

Stat. Area No.: Enter the appropriate STAT ZONE (s) where sampled sets occurred (e.g., 18, 20, see appendix 11) these zones should correspond to what is listed on the Station Sheets.

Next, under the stat zone, enter the total number of sets completed **INSHORE** (areas inside the COLREG lines [line of demarcation that closes off bays and barrier islands]). Enter the total number of sets completed.

Enter the total number of sets completed **NEARSHORE** (water depth \leq 60 ft., all waters outside the inshore line outward into the Gulf of Mexico to the 10 fathom contour line). Enter the total number of sets completed **OFFSHORE** (water depth $>$ 60 ft).

Turtle Captured

Species: Enter the species (enter unknown if a positive identification could not be made).

Lat/Long: Enter the starting latitude and longitude of the set, or lat/long at the time the turtle is taken onboard.

Date: Enter the date of capture.

Set Number: Enter the set number that the turtle was captured in. If the turtle was captured on a set not sampled, list closest sampled set number and note in comments.

Turtle Sighted

Species: Enter the species if positive identification is made, or unknown.

Lat/Long: Enter the latitude and longitude of the vessel at the time turtle was sighted.

Date: Enter the date of sighting.

Sets Not Sampled – Trip Report Page 2

On page 2 of the trip report re-enter the vessel code, trip dates and trip no. Enter the following information for sets not sampled (or unsampled sets): date, latitude, longitude, hours soaked, depth (ft.), stat zone and reason for not sampling. Remember unsampled sets are not given set numbers. They are unsampled simply due to time constraints or observer choice

(some reasons for not sample are observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

SAMPLED SET LOG – Trip Report Page 3

List, in order, all sets sampled during the trip. The following information should accompany each set listed:

Date: Using two digits for month, day, and year (MO/DY/YR) enter the appropriate information.

Set No.: Enter the set number. The set number begins with "001" for each trip.

Time In: Enter in military time (0001-2359), when the gear was first deployed for this set.

Time Out: Enter in military time (0001-2359), when the gear was removed from the water.

Soak/Fishing Time: To calculate fishing time the procedure is as follows:

Subtract the TIME IN from TIME OUT. Be sure to convert minutes to tenths of an hour prior to entering on the station sheet. (i.e., if the TIME IN is 1331 and the TIME OUT is 1439 then the fishing time was one hour and eight minutes or 1.1 hours).

Depth (feet): Enter the Water Depth on the set in feet.

State Zone: Enter the statistical zone at set time in.

BANDIT REEL DATA FORMS

Complete the following forms for all Bandit Reel (GB) and Hand Line (GH) Trips.

1. Gear Specification Form (BR-GS)
2. Station Sheet (BR-SS)
3. Length Frequency/Weight Form (BR-LF)
4. Sea Turtle Life History Form (Complete only if a turtle is captured or sighted)
5. Tag Reporting Form (only if applicable)
6. Protected Resources Capture Report (only if applicable)

GEAR SPECIFICATION FORM - BANDIT REEL

ORG PRO

--	--	--	--

TRIP NO.

MO DAY YR

--	--	--	--

DATE

--	--	--

OBSERVER CODE

--	--	--

SET NO.

--

GEAR CODE

ROD MOUNT	
<input type="checkbox"/> Fixed	<input type="checkbox"/> Portable
REEL TYPE	
<input type="checkbox"/> Hand	<input type="checkbox"/> Electric
<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Other
Comments:	

HOOK TYPE # 1	
Hook Type: <input type="checkbox"/> J-Hook <input type="checkbox"/> Circular <input type="checkbox"/> Treble <input type="checkbox"/> Lure <input type="checkbox"/> Other	Hook Shape: <input type="checkbox"/> Straight <input type="checkbox"/> Offset <input type="checkbox"/> Double <input type="checkbox"/> Triple
_____ / 0	_____ °
Hook Size _____	Manufacturer/Style: _____
Shaft Length <input type="text"/> . <input type="text"/> <input type="text"/> in.	Point to Shaft <input type="text"/> . <input type="text"/> <input type="text"/> in.
Hook Material: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Other <input type="checkbox"/> Unknown	
Comments:	

MAIN LINE MATERIAL	
<input type="checkbox"/> Mono	<input type="checkbox"/> Poly
<input type="checkbox"/> Nylon	<input type="checkbox"/> Cable
<input type="checkbox"/> Other	
Main Line Cable Test <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> lbs	
Comments:	

HOOK TYPE # 2	
Hook Type: <input type="checkbox"/> J-Hook <input type="checkbox"/> Circular <input type="checkbox"/> Treble <input type="checkbox"/> Lure <input type="checkbox"/> Other	Hook Shape: <input type="checkbox"/> Straight <input type="checkbox"/> Offset <input type="checkbox"/> Double <input type="checkbox"/> Triple
_____ / 0	_____ °
Hook Size _____	Manufacturer/Style: _____
Shaft Length <input type="text"/> . <input type="text"/> <input type="text"/> in.	Point to Shaft <input type="text"/> . <input type="text"/> <input type="text"/> in.
Hook Material: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Other <input type="checkbox"/> Unknown	
Comments:	

LINES OFF MAIN LINE	
Length 1: <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> Feet	Length 2: <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> Feet
Construction: <input type="checkbox"/> Twisted <input type="checkbox"/> Single	
<input type="checkbox"/> Mono	<input type="checkbox"/> Poly
<input type="checkbox"/> Nylon	<input type="checkbox"/> Cable
<input type="checkbox"/> Wire	<input type="checkbox"/> Other
Test <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> lbs	
NO. of Lines <input type="text"/> <input type="text"/>	
Comments:	

HOOK TYPE # 3	
Hook Type: <input type="checkbox"/> J-Hook <input type="checkbox"/> Circular <input type="checkbox"/> Treble <input type="checkbox"/> Lure <input type="checkbox"/> Other	Hook Shape: <input type="checkbox"/> Straight <input type="checkbox"/> Offset <input type="checkbox"/> Double <input type="checkbox"/> Triple
_____ / 0	_____ °
Hook Size _____	Manufacturer/Style: _____
Shaft Length <input type="text"/> . <input type="text"/> <input type="text"/> in.	Point to Shaft <input type="text"/> . <input type="text"/> <input type="text"/> in.
Hook Material: <input type="checkbox"/> Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Other <input type="checkbox"/> Unknown	
Comments:	

NUMBER OF HOOKS	
Total No. of Hooks <input type="text"/> <input type="text"/> <input type="text"/>	

TRACE HOOK W / DIMENSIONS BELOW	

SKETCH GEAR CONFIGURATION & PLACEMENT	
Gear Description:	

GEAR SPECIFICATION FORM – BANDIT REEL

Complete one gear specification form for each gear type used during fishing operations. Changes to any gear setting or configuration require completion of additional forms for the affected sets.

Trip No: Enter Trip Number provided by observer coordinator.

Date: Enter the starting set number date, or the date when the gear was first used.

Observer: Enter your assigned observer code.

Set Number: Enter the starting set number. If gear changes are made, enter the set number when the gear was first used.

Gear Code: Gear codes are designated by the observer; they should always start with the letter "A" and progress through the alphabet, DO NOT SKIP LETTERS. For example if reels 1, 2 and 3 have the same configuration and reel 4 is different, then 1, 2 and 3 are assigned gear code "A" and reel 4 is assigned gear code "B". Any changes in gear configuration result in a new gear code.

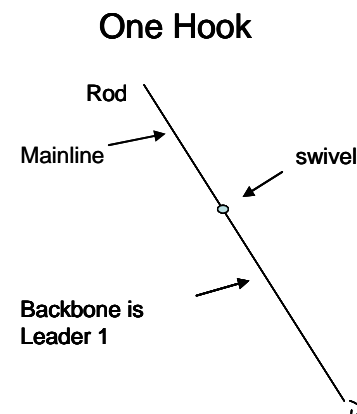
Rod Mount: Enter and "X" in the appropriate square that corresponds to the type of mount. A rod is only considered portable if it is fished by hand. If a portable rod is placed in a rod holder while it is fished, it is no longer considered portable and should be referenced as a fixed rod.

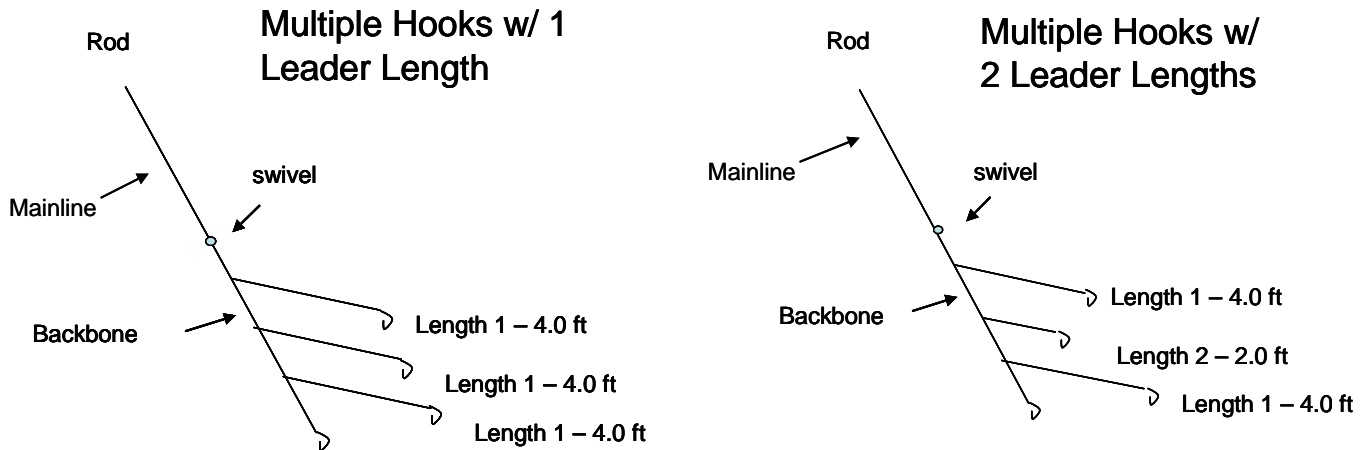
Reel Type: Enter an "X" in the appropriate square that corresponds to the reel type. If you mark "Other," then enter an explanation in the **Comments** section.

Main Line Material: Enter an "X" in the appropriate square that corresponds to the material of the line. If you mark "Other," then enter an explanation in the **Comments** section.

Main Line Cable Test: Enter the test or breaking strength of the main line in pounds. Ask the captain for this information. Enter any comments necessary to better describe entries.

Lines off Main Line: Measure the length (in feet) from the hook's eye (swivel or point of attachment) to the line's end (backbone), including snaps or clips, if any. An extra length field (length 2) has been added for additional lines off the main line. If there are more than two leader lengths add additional lengths in the comments section. If the main line is the leader enter 0.0 feet for length 1 and all characteristics of main line such as type of material and test pounds.





Construction: Enter an "X" in the square that corresponds to the construction of the line.

Material: Enter an "X" in the appropriate square that corresponds to the material of the line. If you mark "Other," then enter an explanation in the **Comments** section.

Test: Enter test or breaking strength of the line in pounds (ask captain for this information).

Number of Lines: Enter the number of lines off the main line (If no leader is used [i.e., mainline attached straight to the hook] then the number of lines is still one).

Lines off Main Line Comments: Enter comments necessary to better describe entries above.

Number of Hooks: Enter the total number of hooks associated with this gear configuration.

Sketch Gear Configuration and Placement: Sketch the gear configuration.

Hook Type: Enter an "X" in the square that best describes the hook shape (see appendix 13). If you mark "Other", then enter the hook types in the **Comments** section. If more than one hook or more than one type of hook is used with one piece of bait (with one hook being threaded through the eye hole of the next hook) you should check all hook types that apply and "Double" or "Triple". This is counted as one hook for "Total No. of Hooks". A hook is considered a **lure** if there is an object attached to the hook designed to create movement, vibration, and color to attract fish. For example if you have a J-hook with a spoon attached to it. You should check both J-hook and Lure. Space is provided to record up to three different types of hooks.

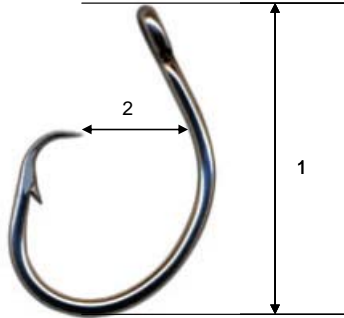
Hook Shape: Enter an "X" in the appropriate square.

Hook Size: Enter hook size, for example 10/0.

Manufacturer/Style: Enter manufacturer/styles, for example MUSTAD/39960D.

Degrees Offset: Enter the Degrees Offset.

Hook Measurements: Record “Hook Shaft Length” and “Hook Point to Shaft” measurements. If it is a double or triple hook setup with more than one hook size, enter the second or third hook measurements in the comments section.



1. Hook Shaft Length: Measure the distance (in inches) from the hook eye to the point of maximum curvature on the bent portion of the hook. Shaft length is in effect the total length of the hook.

2. Hook Point to Shaft: Measure the shortest distance (in inches) from the point of the hook to the shaft of the hook.

Hook Material: Enter an "X" in the appropriate square that best describes the hook materials. If you mark "Other", then enter an explanation in the **Comments** section.

Hook Comments: Enter comments necessary to better describe entries above.

Trace Outline of Hook with Dimensions in Space Below: If possible, lay hook onto paper and trace. Include in diagram, hook shaft length and hook point to shaft measurements.

COLLECTION OF BIOLOGICAL DATA – BANDIT REEL

The First Sets - During the first one or two sets, take this time to observe and to assist the crew. You should observe how the gear is being deployed, key out unknown fish, get a feel for the data sheets and **determine how many reels you would be able to sample**. You do not have to record any information for these sets, other than the date, latitude, longitude, depth, hours soaked and reason for not sampling. This information should be recorded in your logbook, later on the Trip Report and you will also need to fill out a station sheet. Remember unsampled sets are not given set numbers. Some reasons for not sampling are observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc. You should also at this time number the reels. For example, Reel #1 - starboard side nearest wheelhouse, Reel #2 - starboard side stern, etc. Keep the same numbering scheme throughout the trip.

Selecting a Reel for "Sampling" - In the event that you are unable to sample every reel due to time constraints or a large number of reels, a random table of numbers will be used to determine which reels to sample during a set. The reason for using this table is to reduce bias relative to a particular reel or reel position on the vessel (one reel might fish better than another, or the starboard-side reel might fish better than the port-side reel). The following table has up to 12 reels listed. Disregard any number that does not apply to your vessel, or a number repeated twice in a series. As you follow across the table mark the numbers out with a pencil to avoid confusion.

6	6	7	12	1	6	2	4	9	8	10	11
5	1	5	8	6	11	3	4	8	3	3	8

An example, your vessel has eight reels and you determined that you could sample four of the reels or 50% of the reels. Using the random table of numbers shown below the four reels selected for sampling would be 6, 7, 1, and 2. Continue to sample the selected reels for the duration of this set.

Set # 001

6	8	7	12	1	8	2	4	8	8	10	11
5	1	5	8	6	11	3	4	8	3	8	8

For the next set (Set # 002), select the next four numbers on your table to determine which reels to sample. You should have selected reels 4, 8, 5, 1. Continue sampling these reels for the duration of this set.

Set # 002

6	8	7	12	1	8	2	4	8	8	10	11
5	1	5	8	6	11	3	4	8	3	8	8

If during the second set, all eight reels (6,7,1,2,4,8,5,1) were set three times each, then when you fill out the station sheet, the total number of reels set would be 24 (8 x 3) and the total number of reels sampled is 12 (4 x 3). **Note – this is a basic example, refer to the observer coordinators for sampling specifics.

Sets Not Sampled - If you are unable to sample every set due to observer choice or time constraints, record in your **logbook** and later on the **Trip Report**, the date, location, depth, set

times, and reason you did not sample. Since you did not sample these, do not number them consecutively as sets. Station sheets still need to be filed out for not sampled (unsampled sets).

Sampling Procedures

- 1. Fish Identification:** Identify the fish to species level. Record the common name, genus and species on the length frequency/weight form. Use common names located in the appendix.
- 2. Fish Length Measurement:** Record the length of the fish in **millimeters**. Care will be taken to use the proper length measurement code which is species specific (see appendix 10). Write the length measurement code used in the **LENGTH CODE** column on the length frequency/weight form.
- 3. Fish Weight Measurement:** Record the weight of the fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form.
- 4. Fish Fate:** Record the fate of the fish using the fate codes found at the bottom of the length frequency/weight form. Remember to use the sink or swim method. Use fate code "U" Unknown Discard if you are unable to determine if the fish sank or swam (dark or rough conditions).
- 5. Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place an "X" on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 6. Air Bladders:** If the air bladder is punctured (in released fish), enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.
- 7. Length Frequency/Weight Form Continued:** If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form.

STATION SHEET BANDIT REEL

ORG PRO

TRIP NO.

SET NO.

OBSERVER

MO DAY YR

DATE

TIME IN

Degree Minutes Seconds

LATITUDE IN

Degree Minutes Seconds

LONGITUDE IN

STAT ZONE

SEA STATE

TIME OUT

TOTAL # of REELS

VESSEL (CHECK ONE):

ON ANCHOR _____

DRIFTING _____

TROLLING _____

UNKNOWN _____

(ATTACHED to RIG)

LIST THE FOLLOWING FOR ALL REELS: REEL #, GEAR CODE, NUMBER OF TIMES A REEL WAS SET, NUMBER OF REELS SAMPLED

Reel #	Gear Code	# of Reels Set	# of Reels Sampled	Reel #	Gear Code	# of Reels Set	# of Reels Sampled	Reel #	Gear Code	# of Reels Set	# of Reels Sampled

FISHING TIME

HRS

AVG. HAUL IN TIME

MIN

PREDATORS OBSERVED

 SHARKS
 DOLPHINS
 SEA BIRDS
 OTHER FISH

0 = PREDATOR NOT PRESENT IN AREA

1 = PREDATOR OBSERVED BUT NOT FEEDING

2 = PREDATOR OBSERVED FEEDING ON BAIT (ON HOOK)

3 = PREDATOR OBSERVED FEEDING ON CAPTURES (ON HOOK)

4 = PREDATOR OBSERVED FEEDING ON CAPTURES AND BAIT (ON HOOK)

5 = PREDATOR OBSERVED BUT COULD NOT DETERMINE IF FEEDING

6 = PREDATOR OBSERVED FEEDING ON DISCARDED CAPTURES

7 = PREDATOR OBSERVER FEEDING ON DISCARDED BAIT

8 = PREDATOR OBSERVER FEEDING ON DISCARDED CAPTURES AND BAIT

9 = NOT OBSERVED

BAIT (Check all that apply)

 Squid
 Mackerel
 Herring
 Other _____
 Other _____
 Other _____
 Artificial

STATE OF BAIT (Check Whole or Cut then check all that apply for each type of bait used.)

Whole	Cut	Fresh	Frozen	Salted	Live

TARGET SPECIES: List all targeted species for this set using genus species format.

WATER DEPTH

FEET

TOTAL NO.

REELS SET

TOTAL NO.

REELS SAMPLED

TOTAL NO.

HOOKS SET

TOTAL NO.

HOOKS SAMPLED

APPROX.

FEET

SECCHI DISK DEPTH

WATER CLARITY

FEET

BOTTOM TYPE

SCALE TYPE

DIGITAL (D), MECHANICAL (M)
BOTH (B) or UNKNOWN (U)

COORDINATOR COMMENTS:

OBSERVER COMMENTS:

CAPTAIN'S SIGNATURE:

BR-SS

STATION SHEET – BANDIT REEL

Complete one station sheet for each set. This form must be filed out for both sampled and unsampled sets. For sets not sampled (or unsampled sets) enter the following information: trip number, 9 for set number, observer code, date, time in and time out, latitude, longitude, statistical zone, sea state, and reason for not sampling.

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with "001" for each trip. Sets are based on fishing location; any change in location is considered a new set. Remember unsampled sets are not given set numbers and are not sampled (due to: observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

Observer: Enter your assigned observer code.

Date: Enter the date the Set started (use two digits for month, day, and year (MO/DY/YR)).

Time In: Enter in military time (0001 - 2359) the time when the first hook enters the water.

Latitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds. Ask the captain if the LORAN or GPS **unit reads in degrees, minutes, and seconds or in degrees, minutes, and hundredths of a minute**. If the unit reads in hundredths of minutes, multiply the last two digits (as a decimal figure) by 60 to obtain the seconds (e.g., .88 x 60 = 52.8 seconds, this is rounded up to 53 seconds [see appendix 12]). If coordinates are given in LORAN the reading should be written above the space provided for GPS units (leaving GPS units blank). The units will be converted in the lab and filled in by the Observer Coordinator.

Longitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds.

Stat Zone: Enter the statistical zone at set (time in) (appendix 11).

Sea State: Enter the number that best describes the sea state (wave height):

1 = 0-2 feet, 2 = 3-5 feet, 3 = 6-8 feet, 4 = 8+ feet.

Time Out: Enter in military time (0001 - 2359) the time when the last hook leaves the water.

Total # of Reels: Enter the total number of reels used during this set (remember to include reels sampled and reels not sampled). For example, there are a total of 10 reels on your vessel. For this set the vessel is fishing with 6 reels, you decide you can sample 4 reels the 2 others you cannot sample due to deck space. The total number of reels used would be 6.

Vessel (check one): While fishing was the vessel On Anchor (if vessel is tied too a rig, this is still on anchor), Drifting (if vessel is motor fishing, this is still drifting), Trolling or Unknown?

Gear Configurations - List the following for all sampled and unsampled reels: Reel #, Gear Code, number of times reel was set (# of Reels Set), and number of times set reel was sampled (# of Reels Sampled). For example, for gear configuration 1A the reel was set (dropped) 3 times but only 2 drops were sampled, you would reference 3 of 2 in the spaces provided.

Fishing Time: To calculate fishing time the procedure is as follows: Subtract the TIME IN from TIME OUT. Be sure to convert minutes to tenths of an hour prior to entering on the station sheet. (i.e., if the TIME OUT is 1439 and the TIME IN is 1331 then the fishing time was one hour and eight minutes or 1.1 hours (see appendix 12)).

Avg. Haul in Time: Enter the amount of time it takes to bring fish up from fishing depth to surface. This is an average of all reels for this set. There is no calculation necessary and generally changes with fishing depth.

Predators Observed: Select and mark one of the 10 categories listed for each of the 4 predator types. If the predator observed is marine mammals, other than a dolphin, specify the type of marine mammal in the observer comments section and circle marine mammal on the data form.

Bait: Check all bait types used for this set, if a bait type other than the ones listed are used reference it in the space labeled other. For each type of bait listed you must also reference the **State of Bait**. Check if the bait is whole or cut then check if the bait is fresh, frozen, salted or live. Check all that apply. Whole is only used if the bait is a whole fish. If an artificial lure is used check the box next to artificial.

Target Species: List all species being targeted for the set in genus species format (i.e. LUTJANUCAMPEC, EPINEPHMORIO, and EPINEPHFLAVOL). Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169), **DO NOT reference common names**.

Water Depth: Enter the bottom depth in feet.

Total Number of Reels Set: Enter total number set at this location. Reel set refers to how many times an individual reel is dropped down to fish. For example, if the vessel fished with 4 reels and each reel was set 3 times at this same location, enter 12 (**REELS SET= DROPS**). To double check the total number of reels set, add up all the values from “# of reels set” from the gear configuration at the top of the station sheet, the total number should be equal to the total number of reels set.

Total Number of Reels Sampled: Enter total number sampled at this location (**REELS SAMPLED = DROPS**). To double check the total number of reels sampled, add up all the values from “# of

reels sampled" from the gear configuration, the total number should be equal to the total number of reels sampled.

Total Number of Hooks Set: Enter the total number of hooks set at this location. If each reel had two hooks and the vessel set 10 reels, enter 20.

Total Number of Hooks Sampled: Enter the total number of hooks sampled at this location. You will always "sample" all hooks on a reel, even if they have no catch.

Approx. Fishing Depth: Enter the approximate fishing depth in feet. If there is more than one approx. fishing depth, enter the average of all fishing depths and reference the individual fishing depths in the comments section.

Water Clarity: Use a secchi disk to record measurement in feet (depth at which the secchi disk just becomes not visible from the surface).

Bottom Type: Enter the bottom type (refer to captain and appendix 10 for codes).

Scale Type: Enter the type of scale use, Digital (D), Mechanical (M), Both (B) or Unknown (U).

Coordinator Comments: Leave blank.

Observer's Comments: Enter your comments or observations.

Captain's Signature: **THIS IS MANDATORY FOR ALL STATION SHEETS.** At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

LENGTH-FREQUENCY/WEIGHT FORM BANDIT REEL

ORG PRO

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TRIP NO.

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SET NO.

REEL NUMBER	GEAR CODE	COMMON NAME	GENUS	SPECIES	LENGTH	LENGTH CODE	WEIGHT (kg)	WEIGHT CODE	CONDITION CODE	FATE CODE	AIR BLADDER TAGGED	SPECIMEN #	O / G
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													

LENGTH CODES	WEIGHT CODES	CONDITION CODES (AS BROUGHT ONBOARD)	FATE CODE
01- FORK	1- WHOLE	1- LIVE: NORMAL APPEARANCE	K- FISH KEPT
02 - STANDARD	2 - DRESSED/CLEANED	2 - LIVE AIR BLADDER/STOMACH PROTRUDING	D - DISCARD DEAD
18 - TOTAL	8 - NOT MEASURABLE	3 - LIVE: EYES PROTRUDING	A - DISCARD ALIVE
22 - DISC	9 - NO DATA	4 - LIVE: COMBINATION 2 AND 3	B - KEPT FOR BAIT
23 - ANAL		5 - DEAD ON ARRIVAL	U - UNKNOWN DISCARD
88 - NOT MEASURABLE		9 - NO DATA OR UNKNOWN	X - UNKNOWN IF KEPT
99 -NO DATA or UNKNOWN			OR DISCARDED

LENGTH FREQUENCY / WEIGHT FORM – BANDIT REEL

Record all fish caught on sampled reels. If all the reels deployed are retrieved empty (i.e., all hooks empty) you are still required to fill out a Frequency/Weight form. You should reference the sampled reel number and gear and write "NOCATCH" in the space provided for common name. For example, there are 2 reels being sampled 1A and 2B, 1A catches fish and 2B does not, you would reference NOCATCH for reel 2B. If both reels sampled do not catch fish, NOCATCH should be referenced for both reels 1A and 2B. Remember unsampled sets are not given set numbers, and are not sampled (due to: observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter set number that corresponds to Station Sheet set number.

Sampling Procedures

- 1. Reel Number Sampled:** Enter the reel number(s) the fish was caught on.
- 2. Gear Code:** Enter the gear code the fish was caught on.
- 3. Fish Identification:** Identify the fish to species level, record common name, genus and species. Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169). If more than one of the same species is caught, instead of writing the common name, genus and species repeatedly, it can be written once with a line drawn vertically down through the fields until a new species is noted.
- 4. Fish Length Measurement:** Record the length of fish in **millimeters**. Be sure to measure the fish using the appropriate species specific length measurement code (see appendix 10 and Species List, page 169). If the fish is unmeasurable (e.g. mutilated, tail missing from shark attack) enter 888.88 in the **LENGTH** column and 88 for the **LENGTH CODE**. If no measurement was taken (e.g., thrown overboard) enter 999.99 in the **LENGTH** column to denote unknown and/or not measured and 99 for the **LENGTH CODE**.
- 5. Fish Weight Measurement:** Record the weight of fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form. If the fish is too light to obtain a reading on your scale or damaged, enter 888.88 in the **WEIGHT** column and 8 for the **WEIGHT CODE**. If the weight was not measured or the weight is unknown, enter 999.99 in the **WEIGHT** column and 9 for the **WEIGHT CODE**.

6. **Condition Code:** Use the most appropriate condition code (see the bottom of the form) to describe the condition of the fish when brought on deck.
7. **Fish Fate:** Use the most appropriate fate code (see bottom of form) to describe fate of the fish. In determining the fate of a **discarded fish** note if it is alive or dead; do not attempt to establish poor health conditions (i.e., it probably would die). Remember to use the sink or swim method. If the fish floats and does not attempt to swim towards the bottom, it is considered discarded dead. If the fish attempts to swim down but floats back up and then tries to get back down it is considered discarded alive. Also, please remember that we do not want to become the source of fish mortality. Process the fish to be discarded first and quickly.
8. **Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place an "X" on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
9. **Air Bladders:** If the air bladder is punctured (in released fish), enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.
10. **Specimen # O/G:** If a specimen is sampled for Otolith/Gonads it is given specimen #. These numbers are assigned by the observer and are consecutive from the start of the trip to the end. The number, as well as the recorded information, should coincide with the numbers referenced on the Gonad/Otolith sample log.
11. **Length Frequency/Weight Form Continued:** If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form.

LOGLINE DATA FORMS

Complete the following forms for all Longline (GL) Trips.

1. Gear Specification Form (LL-GS)
2. Station Sheet (LL-SS)
3. Length Frequency/Weight Form (LL-LF)
4. Sea Turtle Life History Form (Complete only if a turtle is captured or sighted)
5. Tag Reporting Form (only if applicable)
6. Protected Resources Capture Report (only if applicable)

GEAR SPECIFICATION FORM - LONGLINE

ORG PRO

MO DAY YR

TRIP NO.

DATE

OBSERVER CODE

GEAR CODE

MAIN LINE LENGTH

MILES NAUTICAL MILES

MAIN LINE MATERIAL

Mono Poly Nylon Cable Other

Main Line Diameter: In.

Main Line Test: lbs

Comments:

GANGION LENGTH

Length: Feet

Comments:

GANGION MATERIAL

Mono Cable Nylon Wire Other

Gangion Test: lbs

Gangion Color:

Construction: Twisted Single

Comments:

NUMBER OF HOOKS

No. of Hooks on Board (per Captain):

Approx. Dist. between Hooks: Feet

Comments:

HOOK TYPE # 1

Hook Type: J-Hook Circular Treble Lure Other

Hook Shape: Straight Offset Double Triple

/

Hook Size Manufacturer/Style: Degrees Offset

Shaft Length in. Point to Shaft in.

Hook Material: Steel Stainless Steel Other Unknown

Comments:

HOOK TYPE # 2

Hook Type: J-Hook Circular Treble Lure Other

Hook Shape: Straight Offset Double Triple

/

Hook Size Manufacturer/Style: Degrees Offset

Shaft Length in. Point to Shaft in.

Hook Material: Steel Stainless Steel Other Unknown

Comments:

HOOK TYPE # 3

Hook Type: J-Hook Circular Treble Lure Other

Hook Shape: Straight Offset Double Triple

/

Hook Size Manufacturer/Style: Degrees Offset

Shaft Length in. Point to Shaft in.

Hook Material: Steel Stainless Steel Other Unknown

Comments:

TRACE HOOK W / DIMENSIONS BELOW

GEAR SPECIFICATION FORM - LONGLINE

Complete one gear specification form for each gear type used during fishing operations. Changes to any gear setting or configuration require completion of additional forms for the affected sets (consult the captain for unknown Main Line, Gangion and Hook information).

Trip No: Enter Trip Number provided by Observer Coordinator.

Date: Enter the date the set number started, or the date changes occurred to the gear.

Observer: Enter your assigned observer code.

Set number: Enter the starting set number for a given vessel. If net or gear changes are made, enter the set number when these changes occurred.

Gear Code: Gear codes are designated by the observer; they should always start with the letter "A" and progress through the alphabet, DO NOT SKIP LETTERS. Any changes in gear configuration (i.e. gangion length or length of main line) will result in a new gear code.

Main Line Length: Enter the length of the main line and enter an "X" in the appropriate square for units of measurement.

Main Line Material: Enter an "X" in the appropriate square that corresponds to the material of the line. If you mark "Other", then enter an explanation in the **Comments** section.

Main Line Diameter: Enter the diameter on the main line in inches. Measure it yourself!!

Main Line Test: Enter the test, or breaking strength, of the main line in pounds.

Main Line Material Comments: Enter comments necessary to better describe the entries above.

Gangion Length: Measure length from hook's eye to gangion's end, including snaps, if any.

Gangion Length Comments: Enter comments necessary to better describe the entries above.

Gangion Material: Enter an "X" in the appropriate square which corresponds to the material of the gangion. If you mark "Other", then enter an explanation in the **Comments** section.

Gangion Test: Enter the test, or breaking strength, of the gangion material in pounds.

Gangion Color: Enter the color of the gangion.

Construction: Enter an "X" in the square that corresponds to the construction of the line.

Gangion Material Comments: Enter comments necessary to better describe the entries above.

Number of Hooks on Board (per Captain): At the start of the trip, ask the captain, for the total number of hooks on board.

Approximate Distance between Hooks: Enter approximate distance in feet.

Number of Hooks Comments: Enter comments necessary to better describe the entries above.

Hook Type: Enter an "X" in the square that best describes the hook shape (see appendix 13). If you mark "Other", then enter the hook types in the **Comments** section. Space is provided to record up to three different types of hooks.

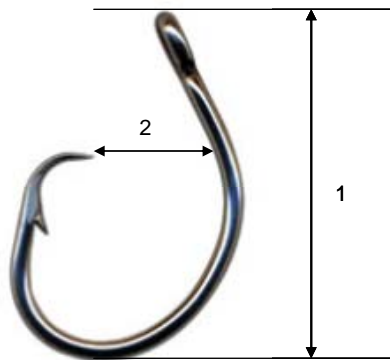
Hook Shape: Enter an "X" in the appropriate square.

Hook Size: Enter hook size, for example 10/0.

Manufacturer/Style: Enter manufacturer/styles, for example MUSTAD/39960D.

Degrees Offset: Enter the Degrees Offset. Typically 10° or 25°.

Hook Measurements: Record "Hook Shaft Length" and "Hook Point to Shaft" measurements. If it is a double or triple hook setup with more than one hook size, enter the second or third hook measurements in the comments section.



1. Hook Shaft Length: Measure the distance (in inches) from the hook eye to the point of maximum curvature on the bent portion of the hook. Shaft length is in effect the total length of the hook.

2. Hook Point to Shaft: Measure the shortest distance (in inches) from the point of the hook to the shaft of the hook.

Hook Material: Enter an "X" in the appropriate square that best describes the hook materials. If you mark "Other", then enter an explanation in the **Comments** section.

Hook Comments: Enter comments necessary to better describe entries above.

Trace Outline of Hook with Dimensions in Space Below: If possible, lay hook onto paper and trace. Include in diagram, hook shaft length and hook point to shaft measurements.

COLLECTION OF BIOLOGICAL DATA - LONGLINE

Sets Not Sampled - If you are unable to sample every set due to observer choice or time constraints, record in your **log book** and later on the **Trip Report**, the date, location, depth, hours soaked, and reason for not sampling. Since you did not sample these, do not number them consecutively as sets.

Sampling Procedures

- 1. Fish Identification:** Identify the fish to species level. Record the common name, genus and species on the length frequency/weight form.
- 2. Fish Length Measurement:** Record the length of the fish in **millimeters**. Care should be taken to use the proper length measurement code which is species specific (see appendix 10 and Species List, page 169). Write the length measurement code used in the **LENGTH CODE** column on the length frequency/weight form.
- 3. Fish Weight Measurement:** Record the weight of the fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **01** or "**gutted**" code **02** in the **WEIGHT CODE** column on the length frequency/weight form.
- 4. Fish Fate:** Enter the fate of the fish, in the **FATE** column, using the appropriate fate code found at the bottom of the length frequency/weight form. Remember to use the sink or swim method. Use fate code "U" Unknown Discard if you are unable to determine if the fish sank or swam (dark or rough conditions).
- 5. Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place and "X" on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 6. Air Bladders:** If air bladder is punctured (in released fish), enter an "X" in **AIR BLADDER** column. The air bladder should only be punctured if this is the traditional procedure of the captain and crew.

STATION SHEET LONGLINE

ORG PRO

TRIP NO.

SET NO.

OBSERVER

MO DAY YR

DATE

GEAR CODE

SET TIME

START

SET TIME

END

Degree Minutes Seconds

LATITUDE IN

Degree Minutes Seconds

LONGITUDE IN

HAUL TIME

START

HAUL TIME

END

STAT ZONE

SEA STATE

PREDATORS OBSERVED

<input type="checkbox"/> SHARKS	0=PREDATOR NOT PRESENT IN AREA	5=PREDATOR OBSERVED BUT COULD NOT DETERMINE IF FEEDING
<input type="checkbox"/> DOLPHINS	1=PREDATOR OBSERVED BUT NOT FEEDING	6=PREDATOR OBSERVED FEEDING ON DISCARDED CAPTURES
<input type="checkbox"/> SEA BIRDS	2=PREDATOR OBSERVED FEEDING ON BAIT (ON HOOK)	7=PREDATOR OBSERVER FEEDING ON DISCARDED BAIT
<input type="checkbox"/> OTHER FISH	3=PREDATOR OBSERVED FEEDING ON CAPTURES (ON HOOK)	8=PREDATOR OBSERVER FEEDING ON DISCARDED CAPTURES AND BAIT
	4=PREDATOR OBSERVED FEEDING ON CAPTURES AND BAIT (ON HOOK)	9=NOT OBSERVED

BAIT (Check all that apply)

Squid

Mackerel

Herring

Other _____

Other _____

Other _____

Other _____

STATE OF BAIT (Check Whole or Cut then check all that apply for each type of bait used.)

Whole	Cut	Fresh	Frozen	Salted	Live
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TARGET SPECIES: List all targeted species for this set using genus species format.

HRS

SOAK TIME

of HOOKS SET

of HOOKS LOST

FEET

DEPTH

WATER CLARITY
 FEET

SECCHI DISK DEPTH

BOTTOM TYPE

YES NO
 OR

REVERSE HAUL

YES NO
 OR

MAINLINE PARTED

SCALE TYPE
 DIGITAL (D), MECHANICAL (M)
 BOTH (B) or UNKNOWN (U)

COORDINATOR COMMENTS:

OBSERVER COMMENTS:

CAPTAIN'S SIGNATURE: _____

LL-SS

STATION SHEET – LONGLINE

Complete one station sheet for each set. This form must be filed out for both sampled and unsampled sets. For sets not sampled (or unsampled sets) enter the following information: trip number, 9 for set number, observer code, date, time in and time out, latitude, longitude, statistical zone, sea state, and reason for not sampling.

Record all fish caught on sampled gear. Remember unsampled sets are not given set numbers, and are not sampled (due to: observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with "001" for each trip. Remember unsampled sets are not given set numbers, and are not sampled (due to: time constraints, weather, sickness, sleep etc.).

Observer: Enter Observer Code provided by Observer Coordinator.

Date: Enter the date the Set started (use two digits for month, day, and year (MO/DY/YR)).

Gear Code: Enter the gear code that corresponds to the gear configuration used for this station.

Set Time Start: Enter in military time (0001-2359), time when **first** buoy is set (First Buoy In).

Set Time End: Enter in military time (0001–2359), time when **last** buoy is set (Last Buoy In).

Latitude In: Enter the position occupied at set (set time start) in degrees, minutes, and seconds. Ask the captain if the LORAN or GPS **unit reads in degrees, minutes, and seconds or in degrees, minutes, and hundredths of a minute**. If the unit reads in hundredths of minutes, multiply the last two digits (as a decimal figure) by 60 to obtain the seconds (e.g., .88 x 60 = 52.8 seconds, this is rounded up to 53 seconds [see appendix 12]). If coordinates are given in LORAN the reading should be written above the space provided for GPS units (leaving GPS units blank). The units will be converted in the lab and filled in by the Observer Coordinator.

Longitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds.

Haul Time Start: Enter in military time (0001–2359), time when **first** buoy is retrieved.

Haul Time End: Enter in military time (0001-2359), time when **last** buoy is retrieved.

Stat Zone: Enter the statistical zone at set (time in) (appendix 11).

Sea State: Enter the number that best describes the sea state (wave height):

1 = 0-2 feet, 2 = 3-5 feet, 3 = 6-8 feet, 4 = 8+ feet.

Predators Observed: Select and mark one of the 10 categories listed for each of the 4 predator types. If predator observed is a marine mammal other than a dolphin, specify the type of marine mammal, in the observer comments section and circle marine mammal on the data form.

Bait: Check all bait types used for this set, if a bait type other than the ones listed are used reference it in the space labeled other. For each type of bait listed you must also reference the **State of Bait**. Check if the bait is whole or cut then check if the bait is fresh, frozen, salted or live. Check all that apply. Whole is only used if the bait is a whole fish.

Target Species: List all species being targeted for the set in genus species format (i.e. LUTJANUCAMPEC, EPINEPHMORIO, and EPINEPHFLAVOL). Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169), **DO NOT reference common names**.

Soak Time: Subtract “Set Time Start” from “Haul Time End”. Be sure to convert minutes to tenths of an hour prior to entering on the station sheet (see appendix 12).

14:30 (Haul Time End) – 12:03 (Set Time Start) = 2:27 or 2.5 hrs (Soak Time)

of Hooks Set: Enter the exact number of hooks set. To help keep track of the total number of hooks set without having to count each time; count the exact number of hooks for the first set and keep track of the number of hooks lost. You can use this information to determine the number of hooks used for the next set. For example, the starting set had 750 hooks, 5 hooks were lost during the set, so the next set will have 745 hooks. This only applies if lost hooks were not replaced. Recount the exact number of hooks set once in every 24 hour period and if any change are made in fishing operations, i.e. half set.

of Hooks Lost: Enter total number of hooks lost during each set due to predation, hangs, etc.

Depth: Enter the bottom depth in feet at set time start.

Water Clarity: Use a secchi disk to record measurement in feet.

Bottom Type: Enter the bottom type (refer to captain and appendix 10).

Reverse Haul: Was gear hauled back in reverse, i.e. started haul back from the last buoy set. Check “Yes”, if the last buoy/hook set was the first buoy/hook hauled. Check “No”, if the first buoy/hook set was the first buoy/hook hauled.

Mainline Parted: Check “Yes”, if mainline parted during set and they were forced to haul from the opposite end, otherwise check no. Add a comment for haul time lost and if any gear was lost, i.e. gear parted at 0852, resumed haul back at 0925, all gear recovered.

Scale Type: Enter the type of scale use, Digital (D), Mechanical (M), Both (B) or Unknown (U).

Coordinator Comments: Leave blank.

Observer’s Comments: Enter your comments or observations.

Captain’s Signature: **THIS IS MANDATORY FOR ALL STATION SHEETS.** At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

LENGTH-FREQUENCY/WEIGHT FORM LONGLINE

ORG PRO

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TRIP NO.

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SET NO.

COMMON NAME	GENUS	SPECIES	LENGTH (mm)	LENGTH CODE	FISH WEIGHT (kg)	WEIGHT CODE	CONDITION CODE	FATE CODE	AIR BLADDER TAGGED	SPECIMEN #
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										
LENGTH CODES	WEIGHT CODES	CONDITION CODES (AS BROUGHT ONBOARD)				FATE CODE				
01- FORK 02- STANDARD 18- TOTAL 22- DISC 23- ANAL 88- NOT MEASURABLE 99- NO DATA or UNKNOWN	1- WHOLE 2- DRESSED/CLEANED 8- NOT MEASURABLE 9- NO DATA	1- LIVE: NORMAL APPEARANCE 2- LIVE AIR BLADDER/STOMACH PROTRUDING 3- LIVE: EYES PROTRUDING 4- LIVE: COMBINATION 2 AND 3 5- DEAD ON ARRIVAL 9- NO DATA OR UNKNOWN				K - FISH KEPT D - DISCARD DEAD A - DISCARD ALIVE B - KEPT FOR BAIT U - UNKNOWN DISCARD X - UNKNOWN IF KEPT OR DISCARDED				

PAGE ____ OF ____

LL-LF

LENGTH FREQUENCY / WEIGHT FORM – LONGLINE

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with “001” for each trip.

Sampling Procedures

- 1. Fish Identification:** Identify the fish to species level, record common name, genus and species. Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Species List, page 169).
- 2. Fish Length Measurement:** Record the length of fish in **millimeters**. Be sure to measure the fish using the appropriate species specific length measurement code (see appendix 10 and Species List, page 169). If the fish is not measurable (mutilated, e.g., tail missing from shark attack) enter 888.88 in the **LENGTH** column and 88 for the **LENGTH CODE**. If no measurement was taken (e.g., thrown overboard) 999.99 in the **LENGTH** column to denote unknown and/or not measured and 99 for the **LENGTH CODE**.
- 3. Fish Weight Measurement:** Record the weight of fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form. If the fish is damaged or too light to obtain a reading on your scale, enter 888.88 in the **WEIGHT** column and 8 for the **WEIGHT CODE**. If the weight was not measured or the weight is unknown, enter 999.99 in the **WEIGHT** column and 9 for the **WEIGHT CODE**.
- 4. Condition Code:** Use most appropriate condition code (see bottom of form) to describe condition of the fish when brought on deck.
- 5. Fish Fate:** Use most appropriate fate code (see bottom of form) to describe fate of the fish. Remember to use the sink or swim method.
- 6. Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place an “X” on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 7. Air Bladders:** If air bladder is punctured, enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.

8. Specimen # O/G: If a specimen is sampled for Otolith/Gonads it is given specimen #. These numbers are assigned by the observer and are consecutive from the start of the trip to the end. The number, as well as the recorded information, should coincide with the numbers referenced on the Gonad/Otolith sample log.

9. Length Frequency/Weight Form Continued: If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form.

MODIFIED BUOY DATA FORMS

Complete the following forms for all Spear Fishing Trips.

1. Gear Specification Form (JUG-GS)
2. Station Sheet (JUG-SS)
3. Length Frequency/Weight Form (JUG-LF)
4. Sea Turtle Life History Form (Complete only if a turtle is captured or sighted)
5. Tag Reporting Form (only if applicable)
6. Protected Resources Capture Report (only if applicable)

GEAR SPECIFICATION FORM - MODIFIED BUOY

ORG PRO

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TRIP NO.

MO DAY YR

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DATE

--	--	--

OBSERVER CODE

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GEAR CODE

MAIN LINE LENGTH										
					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
					MILES	NAUTICAL	FEET			
					MILES					

MAIN LINE MATERIAL										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Mono	Poly	Nylon	Cable	Rope	Other					
Main Line Diameter:									In.	
Main Line Test:									lbs	
Comments:										

GANGION LENGTH										
Length 1 :										Feet
Length 2 :										Feet
Comments:										

GANGION MATERIAL										
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Mono	Cable	Nylon	Wire	Other						
Gangion Test:									lbs	
Gangion Color:										
Construction:					<input type="checkbox"/>	<input type="checkbox"/>				
					Twisted	Single				
Comments:										

NUMBER OF HOOKS										
No. of Hooks on Board (per Captain):										
Approx. Dist. between Hooks:										Feet
Total # of Hooks Per Jug:										
Comments:										

HOOK TYPE # 1															
Hook Type:		<input type="checkbox"/>	J-Hook	<input type="checkbox"/>	Circular	<input type="checkbox"/>	Treble	<input type="checkbox"/>	Lure	<input type="checkbox"/>	Other				
Hook Shape:		<input type="checkbox"/>	Straight	<input type="checkbox"/>	Offset	<input type="checkbox"/>	Double	<input type="checkbox"/>	Triple						
		/0						Degrees Offset							
Hook Size		Manufacturer/Style:				Degrees Offset									
Shaft Length						in.		Point to Shaft						in.	
Hook Material:		<input type="checkbox"/>	Steel	<input type="checkbox"/>	Stainless Steel	<input type="checkbox"/>	Other	<input type="checkbox"/>	Unknown						
Comments:															

HOOK TYPE # 2															
Hook Type:		<input type="checkbox"/>	J-Hook	<input type="checkbox"/>	Circular	<input type="checkbox"/>	Treble	<input type="checkbox"/>	Lure	<input type="checkbox"/>	Other				
Hook Shape:		<input type="checkbox"/>	Straight	<input type="checkbox"/>	Offset	<input type="checkbox"/>	Double	<input type="checkbox"/>	Triple						
		/0						Degrees Offset							
Hook Size		Manufacturer/Style:				Degrees Offset									
Shaft Length						in.		Point to Shaft						in.	
Hook Material:		<input type="checkbox"/>	Steel	<input type="checkbox"/>	Stainless Steel	<input type="checkbox"/>	Other	<input type="checkbox"/>	Unknown						
Comments:															

HOOK TYPE # 3															
Hook Type:		<input type="checkbox"/>	J-Hook	<input type="checkbox"/>	Circular	<input type="checkbox"/>	Treble	<input type="checkbox"/>	Lure	<input type="checkbox"/>	Other				
Hook Shape:		<input type="checkbox"/>	Straight	<input type="checkbox"/>	Offset	<input type="checkbox"/>	Double	<input type="checkbox"/>	Triple						
		/0						Degrees Offset							
Hook Size		Manufacturer/Style:				Degrees Offset									
Shaft Length						in.		Point to Shaft						in.	
Hook Material:		<input type="checkbox"/>	Steel	<input type="checkbox"/>	Stainless Steel	<input type="checkbox"/>	Other	<input type="checkbox"/>	Unknown						
Comments:															

TRACE HOOK W / DIMENSIONS BELOW									

GEAR SPECIFICATION FORM – MODIFIED BUOY

Complete one gear specification form for each gear type used during fishing operations. Changes to any gear setting or configuration require completion of additional forms for the affected sets (consult the captain for unknown Main Line, Gangion and Hook information).

Trip No: Enter Trip Number provided by Observer Coordinator.

Date: Enter the date the set number started, or the date changes occurred to the gear.

Observer: Enter your assigned observer code.

Gear Code: Gear codes are designated by the observer; they should always start with the letter “A” and progress through the alphabet, DO NOT SKIP LETTERS. Any changes in gear configuration (i.e. gangion length or length of main line) will result in a new gear code.

Main Line Length: Enter the length of the main line and enter an “X” in the appropriate square for units of measurement.

Main Line Material: Enter an “X” in the appropriate square that corresponds to the material of the line. If you mark “Other”, then enter an explanation in the **Comments** section.

Main Line Diameter: Enter the diameter on the main line in inches.

Main Line Test: Enter the test, or breaking strength, of the main line in pounds.

Main Line Material Comments: Enter comments necessary to better describe the main line.

Gangion Length: Measure length from hook’s eye to gangion’s end, including snaps, if any.

Gangion Length Comments: Enter comments necessary to better describe the entries above.

Gangion Material: Enter an “X” in the appropriate square which corresponds to the material of the gangion. If you mark “Other”, then enter an explanation in the **Comments** section.

Gangion Test: Enter the test, or breaking strength, of the gangion material in pounds.

Gangion Color: Enter the color of the gangion.

Construction: Enter an “X” in the square that corresponds to the construction of the line.

Gangion Material Comments: Enter comments necessary to better describe the entries above.

Number of Hooks on Board (per Captain): At the start of the trip, ask the captain, for the total number of hooks on board. This value will be the same on all gear sheets.

Approximate Distance between Hooks: Enter approximate distance in feet.

Number of Hooks Comments: Enter comments necessary to better describe the entries above.

Hook Type: Enter an "X" in the square that best describes the hook shape (see appendix 13). If you mark "Other", then enter the hook types in the **Comments** section. Space is provided to record up to three different types of hooks.

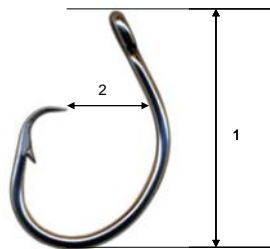
Hook Shape: Enter an "X" in the appropriate square.

Hook Size: Enter hook size, for example 10/0.

Manufacturer/Style: Enter manufacturer/styles, for example MUSTAD/39960D.

Degrees Offset: Enter the Degrees Offset.

Hook Measurements: Record "Hook Shaft Length" and "Hook Point to Shaft" measurements. If it is a double or triple hook setup with more than one hook size, enter the second or third hook measurements in the comments section.



1. Hook Shaft Length: Measure the distance (in inches) from the hook eye to the point of maximum curvature on the bent portion of the hook. Shaft length is in effect the total length of the hook.

2. Hook Point to Shaft: Measure the shortest distance (in inches) from the point of the hook to the shaft of the hook.

Hook Material: Enter an "X" in the appropriate square that best describes the hook materials. If you mark "Other", then enter an explanation in the **Comments** section.

Hook Comments: Enter comments necessary to better describe entries above.

Trace Outline of Hook with Dimensions in Space Below: If possible, lay hook onto paper and trace. Include in diagram, hook shaft length and hook point to shaft measurements.

COLLECTION OF BIOLOGICAL DATA – MODIFIED BUOY

Sets Not Sampled - If you are unable to sample every set due to observer choice or time constraints, record in your **log book** and later on the **Trip Report**, the date, location, depth, hours soaked, and reason for not sampling. Since you did not sample these, do not number them consecutively as sets.

Sampling Procedures

- 1. Fish Identification:** Identify the fish to species level. Record the common name, genus and species on the length frequency/weight form.
- 2. Fish Length Measurement:** Record the length of the fish in **millimeters**. Care should be taken to use the proper length measurement code which is species specific (see appendix 10 and Species List, page 169). Write the length measurement code used in the **LENGTH CODE** column on the length frequency/weight form.
- 3. Fish Weight Measurement:** Record the weight of the fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **01** or "**gutted**" code **02** in the **WEIGHT CODE** column on the length frequency/weight form.
- 4. Fish Fate:** Enter the fate of the fish, in the **FATE** column, using the appropriate fate code found at the bottom of the length frequency/weight form. Remember to use the sink or swim method. Use fate code "U" Unknown Discard if you are unable to determine if the fish sank or swam (dark or rough conditions).
- 5. Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place an "X" on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 6. Air Bladders:** If air bladder is punctured (in released fish), enter an "X" in **AIR BLADDER** column. The air bladder should only be punctured if this is the traditional procedure of the captain and crew.

STATION SHEET MODIFIED BUOY

<small>ORG PRO</small> <input type="text"/>	<input type="text"/>	<input type="text"/>	<small>MO</small> <input type="text"/>	<small>DAY</small> <input type="text"/>	<small>YR</small> <input type="text"/>	<small>GEAR</small> <input type="text"/>	<small># OF</small> <input type="text"/>
<small>TRIP NO.</small>	<small>SET NO.</small>	<small>OBSERVER</small>	<small>DATE</small>			<small>CODE</small>	<small>JUGS</small>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			<input type="text"/>	<input type="text"/>
<small>SET TIME</small> <input type="text"/>	<small>SET TIME</small> <input type="text"/>	<small>Degree</small> <input type="text"/>	<small>Minutes</small> <input type="text"/>	<small>Seconds</small> <input type="text"/>	<small>Degree</small> <input type="text"/>	<small>Minutes</small> <input type="text"/>	<small>Seconds</small> <input type="text"/>
<small>START</small>	<small>END</small>	<small>LATITUDE IN</small>			<small>LONGITUDE IN</small>		
<input type="text"/>	<input type="text"/>	<input type="text"/>			<input type="text"/>		
<small>HAUL TIME</small> <input type="text"/>	<small>HAUL TIME</small> <input type="text"/>	<input type="text"/>		<input type="text"/>			
<small>START</small>	<small>END</small>	<small>STAT ZONE</small>		<small>SEA STATE</small>			
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>			

PREDATORS OBSERVED

<input type="checkbox"/>	SHARKS	0=PREDATOR NOT PRESENT IN AREA	5=PREDATOR OBSERVED BUT COULD NOT DETERMINE IF FEEDING
<input type="checkbox"/>	DOLPHINS	1=PREDATOR OBSERVED BUT NOT FEEDING	6=PREDATOR OBSERVED FEEDING ON DISCARDED CAPTURES
<input type="checkbox"/>	SEA BIRDS	2=PREDATOR OBSERVED FEEDING ON BAIT (ON HOOK)	7=PREDATOR OBSERVER FEEDING ON DISCARDED BAIT
<input type="checkbox"/>	OTHER FISH	3=PREDATOR OBSERVED FEEDING ON CAPTURES (ON HOOK)	8=PREDATOR OBSERVER FEEDING ON DISCARDED CAPTURES AND BAIT
		4=PREDATOR OBSERVED FEEDING ON CAPTURES AND BAIT (ON HOOK)	9=NOT OBSERVED

BAIT (Check all that apply)

STATE OF BAIT (Check Whole or Cut then check all that apply for each type of bait used.)

<input type="checkbox"/> Squid <input type="checkbox"/> Mackerel <input type="checkbox"/> Herring <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____	Whole	Cut	Fresh	Frozen	Salted	Live
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TARGET SPECIES: List all targeted species for this set using genus species format.

<input type="text"/> HRS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<small>SOAK TIME</small>	<small># of JUGS SET</small>	<small># of JUGS SAMPLED</small>	<small># of HOOKS SET</small>	<small># of HOOKS SAMPLED</small>

<input type="text"/> FEET	<input type="text"/>	<input type="text"/>
<small>DEPTH</small>	<small>BOTTOM TYPE</small>	<small>SCALE TYPE</small>
		<small>DIGITAL (D), MECHANICAL (M) BOTH (B) or UNKNOWN (U)</small>

COORDINATOR COMMENTS: _____

OBSERVER COMMENTS: _____

CAPTAIN'S SIGNATURE: _____

JUG-SS

STATION SHEET – MODIFIED BUOY

Complete one station sheet for each set. This form must be filed out for both sampled and unsampled sets. For sets not sampled (or unsampled sets) enter the following information: trip number, 9 for set number, observer code, date, set time start and end, haul time start and end, latitude, longitude, statistical zone, sea state, and reason for not sampling.

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with "001" for each trip. Remember unsampled sets are not given set numbers, and are not sampled (due to: time constraints, weather, sickness, sleep etc.).

Observer: Enter Observer Code provided by Observer Coordinator.

Date: Enter the date the Set started (use two digits for month, day, and year (MO/DY/YR)).

Gear Code: Enter the gear codes that corresponds to the gear configuration used for this station and the number of jugs set for each gear code.

Set Time Start: Enter in military time (0001-2359), time when **first** buoy is set (First Buoy In).

Set Time End: Enter in military time (0001–2359), time when **last** buoy is set (Last Buoy In).

Latitude In: Enter the position occupied at set (set time start) in degrees, minutes, and seconds. Ask the captain if the LORAN or GPS **unit reads in degrees, minutes, and seconds or in degrees, minutes, and hundredths of a minute**. If the unit reads in hundredths of minutes, multiply the last two digits (as a decimal figure) by 60 to obtain the seconds (e.g., .88 x 60 = 52.8 seconds, this is rounded up to 53 seconds [see appendix 12]). If coordinates are given in LORAN the reading should be written above the space provided for GPS units (leaving GPS units blank). The units will be converted in the lab and filled in by the Observer Coordinator.

Longitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds.

Haul Time Start: Enter in military time (0001–2359), time when **first** buoy is retrieved.

Haul Time End: Enter in military time (0001-2359), time when **last** buoy is retrieved.

Stat Zone: Enter the statistical zone at set (time in) (appendix 11).

Sea State: Enter the number that best describes the sea state (wave height):

1 = 0-2 feet, 2 = 3-5 feet, 3 = 6-8 feet, 4 = 8+ feet.

Predators Observed: Select and mark one of the 10 categories listed for each of the 4 predator types. If predator observed is a marine mammal other than a dolphin, specify the type of marine mammal, in the observer comments section and circle marine mammal on the data form.

Bait: Check all bait types used for this set, if a bait type other than the ones listed are used reference it in the space labeled other. For each type of bait listed you must also reference the **State of Bait**. Check if the bait is whole or cut then check if the bait is fresh, frozen, salted or live. Check all that apply. Whole is only used if the bait is a whole fish.

Target Species: List all species being targeted for the set in genus species format (i.e. LUTJANUCAMPEC, EPINEPHMORIO, and EPINEPHFLAVOL). Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169), **DO NOT reference common names**.

Soak Time: Subtract “Set Time Start” from “Haul Time End”. Be sure to convert minutes to tenths of an hour prior to entering on the station sheet (see appendix 12).

14:30 (Haul Time End) – 12:03(Set Time Start) = 2:27 or 2.5 hrs (Soak Time)

of Jugs Set: Enter the total number of jugs set.

of Jugs Sampled: Enter the total number of jugs sampled. If a jug is lost it is considered unsampled and should not be included in the total for number of jug sampled.

of Hooks Set: Enter the exact number of hooks set.

of Hooks Lost: Enter total number of hooks lost during each set due to predation, hangs, etc.

Depth: Enter the bottom depth in feet at set time start.

Bottom Type: Enter the bottom type (refer to captain and appendix 10).

Scale Type: Enter the type of scale use, Digital (D), Mechanical (M), Both (B) or Unknown (U).

Coordinator Comments: Leave blank.

Observer’s Comments: Enter your comments or observations.

Captain’s Signature: **THIS IS MANDATORY FOR ALL STATION SHEETS.** At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

LENGTH-FREQUENCY/WEIGHT FORM MODIFIED BUOY

ORG PRO

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TRIP NO.

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SET NO.

G E A R C O D E	COMMON NAME	GENUS	SPECIES	LENGTH	L E N G T H C O D E	W E I G H T C O D E	W E I G H T C O D E	C O N D I T I O N C O D E	F A T E R E L E A S E	T A G G E D	A I R B L A D D E R	S P E C I M E N # O / G
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

LENGTH CODES	WEIGHT CODES	CONDITION CODES (AS BROUGHT ONBOARD)	FATE CODE
01- FORK	1- WHOLE	1- LIVE: NORMAL APPEARANCE	K - FISH KEPT
02 - STANDARD	2 - DRESSED/CLEANED	2 - LIVE AIR BLADDER/STOMACH PROTRUDING	D - DISCARD DEAD
18 - TOTAL	8 - NOT MEASURABLE	3 - LIVE: EYES PROTRUDING	A - DISCARD ALIVE
22 - DISC	9 - NO DATA	4 - LIVE: COMBINATION 2 AND 3	B - KEPT FOR BAIT
23 - ANAL		5 - DEAD ON ARRIVAL	U - UNKNOWN DISCARD
88 - NOT MEASURABLE		9 - NO DATA OR UNKNOWN	X - UNKNOWN IF KEPT
99 - NO DATA or UNKNOWN			OR DISCARDED

LENGTH FREQUENCY / WEIGHT FORM – MODIFIED BUOY

Record all fish caught on sampled hooks. If all the buoys deployed are retrieved empty (i.e., all hooks empty) enter "No Fish Caught" in the observer comments section on the station sheet. You are also required to reference no fish caught on the Length Frequency / Weight form. You should reference the sampled gear code and write "NOCATCH" in the space provided for common name. For example, there are 2 types of gear sampled, A and B. A catches fish and B does not, you would reference NOCATCH for gear B. If both gears sampled do not catch fish, NOCATCH should be referenced for both gears A and B. Remember unsampled sets are not given set numbers, and are not sampled (due to: observing crew operations, processing previous set, time constraints, weather, sickness, sleep etc.).

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter set number that corresponds to Station Sheet set number.

Sampling Procedures

- 1. Gear Code:** Enter the gear code the fish was caught on.
- 2. Fish Identification:** Identify the fish to species level, record common name, genus and species. Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Species List, page 169).
- 3. Fish Length Measurement:** Record the length of fish in **millimeters**. Be sure to measure the fish using the appropriate species specific length measurement code (see appendix 10 and Species List, page 169). If the fish is not measurable (mutilated, e.g., tail missing from shark attack) enter 888.88 in the **LENGTH** column and 88 for the **LENGTH CODE**. If no measurement was taken (e.g., thrown overboard) 999.99 in the **LENGTH** column to denote unknown and/or not measured and 99 for the **LENGTH CODE**.
- 4. Fish Weight Measurement:** Record the weight of fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form. If the fish is damaged or too light to obtain a reading on your scale, enter 888.88 in the **WEIGHT** column and 8 for the **WEIGHT CODE**. If the weight was not measured or the weight is unknown, enter 999.99 in the **WEIGHT** column and 9 for the **WEIGHT CODE**.
- 5. Condition Code:** Use most appropriate condition code (see bottom of form) to describe condition of the fish when brought on deck.
- 6. Fish Fate:** Use most appropriate fate code (see bottom of form) to describe fate of the fish. Remember to use the sink or swim method.

- 7. Tagging Undersized Select Species (only if instructed by program manager or coordinator):**
Undersized select species in good health will be tagged and released. Only place an "X" on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 8. Air Bladders:** If air bladder is punctured, enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.
- 9. Specimen # O/G:** If a specimen is sampled for Otolith/Gonads it is given specimen #. These numbers are assigned by the observer and are consecutive from the start of the trip to the end. The number, as well as the recorded information, should coincide with the numbers referenced on the Gonad/Otolith sample log.
- 10. Length Frequency/Weight Form Continued:** If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form.

SPEARFISHING DATA FORMS

Complete the following forms for all Spear Fishing Trips.

1. Gear Specification Form (SF-GS)
2. Station Sheet (SF-SS)
3. Length Frequency/Weight Form (SF-LF)
4. Sea Turtle Life History Form (Complete only if a turtle is captured or sighted)
5. Tag Reporting Form (only if applicable)
6. Protected Resources Capture Report (only if applicable)

GEAR SPECIFICATION FORM - SPEARFISHING

ORG PRO

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TRIP NO.

MO DAY YR

--	--	--	--	--	--

DATE

--	--	--

SET NO.

--

GEAR CODE

BRAND OF SPEAR GUN _____ MODEL # _____

SHAFT LENGTH

		.	
--	--	---	--

 inches

SHAFT DIAMETER

	.		
--	---	--	--

 inches

NUMBER SHAFTS USED

--	--

FIRING MECHANISM

EXPLOSIVE (POWER HEAD) _____

RUBBER or ELASTIC _____

PNEUMATIC or GAS POWERED _____

OTHER _____

GEAR DESCRIPTION

GEAR DIAGRAM

GEAR SPECIFICATION FORM – SPEARFISHING

Complete a gear specification form for each gear type used. A change of spear gun or configuration of existing spear gun requires additional forms for the affected sets.

Trip No: Enter the trip number provided by Observer Coordinator.

Date: Enter the date the set number started, or the date changes occurred to the gear.

Set Number: Enter the starting set when the gear is first used. If gear changes are made, enter the set number when these changes occurred.

Gear Code: Gear codes are designated by the observer; they should always start with the letter “A” and progress through the alphabet. Any changes in gear configuration (i.e. shaft length, shaft diameter or number of shafts used) result in a new gear code.

Brand of Spear Gun: Reference the brand of spear gun that applies to a particular gear code.

Model #: Model numbers are normally referenced on the shaft of the gun, if not; try to acquire the information from the user or leave blank.

Shaft Length: Measure the shaft length in inches.

Shaft Diameter: Measure the shaft diameter in inches.

Number Shafts used: Enter the total number of shafts used during fishing. If the number of shafts is changed between dives you will need to fill out a new gear form to reflect the changes.

Firing Mechanism: Enter an “X” in the appropriate space. **Explosive (Power Head)** - An explosive cartridge launches the spear when the trigger is pulled. **Rubber or Elastic-** bands are stretched to slot into a notch on the spear shaft and launch the spear when the trigger is pulled. **Pneumatic or Gas Powered** – pneumatic, where after firing the expanded gas or air is kept and can be re-compressed by the user underwater or gas-powered (usually carbon dioxide) where the gas escapes after firing. If a type other than the three mentioned is used, mark “**Other**” and describe the firing mechanism in the description section.

Gear Description: Write a detailed description of the gear.

Gear Diagram: Provide a diagram of the gear used.

COLLECTION OF BIOLOGICAL DATA – SPEARFISHING

Sets Not Sampled - If you are unable to sample every set due to weather or time constraints, record in your **log book** and on the **Trip Report**: the date, location, depth, set times, and reason for not sampling. Do not number these as sets.

Sampling Procedures

- 1. Fish Identification:** Identify the fish to species level. Record the common name, genus and species on the length frequency/weight form.
- 2. Fish Length Measurement:** Record the length of the fish in **millimeters**. Care should be taken to use the proper length measurement code which is species specific (see appendix 10 and Species List, page 169). Write the length measurement code used in the **LENGTH CODE** column on the length frequency/weight form.
- 3. Fish Weight Measurement:** Record the weight of the fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form.
- 4. Fish Fate:** Enter the fate of the fish, in the **FATE** column, using the appropriate fate code found at the bottom of the length frequency/weight form.
- 6. Tagged:** If a tagged fish is captured, place an "X" on the length frequency/weight form in the **TAGGED** column and reference the tag number in the comment section of the station sheet. You will also be required to complete a Tag Reporting Form.
- 7. Air Bladders:** If air bladder is punctured, enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.
- 8. Length Frequency/Weight Form Continued:** If you need additional space, continue on a new Length Frequency Form. Number the sheets in the space provided at the bottom of the form.

STATION SHEET SPEARFISHING

ORG PRO

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TRIP NO.

--	--

SET NO.

--	--

OBSERVER

--	--	--	--	--	--

DATE

--	--	--	--	--	--

LATITUDE IN

--	--	--	--	--	--

LONGITUDE IN

--	--

STAT ZONE

--

SEA STATE

DIVE 1

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 5

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 2

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 6

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 3

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 7

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 4

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

DIVE 8

--	--	--	--

TIME IN

--	--	--	--

TIME OUT

--	--	--	--

DIVE TIME

HRS

LIST ALL GEAR CONFIGURATIONS THAT APPLY TO EACH DIVER

IF DIVER UNUSED, LEAVE BLANK

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____

VESSEL(CHECK ONE):

ON ANCHOR _____
(ATTACHED to RIG)

DRIFTING _____

TROLLING _____

UNKNOWN _____

PREDATORS OBSERVED

SHARKS

DOLPHINS

SEA BIRDS

OTHER FISH

0 = PREDATOR NOT PRESENT IN AREA

1 = PREDATOR OBSERVED BUT NOT FEEDING

5 = PREDATOR OBSERVED BUT COULD NOT DETERMINE IF FEEDING

6 = PREDATOR OBSERVED FEEDING ON DISCARDED CAPTURES

9 = NOT OBSERVED

TARGET SPECIES: List all targeted species for this set

TOTAL DIVING TIME

--	--	--	--

HRS

WATER DEPTH

--	--	--	--

FEET

TOTAL NO.

--	--

DIVES

TOTAL NO.

--	--

DIVES SAMPLED

APPROX.

--	--	--	--

FEET

DIVING DEPTH

SECCHI DISK DEPTH

--	--	--	--

FEET

WATER CLARITY

--	--

BOTTOM
TYPE

--

SCALE TYPE

DIGITAL (D), MECHANICAL (M)

BOTH (B) or UNKNOWN (U)

COORDINATOR COMMENTS:

OBSERVER COMMENTS:

CAPTAIN'S SIGNATURE: _____

SF-SS

STATION SHEET – SPEARFISHING

Complete one station sheet for each set. This form must be filed out for both sampled and unsampled sets. For sets not sampled (or unsampled sets) enter the following information: trip number, 9 for set number, observer code, date, latitude, longitude, statistical zone, sea state, dive time in and time out, and reason for not sampling.

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with "001" for each trip. A set is based on fishing location. Remember unsampled sets are not given set numbers, and are not sampled (due to: time constraints, weather, sickness, sleep etc.).

Observer: Enter Observer Code provided by Observer Coordinator.

Date: Enter the date the Set started (use two digits for month, day, and year (MO/DY/YR)).

Latitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds. Ask the captain if the LORAN or GPS **unit reads in degrees, minutes, and seconds or in degrees, minutes, and hundredths of a minute**. If the unit reads in hundredths of minutes, multiply the last two digits (as a decimal figure) by 60 to obtain the seconds (e.g., .88 x 60 = 52.8 seconds, this is rounded up to 53 seconds [see appendix 12]). If coordinates are given in LORAN the reading should be written above the space provided for GPS units (leaving GPS units blank). The units will be converted in the lab and filled in by the Observer Coordinator.

Longitude In: Enter the position occupied at set (time in) in degrees, minutes, and seconds.

Stat Zone: Enter the statistical zone at set (time in) (appendix 11).

Sea State: Enter the number that best describes the sea state (wave height):

1 = 0-2 feet, 2 = 3-5 feet, 3 = 6-8 feet, 4 = 8+ feet.

Dive Times: All dive times are recorded in military time (0001 - 2359). The station sheet allows space for up to 8 dives per set; they are labeled as **Dive 1 – 8**. A dive is defined as one diver diving down and returning to the boat (with or without catch) once. Record the Time In (start time) and Time Out (stop time) for each dive separately. For example, if one diver makes a total of 3 dives the dive times (Time In and Time Out) for each dive are recorded separately as **Dive 1 – 3**. If the boat has multiple divers aboard the dive times are still recorded separately. For consistency list dives in the order of occurrence. If both divers go down at the same time then their Time In will be the same.

For Example:

Diver 1		Diver 2	
Time In	Time Out	Time In	Time Out
Dive 1 = 12:55	13:25 = 30 min	Dive 2 = 12:55	13:20 = 25 min
Dive 3 = 14:40	15:20 = 20 min	Dive 4 = 14:40	15:08 = 28 min

<p>DIVE 1</p> <table border="1"> <tr><td>1</td><td>2</td><td>5</td><td>5</td></tr> </table> <p>TIME IN</p>	1	2	5	5	<table border="1"> <tr><td>1</td><td>3</td><td>2</td><td>5</td></tr> </table> <p>TIME OUT</p>	1	3	2	5	<table border="1"> <tr><td>0</td><td>.</td><td>5</td><td>0</td></tr> </table> <p>DIVE TIME</p>	0	.	5	0	<p>DIVE 5</p> <table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME IN</p>					<table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME OUT</p>					<table border="1"> <tr><td>.</td><td></td><td></td><td></td></tr> </table> <p>DIVE TIME</p>	.			
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1	3	2	5																										
0	.	5	0																										
.																													
<p>DIVE 2</p> <table border="1"> <tr><td>1</td><td>2</td><td>5</td><td>5</td></tr> </table> <p>TIME IN</p>	1	2	5	5	<table border="1"> <tr><td>1</td><td>3</td><td>2</td><td>0</td></tr> </table> <p>TIME OUT</p>	1	3	2	0	<table border="1"> <tr><td>0</td><td>.</td><td>4</td><td>2</td></tr> </table> <p>DIVE TIME</p>	0	.	4	2	<p>DIVE 6</p> <table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME IN</p>					<table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME OUT</p>					<table border="1"> <tr><td>.</td><td></td><td></td><td></td></tr> </table> <p>DIVE TIME</p>	.			
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0	.	4	2																										
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<p>DIVE 3</p> <table border="1"> <tr><td>1</td><td>4</td><td>4</td><td>0</td></tr> </table> <p>TIME IN</p>	1	4	4	0	<table border="1"> <tr><td>1</td><td>5</td><td>2</td><td>0</td></tr> </table> <p>TIME OUT</p>	1	5	2	0	<table border="1"> <tr><td>0</td><td>.</td><td>6</td><td>7</td></tr> </table> <p>DIVE TIME</p>	0	.	6	7	<p>DIVE 7</p> <table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME IN</p>					<table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME OUT</p>					<table border="1"> <tr><td>.</td><td></td><td></td><td></td></tr> </table> <p>DIVE TIME</p>	.			
1	4	4	0																										
1	5	2	0																										
0	.	6	7																										
.																													
<p>DIVE 4</p> <table border="1"> <tr><td>1</td><td>4</td><td>4</td><td>0</td></tr> </table> <p>TIME IN</p>	1	4	4	0	<table border="1"> <tr><td>1</td><td>5</td><td>0</td><td>8</td></tr> </table> <p>TIME OUT</p>	1	5	0	8	<table border="1"> <tr><td>0</td><td>.</td><td>4</td><td>7</td></tr> </table> <p>DIVE TIME</p>	0	.	4	7	<p>DIVE 8</p> <table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME IN</p>					<table border="1"> <tr><td></td><td></td><td></td><td></td></tr> </table> <p>TIME OUT</p>					<table border="1"> <tr><td>.</td><td></td><td></td><td></td></tr> </table> <p>DIVE TIME</p>	.			
1	4	4	0																										
1	5	0	8																										
0	.	4	7																										
.																													

List all Gear Configurations used by each Diver: List all gear code(s) that correspond to the gear used by each diver.

Vessel (Check One): While fishing was the vessel On Anchor (if vessel is tied too a rig, this is still on anchor), Drifting (if vessel is motor fishing, this is still drifting), Trolling or Unknown?

Predators Observed: Select and mark one of the 5 categories listed for each of the 4 predator types. If predator observed is a marine mammal **other than a dolphin**, specify the type of marine mammal, in the observer comments section and circle marine mammal on the data form.

Target Species: List all species being targeted for the set (i.e. Red Snapper, Red Grouper, and Yellowedge Grouper). Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169), do not reference common names.

Total Dive Time: Add up all Dive Times (1-8).

Water Depth: Enter the bottom depth in feet for the set.

Total Number of Dives: Enter total number dives during the set.

Total Number of Dives Sampled: Enter total number of sampled dives. If a dive is made and no catch is brought up, it is still a sampled dive.

Approximate Diving Depth: Enter the average depth of the dives.

Water Clarity: Use a secchi disk to record measurement in feet (depth at which the secchi disk just becomes not visible from the surface).

Bottom Type: Enter the bottom type (refer to captain and appendix 10).

Scale Type: Enter the type of scale use, Digital (D), Mechanical (M), Both (B) or Unknown (U).

Coordinator Comments: Leave blank.

Observer's Comments: Enter your comments or observations.

Captain's Signature: **THIS IS MANDATORY FOR ALL STATION SHEETS.** At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

LENGTH-FREQUENCY/WEIGHT FORM SPEARFISHING

ORG PRO

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TRIP NO.

--	--	--

SET NO.

DIVER	SAMP	GEAR	COMMON NAME	GENUS	SPECIES	LENGTH	WEIGHT (kg)	COND	FATE	AIR
R	L	C						ITION	RELE	BLAD
E	E	O						C	AS	D
R	R	D						O	E	D
D	D	E						D	E	D
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
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14										
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16										
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18										
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21										
22										
23										
24										
25										

LENGTH CODES	WEIGHT CODES	CONDITION CODES (AS BROUGHT ONBOARD)	FATE CODE
01 - FORK	1 - WHOLE	1 - LIVE: NORMAL APPEARANCE	K - FISH KEPT
02 - STANDARD	2 - DRESSED/CLEANED	2 - LIVE AIR BLADDER/STOMACH PROTRUDING	D - DISCARD DEAD
18 - TOTAL	8 - NOT MEASURABLE	3 - LIVE: EYES PROTRUDING	A - DISCARD ALIVE
22 - DISC	9 - NO DATA	4 - LIVE: COMBINATION 2 AND 3	B - KEPT FOR BAIT
23 - ANAL		5 - DEAD ON ARRIVAL	U - UNKNOWN DISCARD
88 - NOT MEASURABLE		9 - NO DATA OR UNKNOWN	X - UNKNOWN IF KEPT
99 - NO DATA or UNKNOWN			OR DISCARDED

LENGTH FREQUENCY / WEIGHT FORM – SPEARFISHING

Trip No: Enter Trip Number provided by Observer Coordinator.

Set No: Enter the set number. The set number begins with “001” for each trip.

Sampling Procedures

- 1. Diver Number Sampled:** Enter the diver number sampled. You may sample one diver more than one time during a set.
- 2. Gear Code:** Enter the gear code that corresponds to the diver sampled.
- 3. Fish Identification:** Identify the fish to species level, record common name, genus and species. Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Species List, page 169). Record all fish caught while spear fishing.
- 4. Fish Length Measurement:** Record the length of fish in **millimeters**. Be sure to measure the fish using the appropriate species specific length measurement code (see appendix 10 and Species List, page 169). If the fish is not measurable (mutilated, e.g., tail missing from shark attack) enter 888.88 in the **LENGTH** column and 88 for the **LENGTH CODE**. If no measurement was taken (e.g., thrown overboard) 999.99 in the **LENGTH** column to denote unknown and/or not measured and 99 for the **LENGTH CODE**.
- 5. Fish Weight Measurement:** Record the weight of fish in **kilograms**. Indicate whether the fish was weighed "**whole**" code **1** or "**gutted**" code **2** in the **WEIGHT CODE** column on the length frequency/weight form. If the fish is damaged or too light to obtain a reading on your scale, enter 888.88 in the **WEIGHT** column and 8 for the **WEIGHT CODE**. If the weight was not measured or the weight is unknown, enter 999.99 in the **WEIGHT** column and 9 for the **WEIGHT CODE**.
- 6. Condition Code:** Use most appropriate condition code (see bottom of form) to describe condition of the fish when brought on deck.
- 7. Fish Fate:** Use most appropriate fate code (see bottom of form) to describe fate of the fish.
- 8. Tagging Undersized Select Species (only if instructed by program manager or coordinator):** Undersized select species in good health will be tagged and released. Only place an “X” on the length/frequency form in the **TAGGED** column if the fish is tagged by the observer. You will also be required to complete a **Tag Reporting Form**. If a previously tagged fish is captured reference the tag number and contact information in the comment section of the station sheet.
- 9. Air Bladders:** If air bladder is punctured, enter an "X" in the **AIR BLADDER** column. Puncture air bladders only if this is the traditional procedure of the captain and crew.
- 10. Length Frequency/Weight Form Continued:** Continue on a new Length Frequency Form.

SEA TURTLE LIFE HISTORY and TAG REPORTING FORMS

The following forms are to be used for all types of trips and only completed when appropriate.

- 1. Sea Turtle Life History**
- 2. Tag reporting Form (LL/BR/JUG/SF-TAG)**
- 3. Protected Resources Capture Report**

SEA TURTLE LIFE HISTORY FORM

REEF AND SHRIMP

1_10

Trip Number [][][][][][] MO / DY / YR Set/Tow [][][] Station [] Captured Specimen # By Trip [][][] Non-Station [] Sighted [][][]

Vessel [][][] Observer [][][] State [][][] Time (24 hr) [][]:[][][] Water Depth (ft.) [][][] Photos Y/N [] Number [][][] LATITUDE [][][] deg [][][] min [][][] sec LONGITUDE [][][] deg [][][] min [][][] sec

SPECIES IDENTIFICATION: [] Leatherback [] Loggerhead [] Kemp's Ridley [] Green [] Hawksbill [] Olive Ridley [] Unidentified Hardshell [] Unknown

CONDITION OF TURTLE AT CAPTURE: [] Previously Dead [] Fresh dead/Comatose/Unresponsive (detail reflex response p. 2) [] Injured [] Alive [] Attempted resuscitation? Y / N [] Injured [] Unknown (describe) [] Other (describe in comments section) [] Unknown

Gear Type: [] Longline [] Gill Net [] Trawl [] Bandit Reel [] Handline [] Jug [] Fish Trap [] Spear Fishing Gear Depth: [] Surface [] Midwater [] Bottom [] Other _____ Did turtle slide out/escape from gear? Y / N Was turtle brought on board? Y / N

Net Position [] Net Type Turtle Captured In: [] Try Net [] Standard Net Net Modifications: [] TED [] BRD [] TED/BRD [] None [] Unknown Check one to describe turtle interaction with TED: [] Turtle caught before TED [] Turtle went through TED grid [] Not Applicable [] Unknown

Tow Time (check one): [] Try Net [] Standard Net Start Date []/[]/[] Time In [][]:[][][] Stop Date []/[]/[] Time Out [][]:[][][] Hours Towed [][][]

IF GEAR IS A FORM OF HOOK AND LINE, COMPLETE THIS SECTION, AS APPLICABLE: Hook Type: [] "J" [] Circle [] other (describe) _____ SIZE [][][] / 0 Manufacturer/Style No. _____ DEGREE OFFSET [][][] ° Bait: [] Squid [] Mackerel [] Sardine [] Unknown [] Other (describe) _____ SIZE _____

HOOK LOCATION: [] Not Hooked [] Not Known if Hooked [] Hooked, but location totally Unknown (Circle specific location; check box is specifics are not known; annotate drawing on reverse to indicate location as needed) Internal: [] Unknown, internal [] Swallowed (Esophagus) Hook visible? [] Visible to insertion point [] Partial hook [] Not visible [] Beak/Mouth Jaw Location (check one): [] upper [] lower [] side (mouth only) Check one for mouth: [] tongue [] glottis [] soft palate [] jaw joint [] other (describe) External: [] Unknown, external [] Beak/Head/Neck [] Carapace/Plastron [] Front Flipper/Shoulder/Armpit [] Rear flipper/Groin/Tail

Was hook removed from this animal? Y / N / Unknown / Not Applicable Was animal entangled in gear? At capture? Y / N / Unknown At Release? Y / N / Unknown How much gear (linear feet) was left on the turtle when released? [][][][] ft. (estimated/measured)

SECTION 1 - BOTH

SECTION 2 - SHRIMP

SECTION 3 - REEF FISH

BIOLOGICAL INFORMATION

Trip # _____ Set/Tow _____ Specimen # _____

Estimated carapace length (notch-to -tip straight line): ft. (needed only if turtle is not boated & measured)

DIMENSIONS (cm): Curved (measuring tape) Standard Measurements Notch-to-Tip Straight Line (calipers) Standard Measurements Notch-to-Tip Straight Line (calipers) Notch-to-Notch
 Carapace Length Notch-to-Tip Notch-to-Tip Notch-to-Notch
 Carapace Width

TAGS (Identify address on each tag in the comments section):

Flipper Tag Number	Metal (1) or Plastic (2)	Position (Flipper) LF, RF, LR, RR	Already Present (1) or Applied by Observer (2)	Were Tags Removed?
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	Y / N
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	Y / N
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	Y / N
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	Y / N
PIT Tag <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		<input type="text"/> <input type="text"/>	<input type="checkbox"/>	Scanned? Y / N

(Put PIT tag label here)

Living Tag Yes/No (describe) _____ Other Tags (describe) _____

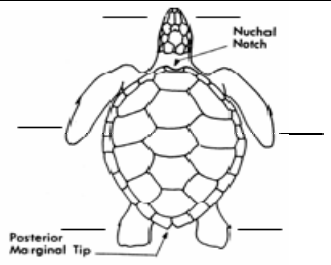
BIOPSY SAMPLED TAKEN? Y (itemized below) / N / Unsuccessful (if yes, USFWS 3-177 form may be needed)

Y / N Did observer assist in dehooking, resuscitation, etc. (other than standard measuremer Address in Comments.

RELEASE INFORMATION: TIME (24hr) : DATE MO / DY / YR / /
 LATITUDE deg min sec LONGITUDE deg min sec

FINAL DISPOSITION: Discarded Marked Dead/Unresponsive Carcass Discarded Unmarked Dead/Unresponsive Carcass
 Salvaged Carcass/Part (explain) Released Alive Taken to Holding Facility Unknown (explain)

ADDITIONAL COMMENTS: (list all biological samples collected; describe or sketch any anomalies):



Place a "Y" on the lines of the diagram to indicate positive reflex/response or a "N" for no response.

IDENTIFICATION CRITERIA:

Number of:

- Left Lateral Scutes
- Right Lateral Scutes
- Vertebral Scutes
- L. Inframarginal Scutes
- R. Inframarginal Scutes
- Overlapping Scutes? Y / N / U
- Inframarginal Pores? Y / N / U
- 1 Pair Prefrontal Scales? Y / N / U
- Lacks Bony Shell? Y / N
- Does Nuchal Scute Touch 1st Lateral Scute? Y / N / U

CONDITION EVALUATION FOR TURTLES NOT CODED "ALIVE"

- Rigor Mortis Y / N / U
- Rotting Flesh Y / N / U
- Foul Smell Y / N / U

Dorsal Coloration Black Orange/Red-Brown Brown Gray-Green Other _____

SECTION 4 - BOTH

SEA TURTLE LIFE HISTORY FORM

Write legibly in both the log book and on the forms themselves. For Captured turtles, **COPIES** of turtle forms, photos and biopsies are to be mailed to the Galveston Laboratory as soon as possible after the vessel reaches port (Original Forms are to be kept with the trip at all times!!!). **DO NOT MAIL FORMS, PHOTOS, AND BIOPSIES DIRECTLY TO THE MIAMI LABORATORY.**

It is pertinent that all information collected on the Sea Turtle Life History Form is as **accurate** and **detailed** as possible. **Detailed information should also be logged in your log books.** We are unable to verify questionable information on the forms if we have nothing to compare it to.

The sea turtle life history form is used for both the By-catch and Reef Fish Programs; however, the information utilized by the individual programs varies. The form has been separated into four sections: Section 1 – Both, Section 2 – Shrimp, Section 3 – Reef Fish and Section 4 – Both. Sections 1 and 4 are to be completed for every turtle sighted or captured. The completion of sections 2 and 3 is program dependent. If the information does not apply to your trip, for example hook size on a shrimp trip, the section should be left blank. It is very important to complete the form in its entirety.

Complete a Sea Turtle Life History Form for every turtle, sighted or captured (brought aboard or released along side a vessel). Photographs should be taken of all turtles if possible, if you are unable to identify the species record it on the data sheet as “Unknown” or “Unknown Hardshell” (if the turtle can be positively identified as a hardshell turtle). Record tag data if tags are present. Also, you may be requested to take biological samples (biopsy).

While turtles should be worked up and returned to the water as soon as possible (unless resuscitated), in order to continue your other observer duties, you may need to put the turtle safely aside and work it up later. If the animal has gear attached, the gear should be removed immediately, as the severity of the interaction can increase with prolonged exposure to the gear.

SECTION 1 - BOTH

Trip No.: Enter Trip Number provided by Observer Coordinator.

Date: Enter month day and year turtle was captured or sighted.

Set/Tow: Record the set or tow number during the trip when interaction or sighting occurred. If the turtle was not associated (non-station) with a set or tow then enter 999.

Station/Non-Station: A turtle is considered a station turtle if it is captured or sighted during a sampled set or tow. All others should be considered non-station turtles. This is an important distinction, as they are entered in the database differently.

Captured/Sighted: Record if the animal was captured or sighted. For sighted turtles you are required to complete as much information as possible. All of Section 1, minus the condition of turtle at capture, should be completed. Estimated carapace length in section 4 should be completed if possible. **“Sighting only, no interaction with vessel or gear”** should be written in the comments section.

Specimen Number: Record a three digit consecutive number for captured turtles only. Turtle specimen numbers begin with 001 and continue sequentially throughout the trip.

Vessel Code: Enter Vessel Code provided by Observer Coordinator.

Observer: Enter Observer Code provided by Observer Coordinator.

State: Enter the state that you were closest to when sea turtle was sighted or captured.

Time: Enter in military time (0001-2359) when turtle was sighted or captured.

Water Depth (ft.): Record the water depth in feet.

Photographed (circle one): Y or N. **Number of Photos Taken?** Record the number of photos taken. Always photograph the turtle if possible. Take at least one picture illustrating the location of gear attachment. This should never be left blank, it is asking for quantity. So if no photos were taken you should place a zero in the boxes provided.

Latitude: Record the degrees, minutes and seconds of latitude at the time of capture or sighting.

Longitude: Record the degrees, minutes and seconds of longitude at the time of capture or sighting.

Species Identification: Check the appropriate box which corresponds to the species of turtle. Enter Unknown or Unknown Hardshell if a positive identification cannot be made.

Injury Status: Specify the turtle’s injury status as **Injured, Uninjured, or Unknown**. Injury status is considered independently and refers only to whether a turtle is hooked or otherwise injured (scrapes, cracks, etc.) as a result of the observed fishing operation. ****Note:** A previously dead, fresh dead or comatose/unresponsive turtle should be coded as **uninjured** if it was not hooked and did not sustain fresh cuts or lesions from the gear.

Injured: The turtle is injured as a result of the observed fishing operation. The turtle should be considered injured if it was hooked, or sustained fresh cuts or lesions by gear. Describe in detail how the turtle was injured.

Uninjured: The turtle was not hooked or 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 boarded, and the observer did not get a good view of the animal.

Condition of Turtle at Capture: Check the appropriate box that best corresponds to the turtle's condition when it was recovered.

Previously Dead: 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 will have rigor mortis.

Fresh Dead/Comatose/Unresponsive: At times it is difficult to make the distinction whether a turtle is dead or comatose/unresponsive. The two groups have been combined to allow for maximum flexibility, as well as separated out to allow for a more detailed response. If you are unsure if a turtle is fresh dead or comatose/unresponsive you should check the "Fresh dead/comatose/unresponsive". If can determine if the turtle is "fresh dead" or "comatose/unresponsive" circle specific category as well as checking the combined category. For example:

CONDITION OF TURTLE AT CAPTURE:

- | | |
|---|--|
| <input type="checkbox"/> Previously Dead | <input checked="" type="checkbox"/> Fresh dead/Comatose/Unresponsive (detail reflex response p. 2) |
| <input type="checkbox"/> Alive | Attempted resuscitation? Y / N |
| <input type="checkbox"/> Unknown (describe) | <input type="checkbox"/> Other (describe in comments section) |

Fresh Dead: The turtle died as a result of the current (observed) fishing operation. The carcass may show signs that it has 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; the carcass may exhibit moderate to severe decomposition 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 there is an indication of life but no obvious direct movement or breaths. A comatose/unresponsive turtle should be coded as uninjured unless it was hooked or shows obvious signs of fresh cuts or lesions. If the turtle appears to be comatose/unresponsive you should check for bilateral responses as described by the Sea Turtle resuscitation guidelines on Page 162 of the manual. This

should be done periodically prior to the animal being returned to the water. A fully conscious turtle has bilateral reflexes and central (e.g., brain) recognition of the stimulus. An unresponsive turtle will not have full bilateral responses, or central recognition of a stimulus. A comatose turtle will have lost all reflexes. 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 responses. A lack of bilateral response is an indication that resuscitation may be needed.

Attempted Resuscitation? Y / N: This should never be left blank. This indicates if the vessel crew attempted resuscitation. Observers are not to perform or aid in the resuscitation of turtles. To be coded as Yes, it must be an active resuscitation attempt, per the Sea Turtle Resuscitation Guidelines on page 162 (66 FR 67495, Dec 21, 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. If a turtle is simply placed on a tire or on deck without elevation, this is not an active resuscitation attempt and should be coded as No. Please describe the circumstances in the comments section. **Note in the comments section the time it took for the turtle to respond and how long you were able to keep the animal on deck before release.

Alive: A turtle should be coded as alive if it makes directed movements, such as attempting to crawl or bite, and while breathing the carapace raises and lowers. If the turtle is brought onboard responsive, but lethargic, you should check "Alive".

Unknown: The turtle was not closely observed and the condition is unknown. Explain in comments.

Other: The condition does not fit any category described above. Explain in comments.

Gear Type: Indicate which gear is being fished. If gear is something other than the listed types, write the gear type in the comments section.

Gear Depth: Indicate whether the gear was being fished at the surface, mid-water, on the bottom, or other. If other, reference the depth in the comment section.

The following two questions are yes or no responses, which should never be left unanswered. Answers to these two questions are considered extremely important when evaluating turtle interaction.

Did turtle slide out/escape from gear? Circle Y or N. If the turtle had to be cut loose from the gear, then the correct answer is N. If the turtle is a sighted turtle leave blank.

Was turtle brought on board? Circle Y or N.

SECTION 2 - SHRIMP

This section should always be filled out completely for shrimp trips.

Net Position: Enter net position at time of turtles capture or sighting. For turtle captured in a try net or non-station turtles enter 9 (default code).

Net Type Turtle Captured In: Check the appropriate answer to describe the type of net turtle had interaction with.

Net Modifications: Check the appropriate answer to explain all net modifications present in net.

Check one to describe turtle interaction with TED: Check the appropriate answer. You have four options: Turtle caught before TED, Turtle went through TED grid, Not Applicable (No TED or not caught in net) and Unknown (you do not know).

Tow Time (check one): First check, Try net or Standard net to denote the type of tow time being referenced. If the turtle is captured in/or passed through the Try net reference the Try net tow time (if time permits the collection of the try net tow time). If the Try net tow time was not collected or if there was no interaction with the Try net, then reference the Standard net tow time. Reference the date the tow started, the time the nets are set, the date the tow stopped, and the time at the start of haul back. Then calculate hours towed.

SECTION 3 – REEF FISH

This section should always be filled out completely for Reef Fish trips.

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 all that apply: Squid, Mackerel, Sardine, Unknown or Other (describe). Enter the size of bait used.

Hook Location (see guide on pages 152 - 156): 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.

This section is divided into several parts. First, was the turtle hooked and do you know where. Check the most appropriate box to answer the question: **Not Hooked, Not Known if Hooked, or Hooked, but location is totally unknown**. If you know where the turtle was hooked then leave this part blank and complete the appropriate section (**Internal or External**). ****Note:** For Shrimp By-catch trips please check “Not Hooked”. This acts as a red flag to other agencies that the animal was not hooked.

Internal Hook Location - Check general location and circle the specific location, if 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 observed closely.

Swallowed (esophagus): Indicates the turtle “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. If “Swallowed” is selected you must also answer “**Hook Visible?**”

Hook Visible: Check the extent to which the hook is visible, choose from: **visible to insertion point, partially visible or not visible**.

Beak/Mouth: Indicates the turtle was internally hooked in the beak or the mouth. Circle whether hook is in the **beak** (the hard, keratinized parts of the upper or lower jaw in hardshell turtles) or **mouth** (soft tissue parts). Hook is usually easily visible, except those lodged in the back of the mouth. Describe hook location in the comments section.

Jaw location: Specify the location of the hook in the jaw: **upper, lower, or side** (mouth only) by checking the appropriate box. If a turtle is hooked in the mouth you are required to check specific location (**tongue, glottis, soft palate, jaw joint or other**). Check **other**, if the specific locations listed do not apply. For example, if a turtle was hooked in the lower jaw but was not hooked in the tongue or glottis you should check the following: **beak/mouth, mouth, lower jaw and other**.

Internal: Unknown, internal
 Swallowed (Esophagus) Hook visible? Visible to insertion point Partial hook Not visible
 Beak (Mouth) Jaw Location (check one): upper lower side (mouth only)
 Check one for mouth: tongue glottis soft palate jaw joint other (describe)

External: Turtle is 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 the comments section.

Carapace/Plastron: The turtle is hooked in the carapace or plastron. Describe location in the comments section.

Front Flipper/Shoulder/Armpit: The turtle is hooked in the front limbs, armpits (trailing edge or ventral), or shoulders (leading edge). Describe which side (right or left) in the comments section.

Rear Flipper/Groin/Tail: The turtle is hooked in the rear limbs, groin or tail. Describe which side (right or left) in the comments section.

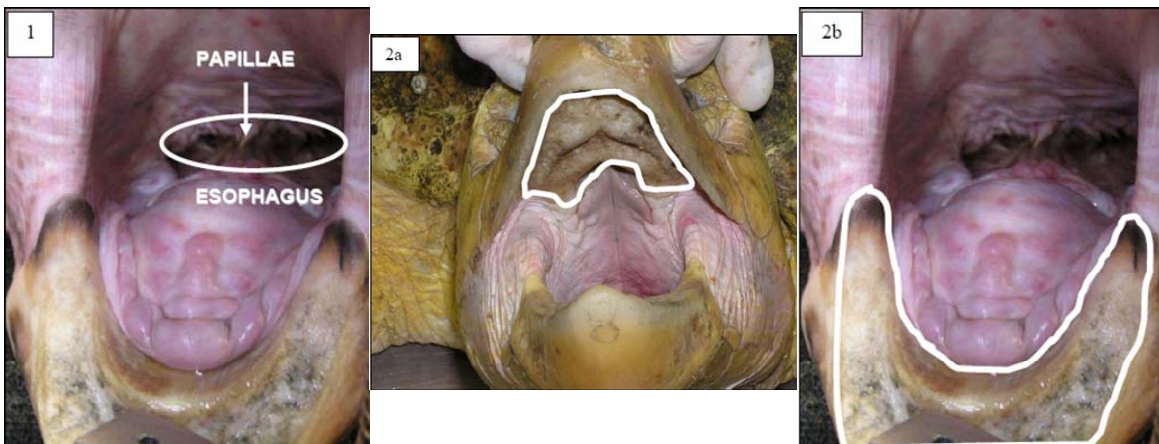
Was hook removed from this animal: Circle Yes, No, Unknown, or Not Applicable. If turtle was 'Not Hooked', or 'Not known if hooked' then mark 'Not Applicable'. This question should also be answered, for shrimp trips please circle "Not Applicable" (another red flag).

Was animal entangled in gear at capture? These should always be answered. Circle Yes, No, or Unknown. **At release?** Circle Yes, No, or 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. Record a zero if all line is removed.

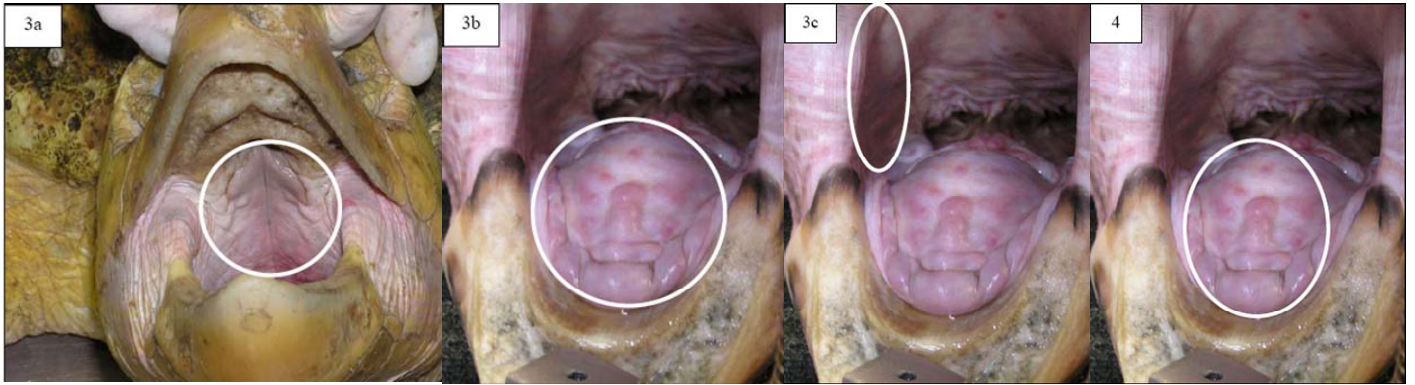
HOOK LOCATION GUIDE

Internal:



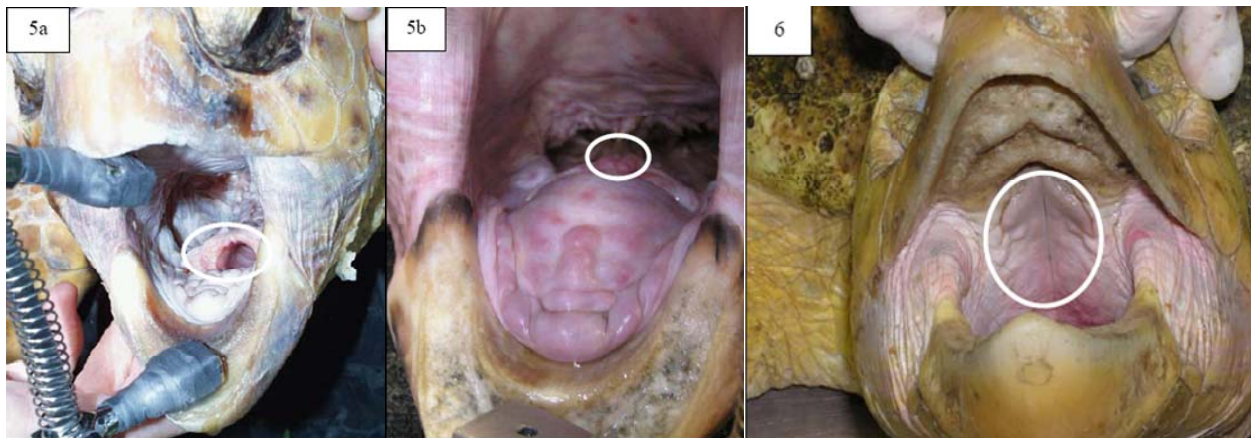
1) Swallowed = inside the esophagus, the entrance marked by the presence of papillae. Indicate whether hook is visible to insertion point, partially visible, or not visible.

2) Internal Beak - hard keratinized rhamphotheca – hardshell turtles only. a) Upper or b) Lower



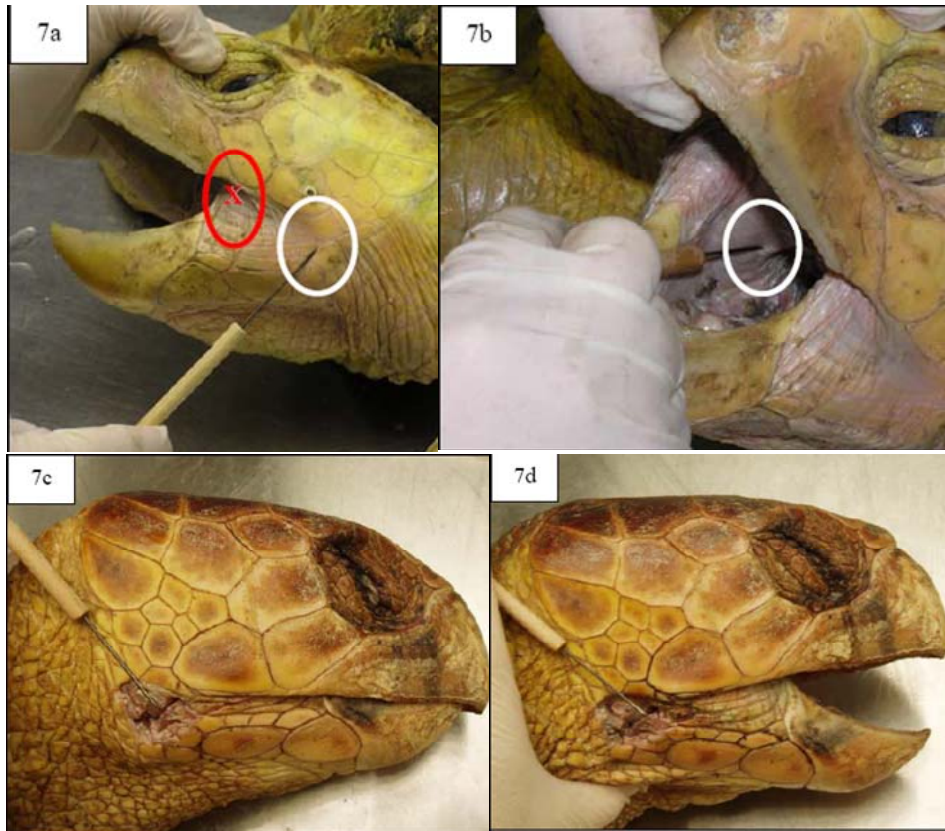
3) Mouth, a) Upper - should generally be coded as roof of mouth, b) Lower - may be tongue, glottis, or other if under or beside the tongue, c) Side - could be jaw joint or other.

4) Tongue



5) Glottis a) Open b) Closed

6) Roof of Mouth

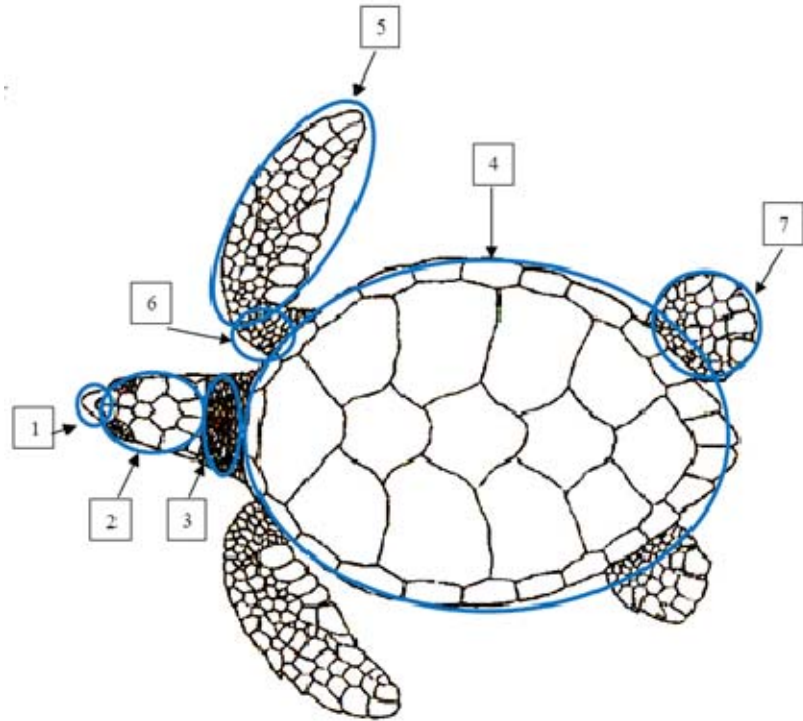


7) Jaw Joint a) external, b) internal, c) dissection depicting jaw joint with jaw closed, and d) dissection with jaw open. Note: this is **not** the corner of the mouth, depicted in Figure 7a by the **red** circle (which shows the “corner of the mouth”). To understand the difference, locate your own 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).

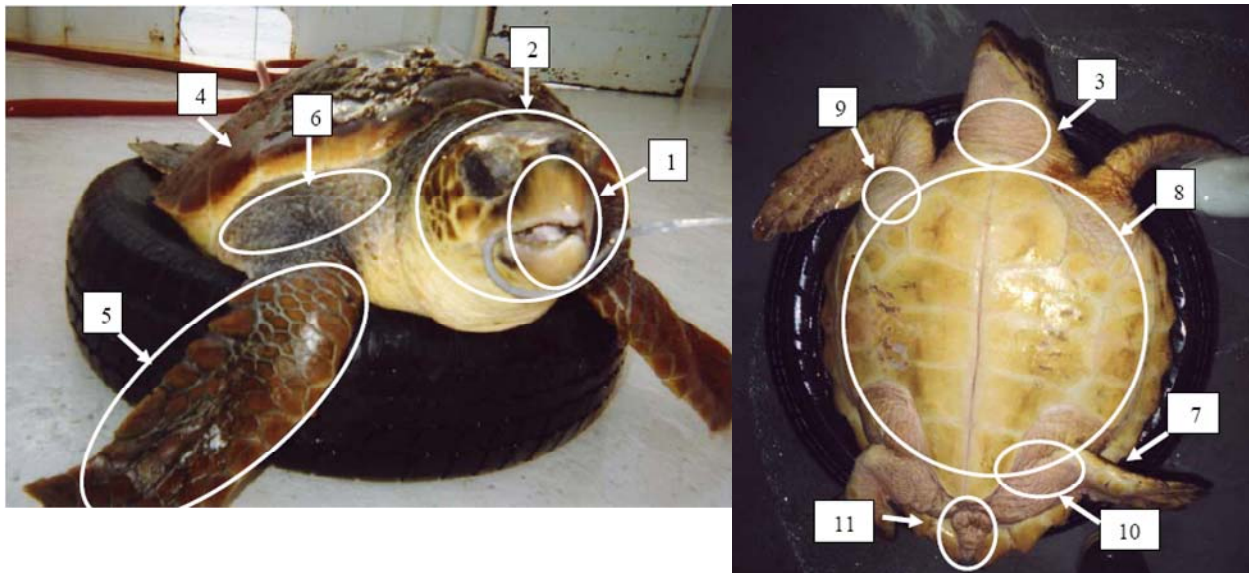
8) Other = any area not otherwise described here. For example, “mouth, lower, other” might be below the tongue in the soft tissue. “Mouth, side, other” could be the “corner of the mouth” in the soft tissue connecting the jaws in front of the jaw joint. Describe in further detail in comments if possible.

External Hardshell:

- 1) Beak
- 2) Head
- 3) Neck
- 4) Carapace
- 5) Front Flipper
- 6) Shoulder
- 7) Rear Flipper

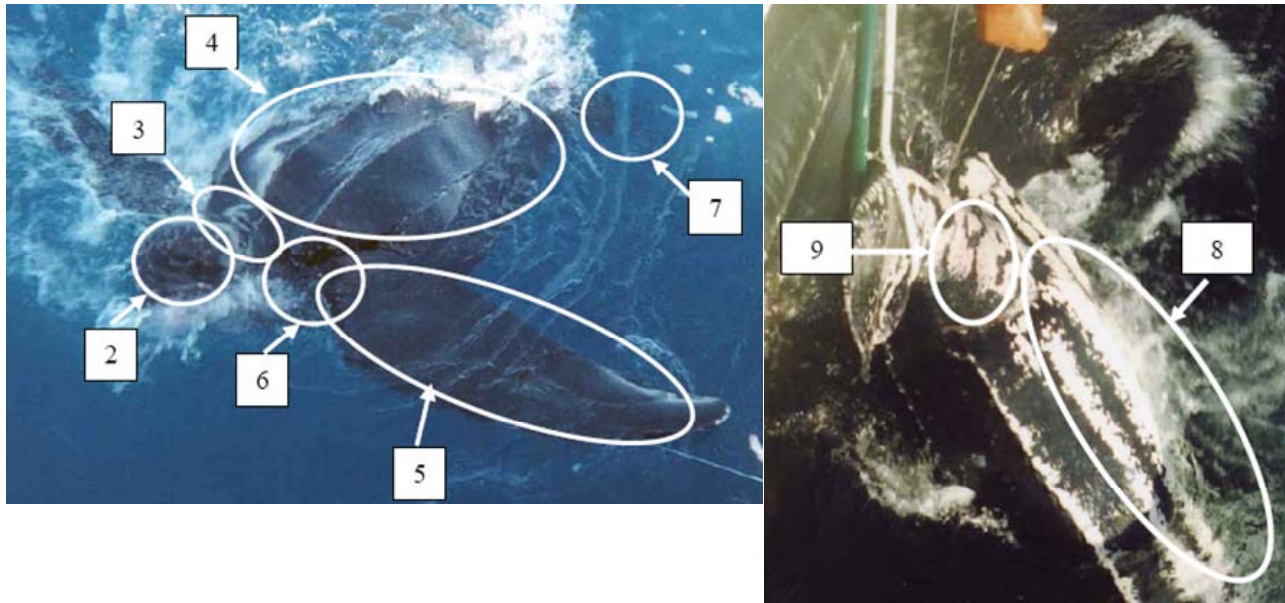


External Hardshell:



- 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.

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 live ridley sea turtle, *Lepidochelys olivacea* (Eschscholtz, 1829), in the western Atlantic. NOAA Technical Memorandum NMFS-SEFSC-336, 78 pp.

SECTION 4 - Biological Information

Be as detailed as possible, take measurements when ever possible, apply tags, scan for existing tags and take biopsies whenever possible. This is vital for possible recapture studies in the future.

Trip No.: Enter Trip Number provided by Observer Coordinator.

Set/Tow: Record the set or tow number of the trip.

Specimen Number: Reference specimen number given on pervious page.

Estimated Carapace Length (ft): Measurement must be estimated if turtle is not boarded or is a sighted turtle. **Note the unit of measurement is feet.

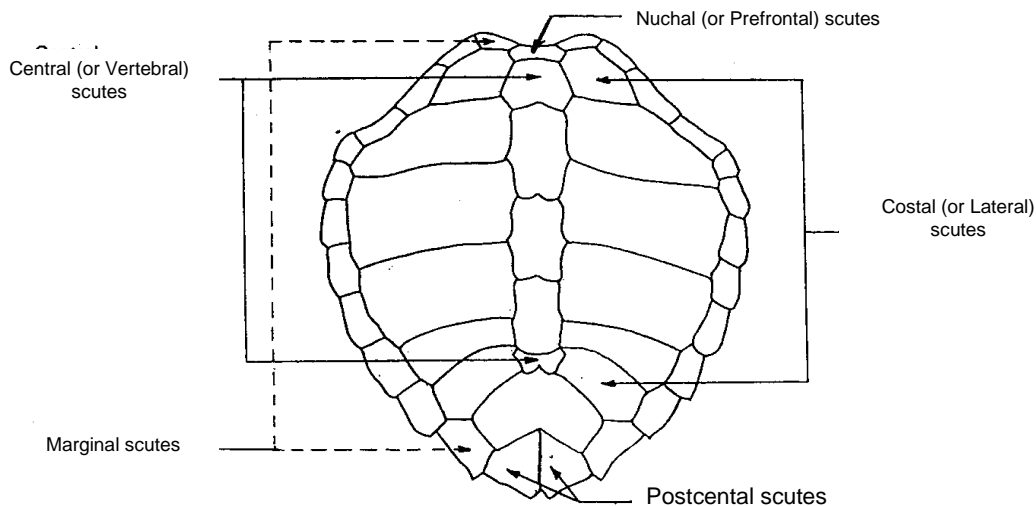
DIMENSIONS: Record carapace measurements in centimeters (cm), use a tape measure for curved and calipers for straight. Measurements over-the-curve, follow the curvature of the carapace. If barnacles affect these measurements, record the details in the comment section. Only curved measurements are taken on leatherbacks.

Carapace Length, curved, notch-to-tip (standard): 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.

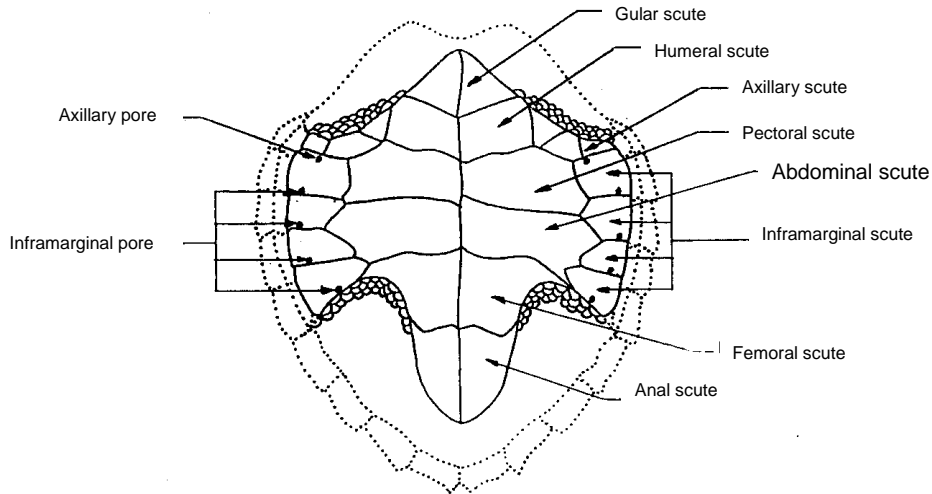
Carapace Length, straight, notch-to-tip (standard): The distance between the center of the nuchal scute and the end of the longest postcentral scute.

Carapace Width, curved: The 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: The maximum distance between the lateral edges of the carapace.



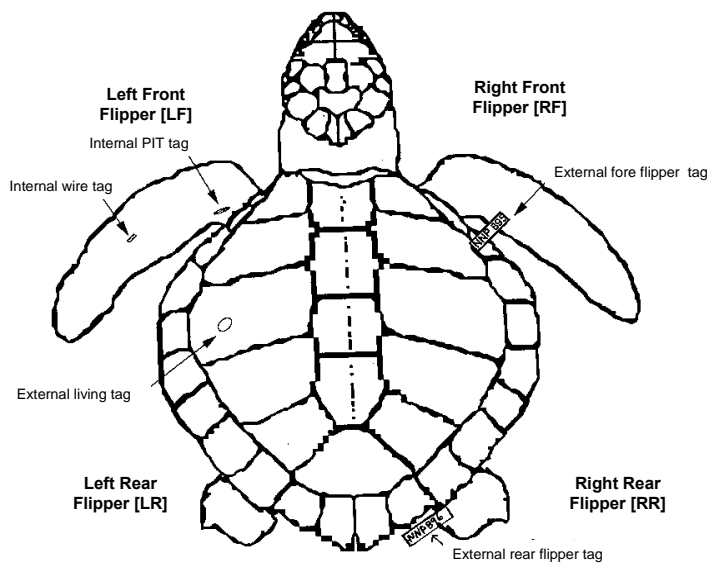
Carapace of an olive ridley turtle (*Lepidochelys olivacea*) (Surinam specimen, scaled drawing by S. Handigman)



Plastron of an olive ridley turtle (*Lepidochelys olivacea*) (Surinam specimen, scaled drawing by S. Handigman)

TAGS

Look for existing tags. 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, created by surgically removing a small piece of the plastron and implanting it in the carapace, may appear in any of the lateral scutes, mainly on Kemp's Ridley turtles. In addition, there may be two types of internal tags (wire and PIT) placed in the shoulders or front flippers. You will apply a PIT (Passive Integrated Transponder) tag if one is not present (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 20cm SCL should only get PIT tagged. If the turtle measures between 20-30cm SCL then it is up to the observer to use their best judgment to determine if flipper tagging is appropriate.



Flipper Tag Number: Record the number of the tag already present or which 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 being 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.

Already Present [1] or Applied by Observer [2]: Indicate 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 Yes or No. Preexisting tags that are hard to read or about to fall off should be removed. If the tag is removed from the rear flippers it should be replaced with a new one. The old tags should be collected and given to the Observer Coordinator with the trip. If the existing tags are in good condition then leave them in place. If no tags are on the turtle, leave blank.

PIT Tag: Scan the flippers, shoulders and arm pit area with the PIT tag scanner. If the turtle has a preexisting tag record the tag number and "Position", then mark the form "Already present (1)" and circle "Yes" for scanned. If there is no PIT tag present in either of the front flippers, inject a PIT tag into the left front flipper, record the PIT tag number and attach the PIT tag sticker to the data sheet. Then mark the form as follows: "position" LF, Applied by Observer (2) and circle "Yes" for scanned. If no PIT tags are on the turtle and none are applied, leave blank.

Scanned: Circle Yes or No, indicating if you scanned the flipper, shoulder and armpit area prior to and after application.

Living Tag: Indicate if living tags are present. Record details, including position, in the comments section. Photograph the mark.

Other Tags: Indicate whether any other types of tags, such as satellite tags, were present or were attached. Record the tag number here if it has one. Record details, including position, in the comments section. Photograph the tag.

Biopsy Samples Taken? Circle Yes, No, or Unsuccessful. Biopsy samples for genetic analysis should be taken from all turtles. 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.**

Did Observer assist in dehooking, resuscitation, etc.: Circle Yes or No to indicate the observer assisted, then circle dehooking or resuscitation to indicate what the observer assisted with (dehooking, resuscitation or both). ****Note:** Providing instructional advice is not considered assisting.

Release Information

Latitude/Longitude, Time and Date is **NOT** always the same information referenced for time of capture. Be as detailed as possible.

Latitude: Record the degrees, minutes and seconds of latitude at the time of release.

Longitude: Record the degrees, minutes and seconds of longitude at the time of release.

Time: Enter in military time (0001-2359) when turtle was released.

Date: Enter month, day and year when turtle was released.

Final Disposition: Record the final disposition (fate) of the turtle at time of release by checking the appropriate box.

Discarded Marked Dead/Unresponsive Carcass: All carcasses returned to sea should be spray painted or otherwise marked.

Discarded Unmarked Dead/Unresponsive Carcass: Carcass returned to sea unmarked.

Salvaged Carcass/Parts (explain): Indicate whether the carcass or parts of the carcass were salvaged (note: this does not include biopsy samples from live turtle), record in the comments section what was salvaged and where it was taken. **A current CITES permit is required with animals or parts taken in the high seas (outside the U.S. EEZ).**

Released Alive

Taken to Holding Facility

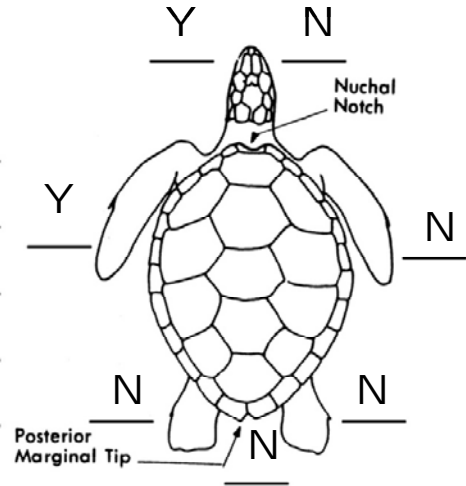
Unknown (explain)

Additional Comments: Use this area to record any and all comments. Annotate the drawing to indicate any anomalies, location of living tags, etc. Be sure to list all biological samples collected. If resuscitation was attempted, record details (length of time resuscitation was attempted, method(s) used, etc.). Describe the interaction with as much detail as possible.

Condition Evaluation for Turtles Not Coded “Alive”:

Mark each line on the turtle diagram with a “Y” to indicate positive reflex/responsiveness for all turtles coded fresh dead/comatose /unresponsive. Where there is no response, mark the line with an “N”. Mark all seven 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 gently touching the skin around each eye. Position yourself so that you can see both eyes at the same time. Stimulate the front and rear flippers and the tail with a firm pinch. If there is a positive response, note whether or not it was limited to the stimulated area or if it evoked a larger response.



Rigor Mortis: Yes, No or Unknown

Rotting Flesh: Yes, No or Unknown

Foul Smell: Yes, No or Unknown

Identification Criteria

Left Lateral Scutes: Record number of lateral (costal) scutes on left side of carapace.

Right Lateral Scutes: Record number of lateral (costal) scutes on right side of carapace.

Vertebral Scutes: Record number of vertebral scutes on midline of carapace.

Left Inframarginal Scutes: Record number of scutes on left side of plastron.

Right Inframarginal Scutes: Record number of scutes on right side of the plastron.

Overlapping Scutes: Are there overlapping scutes on dorsal surface? Circle Y, N, or Unknown.

Inframarginal Pores: Are there pores on ventral inframarginal scutes? Circle Y, N, or Unknown.

1 Pair Prefrontal Scales: Does turtle have one pair of prefrontal scales? Circle Y, N, or Unknown.

Lacks Bony Shell: Does turtle lack a bony shell? Circle Y or N.

Nuchal scute: Does first nuchal scute touch first lateral scute? Circle Y, N, or Unknown.

Dorsal Coloration: Check the most appropriate box to describe coloration of turtle or check other and describe.

Sea Turtle Resuscitation Guidelines

If a turtle appears to be unresponsive or comatose, attempt to revive it before release. Turtles can withstand lengthy periods without breathing; a comatose sea turtle will not move, breathe voluntarily, or show reflex responses or other signs of life. In other cases, an unresponsive turtle may show shallow breathing or reflexes such as eyelid or tail movement when touched. Use the following method of resuscitation in the field if veterinary attention is not immediately available:

- Place the turtle on its plastron (lower shell) and elevate the hindquarters approximately 15 - 30 degrees to permit the lungs to drain off water for a period of 4 up to 24 hours. A board, tire or boat cushion, etc. can be used for elevation.
- Keep the turtle in the shade, at a temperature similar to water temperature at capture. Keep the skin (especially the eyes) moist while the turtle is on deck by covering the animal's body with a wet towel, periodically spraying it with water, or by applying petroleum jelly to its skin and carapace. Do not put the turtle into a container with water.
- Do not put the turtle on its carapace (top shell) and pump the plastron (breastplate) or try to compress the turtle to force water out, as this is dangerous to the turtle and may do more harm than good.
- Periodically, gently touch the corner of the eye or eyelid and pinch the tail near the vent (reflex tests) to monitor consciousness.
- Sea turtles may take some time to revive; do not give up too quickly. Turtles that are successfully resuscitated benefit from being held on deck as long as possible (up to 24 hours) to fully recover from the stress of accidental forced submergence.
- Release successfully resuscitated turtles over the stern of the boat, when fishing or scientific collection gear is not in use, the engine is in neutral, and in areas where they are unlikely to be recaptured or injured by vessels. A turtle that has shown no sign of life after 24 hours on deck may be considered dead and returned to the water in the same manner.



NMFS/SEFSC Photos



References:

Federal Register, December 31, 2001. Government Printing Office, Washington DC 66 (250), pp. 67495- 67496.

October 2008

TAG REPORTING FORM

ORG PRO

MO DY YR

MO DY YR

TRIP NO.

DATE-START TRIP

DATE - END TRIP

LONGLINE

BANDIT

JUG

SPEAR

STARTING TAG NUMBER

ENDING TAG NUMBER

TAG TYPE: _____

GENUS: _____ SPECIES: _____

COMMON NAME: _____

SET NO.	DATE RELEASED			FISH TAG NO.	LAT. RELEASED			LONG. RELEASED			DEPTH (FEET)	FISH LENG. (mm)
	MO.	DAY	YR		DEG	MIN	SEC	DEG	MIN	SEC		
1												
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LL/BR/JUG/SF-TAG

TAG REPORTING FORM

Upon completion of a reef fish trip complete the following information relevant to the fish tags used. This information should be obtained from your Station Sheets and Length Frequency/Weight Forms. This form should only to be completed if the fish were tagged by the observer.

Trip No.: Enter Trip Number provided by Observer Coordinator.

Date–Start Trip: Enter the starting date of the trip, month/day/year.

Date–End Trip: Enter the ending date of the trip, month/day/year.

Type of Trip: Check the most appropriate box: Longline, Bandit, Spear fishing

Starting Tag Number: Enter the first tag used during this trip.

Ending Tag Number: Enter the last tag used during this trip.

Tag Type: List the type of tag used

Genus: List the first 7 digits for the genus

Species: List the first 6 digit for the species

Common Name: List the full common name

Set Number: Enter the set number when tagging occurred.

Date Released: Enter the date that you released the tagged fish.

Fish Tag Number: Enter the tag number used.

Latitude Released: Enter the latitude (deg, min, and sec) where the tagged fish was released.

Longitude Released: Enter the longitude (deg, min, and sec) where the tagged fish was released.

Depth: Enter the bottom depth (ft) at release.

Fish Length: Enter the length of the fish (mm).

SAWFISH, STURGEON, MARINE MAMMALS, BIRDS

PROTECTED RESOURCES CAPTURE REPORT

REPORT WITH IN 24 HOURS OF CAPTURE

1_10

Trip Number MO DY YR Set/Tow Station Captured Specimen #
 / / Non-Station Sighted
By Trip

Check type of specimen captured and reference species (if known) in space provided:

Sawfish _____ Marine Mammal _____
 Sturgeon _____ Birds _____

Vessel Observer State Time (24 hr) : Water Depth (ft.) Photos Y/N Number
LATITUDE deg min sec LONGITUDE deg min sec

Gear Type: Longline Gill Net Trawl Bandit Reel Handline Jug Fish Trap Spear Fishing
Gear Depth: Surface Midwater Bottom Other _____

Net Position Net Type Animal Captured In: Try Net Standard Net Net Modifications: TED TED/BRD BRD None Unknown

IF GEAR IS A FORM OF HOOK AND LINE, COMPLETE THIS SECTION, AS APPLICABLE:

Hook Type: "J" Circle other (describe) _____ SIZE / 0
Manufacturer/Style No. _____ DEGREE OFFSET °
Bait: Squid Mackerel Sardine Unknown Other (describe) _____

Was hook removed from this animal? Y / N / Unknown / Not Applicable

Was animal entangled in gear? At capture? Y / N / Unknown At Release? Y / N / Unknown

How much gear (linear feet) was left on the animal when released? . ft. (estimated/measured)

TARGET SPECIES: List all targeted species for this set using genus species format.

DIMENSIONS (cm):

Estimated total length: ft. Estimated length of saw: ft.
Total Length: cm (if boated)

TAG ID NUMBERS:

RELEASE INFORMATION:

TIME (24hr) : DATE / /
LATITUDE deg min sec LONGITUDE deg min sec

FINAL DISPOSITION: Discarded Dead/Unresponsive Carcass Released Alive Unknown (explain)

ADDITIONAL COMMENTS: (list all biological samples collected):

PROTECTED RESOURCES CAPTURE REPORT

Write legibly in both the log book and on the forms themselves. **COPIES** of the protected resources capture report and photos are to be mailed to the Galveston Laboratory as soon as possible after the vessel reaches port (Original Forms are to be kept with the trip at all times!!!). **DO NOT MAIL FORMS, PHOTOS, AND BIOPSIES DIRECTLY TO THE MIAMI LABORATORY.**

It is pertinent that all information collected on the protected resources capture report is as **accurate** and **detailed** as possible. **Detailed information should also be logged in your log books.** We are unable to verify questionable information on the forms if we have nothing to compare it to.

The protected resources capture form is to be used to log the capture of **SAWFISH, STURGEON, MARINE MAMMALS and BIRDS.** Photographs should be taken of all captures if possible. If the information does not apply to your trip, for example hook information on a shrimp trip, the section should be left blank. It is very important to complete the form in its entirety.

Trip No.: Enter Trip Number provided by Observer Coordinator.

Date: Enter month day and year when captured occurred.

Set/Tow: Record the set or tow number during the trip when capture occurred. If the capture was not associated (non-station) with a set or tow then enter 999.

Station/Non-Station: Check station if the specimen was captured during a sampled set or tow. All others should be considered non-station.

Captured/Sighted: Captured should always be check as information is only collected for captures.

Specimen Number: Record a three digit consecutive number for captured specimens. Specimen numbers begin with 001 and continue sequentially throughout the trip.

Species Identification: Place a check in the appropriate box next to the specimen captured and reference the species (if known) in the space provided. If you are unable to identify the species record it on the data sheet as "Unknown".

Vessel Code: Enter Vessel Code provided by Observer Coordinator.

Observer: Enter Observer Code provided by Observer Coordinator.

State: Enter the state that you were closest to when capture occurred.

Time: Enter in military time (0001-2359) when capture occurred.

Water Depth (ft.): Record the water depth in feet.

Photographed (circle one): Y or N. **Number of Photos Taken?** Record the number of photos taken. Always photograph the specimen if possible. Take at least one picture illustrating the location of gear attachment. This should never be left blank, it is asking for quantity. So if no photos were taken you should place a zero in the boxes provided.

Latitude: Record the degrees, minutes and seconds of latitude at the time of capture.

Longitude: Record the degrees, minutes and seconds of longitude at the time of capture.

Gear Type: Indicate which gear is being fished. If gear is something other than the listed types, write the gear type in the comments section.

Gear Depth: Indicate whether the gear was being fished at the surface, mid-water, on the bottom, or other. If other, reference the depth in the comment section.

Net Position: Enter net position at time of capture. For captures in a try net or non-station captures enter 9 (default code).

Net Type Turtle Captured In: Check the appropriate answer to describe the type of net specimen was captured in.

Net Modifications: Check the appropriate answer to explain all net modifications present.

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 all that apply: Squid, Mackerel, Sardine, Unknown or Other (describe). Enter the size of bait used.

Was hook removed from this animal: Circle Yes, No, Unknown, or Not Applicable. If specimen was 'Not Hooked', or 'Not known if hooked' then mark 'Not Applicable'. This question should also be answered, for shrimp trips please circle "Not Applicable".

Was animal entangled in gear at capture? These should always be answered. Circle Yes, No, or Unknown. **At release?** Circle Yes, No, or Unknown.

How much gear (linear feet) was left on the animal when released? Estimate or measure the amount of gear line left on specimen when released. Record a zero if all line is removed.

Target Species: List all species being targeted for the set in genus species format. Enter the first seven characters of the genus name and the first 6 characters of the species name (refer to Reef Fish Species List, page 169), **do not reference common names.**

DIMENSIONS (cm)

Estimated total length: Record in Feet.

Estimated length of saw: Record in Feet (for sawfish only).

Total Length: Record actual total length of specimen in centimeters is boated.

TAG ID numbers: Reference any and all Tag information if present.

Release Information

Latitude/Longitude, Time and Date is **NOT** always the same information referenced for time of capture. Be as detailed as possible.

Time: Enter in military time (0001-2359) when specimen was released.

Date: Enter month, day and year when specimen was released.

Latitude: Record the degrees, minutes and seconds of latitude at the time of release.

Longitude: Record the degrees, minutes and seconds of longitude at the time of release.

Final Disposition: Record the final disposition (fate) of the specimen at time of release by checking the appropriate box.

Discarded Dead/Unresponsive Carcass

Released Alive

Unknown (explain)

Additional Comments: Use this area to record any and all comments. Describe the interaction with as much detail as possible.

SPECIES LIST – BYCATCH AND REEF FISH

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB
ACANTHACAECA	<i>Acanthacaris caeca</i>	Lobster, Atlantic Deepsea	8	S
ACANTHOSOLAND	<i>Acanthocybium solandri</i>	Wahoo	1	RF S
ACANTHUCHIRUR	<i>Acanthurus chirurgus</i>	Doctorfish	18	RF
ACHIRUSLINEAT	<i>Achirus lineatus</i>	Sole, Lined	18	RF S
ACIPENSOXYRHY	<i>Acipenser oxyrhynchus</i>	Sturgeon, Atlantic	18	RF S
ACTINIARIA	Actinaria	Sea Anemone (Order)	10	RF S
AETOBATNARINA	<i>Aetobatis narinari</i>	Ray, Spotted Eagle	22	RF S
AGRIOPOTEXASI	<i>Agriopoma texasianum</i>	Venus, Texas	12	S
AHLIA EGMONT	<i>Ahlia egmontis</i>	Key Worm Eel	18	RF S
ALBUNEAGIBBES	<i>Albunea gibbesii</i>	Purple Surf Crab	6	RF S
ALBUNEAPARETI	<i>Albunea paretii</i>	Crab, Beach Mole	6	S
ALBUNEI	Albuneidae	Mole Crab (Family)	6	S
ALCYONIHAUFFI	<i>Alcyonidium hauffi</i>	Rubbery Bryozoan	20	RF S
ALECTISCILIAR	<i>Alectis ciliaris</i>	Pompano, African	1	RF S
ALOPIASVULPIN	<i>Alopias vulpinus</i>	Shark, Common Thresher	18	RF
ALOSA	<i>Alosa</i>	Herring (Genus)	1	RF S
ALOSA AESTIV	<i>Alosa aestivalis</i>	Herring, Blueback	1	RF S
ALOSA CHRYSO	<i>Alosa chrysochloris</i>	Herring, Skipjack	1	RF S
ALOSA MEDIOC	<i>Alosa mediocris</i>	Shad, Hickory	1	RF S
ALPHEUS	<i>Alpheus</i> sp	Shrimp, Snapping	3	S
ALUTERUHEUDEL	<i>Aluterus heudeloti</i>	Filefish, Dotterel	18	RF S
ALUTERUMONOCE	<i>Aluterus monoceros</i>	Filefish, Unicorn	18	RF S
ALUTERUSCHOEP	<i>Aluterus schoepfi</i>	Filefish, Orange	18	RF S
ALUTERUSSCRIPT	<i>Aluterus scriptus</i>	Filefish, Scrawled	18	RF S
AMUSIUMPAPYRA	<i>Amusium papyraceus</i>	Scallop, Paper	12	S
ANADARAFLORID	<i>Anadara floridana</i>	Ark, Cut-Ribbed	11	S
ANADARANOTABI	<i>Anadara notabilis</i>	Ark, Eared	11	S
ANADARAOVALIS	<i>Anadara ovalis</i>	Blood Ark Shell	11	RF S
ANADARATRANSV	<i>Anadara transversa</i>	Ark, Transverse	11	S
ANASIMULATUS	<i>Anasimus latus</i>	Crab, Stilt Spider	6	S
ANCHOA	<i>Anchoa</i> sp	Anchovy	1	S
ANCHOA	<i>Anchoa</i> sp	Anchovy	1	RF
ANCHOA HEPSET	<i>Anchoa hepsetus</i>	Anchovy, Striped	1	RF S
ANCHOA LYOLEP	<i>Anchoa Lyolepis</i>	Anchovy, Dusky	1	RF S
ANCHOA MITCHI	<i>Anchoa mitchilli</i>	Anchovy, Bay	1	RF S
ANCHOA NASUTA	<i>Anchoa nasuta</i>	Anchovy, Longnose	1	RF S
ANCYLOPDILECT	<i>Ancylopsetta dilecta</i>	Flounder, Three eyed	18	RF S
ANCYLOPQUADRO	<i>Ancylopsetta quadrocellata</i>	Flounder, Ocellated	18	RF S
ANGUILLROSTRA	<i>Anguilla rostrata</i>	Eel, American	18	RF S
ANISOTRSURINA	<i>Anisotremus surinamensis</i>	Margate, Black	1	RF
ANISOTR VIRGIN	<i>Anisotremus virginicus</i>	Porkfish	1	RF
ANTENNAMULTIO	<i>Antennarius multiocellatus</i>	Frogfish, Longlure	18	RF S
ANTENNAOCELLA	<i>Antennarius ocellatus</i>	Frogfish, Ocellated	18	RF S
ANTENNARADIOS	<i>Antennarius radiosus</i>	Frogfish, Singlespot	18	RF S
ANTENNASCABER	<i>Antennarius scaber</i>	Frogfish, Splitture	18	RF S
ANTENNASTRIAT	<i>Antennarius striatus</i>	Frogfish, Splitture (Striated)	18	RF S
ANTHOZO	Anthozoa	Sea Anemone (Class)	10	S
APLYSIA	<i>Aplysia</i> sp	Sea Hare	20	S
APLYSIABRASIL	<i>Aplysia brasiliiana</i>	Mottled Seahare	20	S
APOGON	<i>Apogon</i>	Cardinalfish (Genus)	1	RF S
APOGON AUROLI	<i>Apogon aurolineatus</i>	Cardinalfish, Bridle	1	RF S
APOGON MACULA	<i>Apogon maculatus</i>	Flamefish	1	RF S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB	
APOGON PSEUDO	Apogon pseudomaculatus	Cardinalfish, Two Spot	1	RF	S
APSIUSDENTAT	Apsilus dentatus	Snapper, Black	1	RF	S
ARBACIA	Arbacia	Sea Urchin (Genus)	20		S
ARBACIAPUNCTU	Arbacia punctulata	Atlantic Purple Sea Urchin	0		S
ARCHITENOBI	Architectonic nobilia	Common Sundial	17		S
ARCHOSAPROBAT	Archosargus probatocephalus	Sheepshead	1	RF	S
ARCHOSARHOMBO	Archosargus rhomboidalis	Seabream	1	RF	S
ARCIDAE	Arcidae	Ark Shell (Family)	11		S
ARCINELCORNUT	Arcinella cornuta	Jewelbox, Spiny	17		S
ARENAEUCRIBRA	Arenaeus cribrarius	Crab, Speckled Swimming	5		S
ARGOPEC	Argopecten sp.	Scallop	12		S
ARGOPECGIBBUS	Argopecten gibbus	Scallop, Calico	12		S
ARGOPECIRRADI	Argopecten irradians	Scallop, Bay	12		S
ARGOPECLIMA	Argopec lima	Scallop, Flame	12		S
ARGOPECNUCLEU	Argopecten nucleus	Scallop, Nucleus	12		S
ARIIDAE	Ariidae	Sea Catfish (Family)	1	RF	S
ARIOMMAREGULU	Ariomma regulus	Driftfish, Spotted	1	RF	S
ARIUS FELIS	Arius felis	Catfish, Hardhead	1	RF	S
ASCIDIA	Asciacea	Sea Squirt (Class)	20		S
ASTERIAFORBES	Asterias forbesi	Sea Star, Forbes Asterias	0		S
ASTERIIDAE	Asteriidae	Starfish (Family)	14		S
ASTERINFOLIUM	Asterina folium	Sea Star, Common Blunt Armed	14		S
ASTEROI	Asteroidea	Starfish (Subclass)	14		S
ASTRAPOALUTUS	Astrapogon alutus	Cardinalfish, Bronze	1	RF	S
ASTRAPOPUNCTI	Astrapogon puncticulatus	Cardinalfish, Blackfin	1	RF	S
ASTROPE	Astropectinidae	Starfish (Family)	15	RF	
ASTROPEARтику	Astropecten articulatus	Sea Star, Beaded	14		S
ASTROPECTEN	Astropecten	Sea Star (Genus)	14		S
ASTROPECTINID	Astropectinidea	Sea Star (Family)	14		S
ASTROPEDUPLIC	Astropecten duplicatus	Sea Star, Spiny Beaded	14		S
ASTROSCY-GRAE	Astroscopus y-graecum	Stargazer, Southern	18	RF	S
ATHERINIDAE	Atherinidae	Silverside (Family)	1	RF	S
ATRACTOSPATUL	Atractosteus spatula	Gar, Alligator	18		S
ATRINA	Atrina sp	Pen Shell	11		S
ATRINA RIGIDA	Atrina rigida	Pen Shell, Stiff	11		S
ATRINA SERRAT	Atrina serrata	Pen Shell, Saw-tooth	11		S
AURELIAAURITA	Aurelia aurita	Jellyfish, Moon	99		S
AVES	Aves	Birds	99		S
AXIDAE	Axiidae	Crab, Axiid (Family)	5		S
BAGRE MARINU	Bagre marinus	Catfish, Gafftopsail	1	RF	S
BAIRDIEBATABA	Bairdiella batabana	Croaker, Blue	18	RF	S
BAIRDIECHRYSO	Bairdiella chrysoura	Perch, Silver	1	RF	S
BALISTECAPRIS	Balistes capriscus	Triggerfish, Gray	1	RF	S
BALISTEVETULA	Balistes vetula	Triggerfish, Queen	1	RF	
BALISTI	Balistidae	Triggerfish/Filefish (Family)	18		S
BALISTI	Balistidae	Triggerfish/Filefish (Family)	18	RF	
BARBATICANCEL	Barbatia cancellaria	Ark, Red Brown	11		S
BELLATOBACHY	Bellator brachyichir	Searobin, Shortfin	18	RF	S
BELLATOEGRETT	Bellator egretta	Searobin, Streamer	18	RF	S
BELLATOMILITA	Bellator militaris	Searobin, Horned	18	RF	S
BELONID	Belonidae	Needlefish (Genus)	1	RF	S
BIVALVI	Bivalvia	Bivalve (Class)	11		S
BLENNII	Blenniidae	Blenny (Family)	18	RF	S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB	
BLENNII	Blenniidae	Blenny (Family)	18		
BODIANUPULCHE	Bodianus pulchellus	Hogfish, Spotfin	18	RF	S
BODIANURUFUS	Bodianus rufus	Hogfish, Spanish	99	RF	S
BOLLMAN	Bollmannia	Goby (Genus)	18	RF	S
BOLLMANBOQUER	Bollmannia boqueronensis	Goby, White eyed	18	RF	S
BOLLMANCOMMUN	Bollmannia communis	Goby, Ragged	18	RF	S
BOTHIDA	Bothidae	Flounder (Family)	18	RF	S
BOTHUS	Bothus	Flounder (Genus)	18	RF	S
BOTHUS LUNATU	Bothus lunatus	Flounder, Peacock	18	RF	S
BOTHUS OCELLA	Bothus ocellatus	Flounder, Eyed	18	RF	S
BOTHUS ROBINS	Bothus robinsi	Flounder, Twospot	18	RF	S
BRACTECANTILL	Bractechlamys antillarum	Scallop, Antillean	12		S
BREGMAC	Bregmacerotidae	Codlet (Family)	18	RF	S
BREGMACATLANT	Bregmaceros atlanticus	Codlet, Antenna	18	RF	S
BREGMACHOUDEI	Bregmaceros houdei	Codlet, Stellate	18	RF	S
BREVOOR	Brevoortia	Menhaden (Genus)	1	RF	S
BREVOORGUNTER	Brevoortia gunteri	Menhaden, Finescale	1	RF	S
BREVOORPATRON	Brevoortia patronus	Menhaden, Gulf	1	RF	S
BREVOORSMITHI	Brevoortia smithi	Menhaden, Yellowfin	1	RF	S
BREVOORTYRANN	Brevoortia tyrannus	Menhaden, Atlantic	1	RF	S
BROTULABARBAT	Brotula barbata	Brotula, Bearded	18	RF	S
BUNODOSCAVERN	Bunodosoma cavernata	Sea Anemone, Warty	10		S
BUSYCON	Busycon	Whelk (Genus)	17		S
BUSYCONCARICA	Busycon carica	Whelk, Knobbed	17		S
BUSYCONEGGCAS	Busycon Eggcase	Eggcase, Whelk (Genus)	20		S
BUSYCONSINIST	Busycon sinistrum	Whelk, Lightning	17		S
BUSYCONSPIRAT	Busycon spiratum	Whelk, Pear	17		S
BUSYCOTCANALI	Busycotypus canaliculatus	Whelk, Channeled	17		S
BUSYCOTSPIRAT	Busycotypus spiratus	Whelk, Pear	17		S
CAELORICAEOR	Caelorinchus caelorhincus	Grenadier, Saddled	18	RF	S
CAELORICARIBB	Caelorinchus caribbaeus	Grenadier, Blackfin	18	RF	S
CALAMUS	Calamus	Porgy (Genus)	1	RF	S
CALAMUSARCTIF	Calamus arctifrons	Porgy, Grass	1	RF	S
CALAMUSBAJONA	Calamus bajonado	Porgy, Jolthead	1	RF	S
CALAMUSCALAMU	Calamus calamus	Porgy, Saucereye	1	RF	S
CALAMUSLEUCOS	Calamus leucosteus	Porgy, Whitebone	1	RF	S
CALAMUSNODOSU	Calamus nodosus	Porgy, Knobbed	1	RF	S
CALAMUSPENNA	Calamus penna	Porgy, Sheepshead	1	RF	S
CALAMUSPRORID	Calamus proridens	Porgy, Littlehead	1	RF	S
CALAPPA	Calappa	Crab, Box (Genus)	5		S
CALAPPAFLAMME	Calappa flammea	Crab, Flame Box	5		S
CALAPPASULCAT	Calappa sulcata	Crab, Yellow Box	5		S
CALAPPIDAE	Calappidae	Box Crab (Family)	5		S
CALLECHGUINIE	Callechelys guiniensis	Eel, Short Tail Snake	18	RF	S
CALLIANMARGIN	Callianassa marginata	Crab, Ghost	5		S
CALLINE	Callinectes	Crab (Genus)	5		S
CALLINEDANAE	Callinectes danae	Dana's Blue Crab	5	RF	S
CALLINELARVAT	Callinectes larvatus	Crab, Masked Swimming	5		S
CALLINEORNATU	Callinectes ornatus	Crab, Shelligs	5		S
CALLINESAPIDU	Callinectes sapidus	Crab, Blue	5		S
CALLINESIMILI	Callinectes similis	Crab, Lesser Blue	5		S
CALLYSPVAGINA	Callyspongia vaginalis	Sponge, Tube	20		S
CANCER BOREAL	Cancer borealis	Crab, Jonah	5		S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB	
CANCER IRRORA	<i>Cancer irroratus</i>	Crab, Atlantic Rock	5		S
CANTHERMACROC	<i>Cantherhines macrocerus</i>	Filefish, Whitespotted	18	RF	S
CANTHERPULLUS	<i>Cantherhines pullus</i>	Filefish, Orangespotted	18	RF	S
CANTHIDSUFFLA	<i>Canthidermis sufflamen</i>	Triggerfish, Ocean	18	RF	S
CARANGI	Carangidae	Jack (Family)	1	RF	S
CARANX	Caranx	Jack (Genus)	1	RF	S
CARANX BARTHO	<i>Caranx bartholomaei</i>	Jack, Yellow	1	RF	S
CARANX CRYCOS	<i>Caranx crysos</i>	Runner, Blue	1	RF	S
CARANX HIPPOS	<i>Caranx hippos</i>	Jack, Common Crevalle	1	RF	S
CARANX LATUS	<i>Caranx latus</i>	Jack, Horse-eye	1	RF	S
CARANX RUBER	<i>Caranx ruber</i>	Jack, Bar	1	RF	S
CARANXLUGUBR	<i>Caranx lugubris</i>	Jack, Black	1	RF	
CARAPUSBERMUD	<i>Carapus bermudensis</i>	Pearlfish	18	RF	S
CARCHAR	General Sharks	Sharks Grouped	18	RF	S
CARCHARACRONO	<i>Carcharhinus acronotus</i>	Shark, Blacknose	18	RF	S
CARCHARALTIMU	<i>Carcharhinus altimus</i>	Shark, Bignose	18	RF	S
CARCHARBREVIP	<i>Carcharhinus brevipinna</i>	Shark, Spinner	18	RF	S
CARCHARFALCIF	<i>Carcharhinus falciformis</i>	Shark, Silky	18	RF	S
CARCHARINIFOR	Carcharhiniformes	Sharks, Ground (Order)	18	RF	S
CARCHARISODON	<i>Carcharhinus isodon</i>	Shark, Finetooth	18	RF	S
CARCHARLEUCAS	<i>Carcharhinus leucas</i>	Shark, Bull	18	RF	S
CARCHARLIMBAT	<i>Carcharhinus limbatus</i>	Shark, Blacktip	18	RF	S
CARCHAROBSCUR	<i>Carcharhinus obscurus</i>	Shark, Dusky	18	RF	S
CARCHARPLUMBE	<i>Carcharhinus plumbeus</i>	Shark, Sandbar	18	RF	S
CARCHARPOROSU	<i>Carcharhinus porosus</i>	Shark, Smalltail	18	RF	S
CARCHARPOST08	Carcharpost08	Sharks, Grouped	18	RF	S
CARCHARSIGNAT	<i>Carcharhinus signatus</i>	Shark, Night	18	RF	S
CARCHARSP	<i>Carcharhinus sp</i>	Shark, Requiem (Genus)	18	RF	S
CARYBDE	Carybdeidae	Jellyfish (Family)	99		S
CAULOLA	<i>Caulolatilus sp</i>	Tilefish (Genus)	1	RF	S
CAULOLACHRYSO	<i>Caulolatilus chrysops</i>	Tilefish, Goldface	18	RF	S
CAULOLACYANOP	<i>Caulolatilus cyanops</i>	Tilefish, Blackline	1	RF	
CAULOLAINTERM	<i>Caulolatilus intermedius</i>	Tilefish, Gulf Bar-Eyed	1	RF	S
CAULOLAMICROP	<i>Caulolatilus microps</i>	Tilefish, Blueline	1	RF	S
CENTROPGRANUL	<i>Centrophorus granulosus</i>	Shark, Gulper	18	RF	
CENTROPOCYURU	<i>Centropristis ocyurus</i>	Seabass, Bank	2	RF	S
CENTROPOMUS	Centropomus	Snook (Genus)	1	RF	S
CENTROPPHILAD	<i>Centropristis philadelphica</i>	Seabass, Rock	2	RF	S
CENTROPRISTIS	Centropristis	Seabass (Genus)	2	RF	S
CENTROPSTRIAT	<i>Centropristis striata</i>	Seabass, Black	2	RF	S
CEPHALOCRUENT	<i>Cephalopholis cruentata</i>	Graysby	18	RF	S
CEPHALOFULVA	<i>Cephalopholis fulva</i>	Coney	18	RF	
CEPHALOPODA	Cephalopoda	Squid and Octopus (Class)	13		S
CHAETODCAPIST	<i>Chaetodon capistratus</i>	Butterflyfish, Foureye	18	RF	S
CHAETODFABER	<i>Chaetodipterus faber</i>	Spadefish, Atlantic	1	RF	S
CHAETODOCELLA	<i>Chaetodon ocellatus</i>	Butterflyfish, Spotfin	18	RF	S
CHAETODSEMENT	<i>Chaetodon sedentarius</i>	Butterflyfish, Reef	18	RF	S
CHASMODSABURR	<i>Chasmodes saburrae</i>	Blenny, Florida	18	RF	S
CHILOMYANTILL	<i>Chilomycterus antillarum</i>	Burrfish, Web	18	RF	S
CHILOMYSCHOEP	<i>Chilomycterus schoepfi</i>	Burrfish, Striped	18	RF	S
CHIONE CLENCH	<i>Chione clenchi</i>	Venus, Clench	11		S
CHIONE LATILI	<i>Chione latilirata</i>	Venus, Imperial	11		S
CHLOROSCHRYSU	<i>Chloroscombrus chrysurus</i>	Bumper, Atlantic	1	RF	S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB
CHRYSAOQUINQU	Chrysaora quinquecirrha	Sea Nettle	99	S
CIRRHIGASPER	Cirrhigaleus asper	Dogfish, Roughskin	18	RF
CITHARI	Citharichthys sp	Whiff (Genus)	18	RF S
CITHARIARENAC	Citharichthys arenaceus	Whiff, Sand	18	RF S
CITHARICORNUT	Citharichthys cornutus	Whiff, Horned	18	RF S
CITHARIMACROP	Citharichthys macrops	Whiff, Spotted	18	RF S
CITHARISPILOP	Citharichthys spilopterus	Whiff, Bay	18	RF S
CLIBANAVITTAT	Clibanarius vittatus	Crab, Striped Hermit	6	S
CLUPEIDAE	Clupeidae	Herrings (Family)	1	RF S
CLYPEASSUBDEP	Clypeas subdepresus	Sea Biscuit, Flat	20	S
CLYPEASTEROID	Cylpeasteroida	Sand Dollar (Order)	20	S
CNIDARIA	Cnidaria	Polyps and Medusae (Phylum)	0	S
COELOCESPINOS	Coelocerus spinosus	Crab, Channelnose Spider	5	S
CONGER OCEANI	Conger oceanicus	Eel, Conger	18	RF S
CONGER TRIPOR	Conger triporiceps	Conger, Manytooth	18	RF S
CONGRID	Congridae	Eel, Conger (Family)	18	RF S
CONODONNOBILI	Conodon nobilis	Grunt, Barred	99	RF S
CONUS	Conus sp	Cone Shell (Genus)	17	S
CONUS DELESS	Conus delessertii	Cone, Sozon's	17	S
COOKEOLJAPONI	Cookeolus japonicus	Bulleye	18	RF S
CORYPHAEQUISE	Coryphaena equisetis	Dolphin, Pompano	1	RF S
CORYPHAHIPPUR	Coryphaena hippurus	Dolphin	1	RF S
CRUSTAC	Crustacean	Crustacean	99	RF S
CTENODICRISPA	Ctenodiscus crispatus	Mud Star	14	S
CTENOPH	Ctenophora	Jellyfish, Comb	99	S
CYCLOPS	Cyclopsetta sp	Flounder (Genus)	18	RF S
CYCLOPSCHITTE	Cyclopsetta chittendeni	Flounder, Mexican	18	RF S
CYCLOPSFIMBRI	Cyclopsetta fimbriata	Flounder, Spotfin	18	RF S
CYNOSCI	Cynoscion sp	Seatrout (Genus)	18	RF S
CYNOSCIARENAR	Cynoscion arenarius	Seatrout, Sand	18	RF S
CYNOSCINEBULO	Cynoscion nebulosus	Seatrout, Spotted	18	RF S
CYNOSCINOTHUS	Cynoscion nothus	Seatrout, Silver	18	RF S
CYNOSCIREGALI	Cynoscion regalis	Weakfish	18	RF S
CYPRAEAZEBRA	Cypraea zebra	Cowry, Measled	17	S
CYPSELUMELANU	Cypselurus melanurus	Flyingfish, Atlantic	1	RF S
CYRTIPLCOSTAT	Cyrtopleura costata	Angel Wing	0	S
DACTYLOTRIDIG	Dactyloscopus tridigitatus	Stargazer, Sand	18	RF S
DACTYLOVOLITA	Dactylopterus volitans	Gurnard, Flying	1	RF S
DASYATI	Dasyatis sp.	Stingray (Genus)	22	RF S
DASYATIAMERIC	Dasyatis americana	Stingray, Southern	22	RF S
DASYATICENTRO	Dasyatis centroura	Stingray, Roughtail	22	S
DASYATIDAE	Dasyatiidae	Stingray (Family)	22	RF S
DASYATISABINA	Dasyatis sabina	Stingray, Atlantic	22	RF S
DASYATISAY	Dasyatis say	Stingray, Bluntnose	22	RF S
DASYATIVIOLAC	Dasyatis violacea	Stingray, Pelagic	22	RF S
DEBRIS	Debris	Debris (rocks,logs,etc.)	20	S
DECAPODA	Decapoda	Decapod (Order)	20	RF S
DECAPTEMACARE	Decapterus macarellus	Scad Mackerel	18	RF S
DECAPTEPUNCTA	Decapterus punctatus	Scad, Round	1	RF S
DECODONPUELLA	Decodon puellaris	Hogfish, Red	1	RF S
DEMOSPO	Demospongiae	Sponge (Class)	20	S
DIAPTERAURATU	Diaperus auratus	Pompano, Irish	1	RF S
DIAPTERPLUMIE	Diapterus plumieri	Mojarra, Striped	1	RF S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB	
DIBRANCATLANT	<i>Dibranchus atlanticus</i>	Batfish, Atlantic	18	RF	S
DINOCARDIUM	<i>Dinocardium</i>	Cockle, (Genus)	99		S
DINOCARROBUST	<i>Dinocardium robustum</i>	Cockle, Giant Atlantic	99		S
DIODON HOLOCA	<i>Diodon holocanthus</i>	Balloonfish	18	RF	S
DIPLECTBIVITT	<i>Diplectrum bivittatum</i>	Perch, Dwarf Sand	2	RF	S
DIPLECTFORMOS	<i>Diplectrum formosum</i>	Perch, Sand	2	RF	S
DIPLECTRUM	<i>Diplectrum</i>	Seabass (Genus)	2	RF	S
DIPLODUARGENT	<i>Diplodus argenteus</i>	Porgy, Silver	1	RF	S
DIPLODUHOLBRO	<i>Diplodus holbrooki</i>	Pinfish, Spottail	1	RF	S
DISTORSCLATHR	<i>Distorsio clathrata</i>	Distorsio, Atlantic	17		S
DISTORSMACGIN	<i>Distorsio macgintyi</i>	Distorsio, McGinty's	17		S
DORMITAMACULA	<i>Dormitator maculatus</i>	Sleeper, Fat	18	RF	S
DOROSOMCEPEDI	<i>Dorosoma cepedianum</i>	Shad, Gizzard	1	RF	S
DOROSOMPETENE	<i>Dorosoma petenense</i>	Shad, Threadfin	1	RF	S
DROMIA ERYTHR	<i>Dromia erythropus</i>	Crab, Sponge	6		S
DROMIDI	<i>Dromidia sp</i>	Crab, Sponge	5		S
DROMIDIANTILL	<i>Dromidia antillensis</i>	Crab, Hairy Sponge	5		S
DROMIIDAE	Dromiidae	Sponge Crab (Family)	5		S
ECHENEINAUCRA	<i>Echeneis naucrates</i>	Sharksucker	18	RF	S
ECHENEINEUCRA	<i>Echeneis neucratoides</i>	Sharksucker, White Fin	18	RF	S
ECHINARPARMA	<i>Echinarachnius parma</i>	Sand Dollar, Common	14		S
ECHINASSPINUL	<i>Echinaster spinulosus</i>	Sea Star, Brown Spiny	14		S
ECHINOI	Echinoidea	Echinoderm (Class)	14		S
ECHIOPH	<i>Echiophis sp</i>	Eel, Snake (Genus)	18	RF	S
ECHIOPHINTERT	<i>Echiophis intertinctus</i>	Eel, Spotted Spoonnose	18	RF	S
ECHIOPHPUNCTI	<i>Echiophis punctifer</i>	Eel, Snapper	18	RF	S
ELAGATIBIPINN	<i>Elagatis bipinnulata</i>	Rainbow Runner	1	RF	
ELASMOBEGGPOU	Elasmobranchiomorphi eggpouch	Eggpouch, Cartilaginous Fish (Class)	20		S
ELASMOBRANCHI	Elasmobranchiomorphi	Cartilaginous fish (Class)	99	RF	S
ELEOTRIPISONI	<i>Eleotris pisonis</i>	Spineycheek Sleeper	18	RF	S
ELOPS SAURUS	<i>Elops saurus</i>	Ladyfish	1	RF	S
EMERITATALPOI	<i>Emerita talpoida</i>	Crab, Mole	6		S
ENCOPE	Encope	Sand Dollar (Genus)	20		S
ENCOPE EMARGI	<i>Encope emarginata</i>	Sand Dollar, Notched	20		S
ENCOPE MICHEL	<i>Encope michelini</i>	Sand Dollar, Michelin's	20		S
ENGYOPHSENTA	<i>Engyophrys senta</i>	Flounder, Spiny	18	RF	S
EPINEPHADSCEN	<i>Epinephelus adscensionis</i>	Hind, Rock	1	RF	
EPINEPHDRUMMO	<i>Epinephelus drummondhayi</i>	Hind, Speckled	1	RF	S
EPINEPHFLAVOL	<i>Epinephelus flavolimbatus</i>	Grouper, Yellowedge	1	RF	S
EPINEPHGUTTAT	<i>Epinephelus guttatus</i>	Hind, Red (Strawberry Grouper)	1	RF	
EPINEPHINERMI	<i>Epinephelus inermis</i>	Grouper, Marbled	1	RF	
EPINEPHITAJAR	<i>Epinephelus itajara</i>	Grouper, Goliath (Jewfish)	1	RF	S
EPINEPHMORIO	<i>Epinephelus morio</i>	Grouper, Red	1	RF	S
EPINEPHMYSTAC	<i>Epinephelus mystacinus</i>	Grouper, Misty	18	RF	
EPINEPHNIGRIT	<i>Epinephelus nigritus</i>	Grouper, Warsaw	1	RF	S
EPINEPHNIVEAT	<i>Epinephelus niveatus</i>	Grouper, Snowy	1	RF	S
EPTATRESFRING	<i>Eptatretus springeri</i>	Hagfish, Gulf	18	RF	
EQUETUS	<i>Equetus sp</i>	Drum, Cubbyu (Genus)	18	RF	S
EQUETUSIWAMOT	<i>Equetus iwanotoi</i>	Drum, Blackbar	18	RF	S
EQUETUSLANCEO	<i>Equetus lanceolatus</i>	Jackknife - fish	18	RF	S
EQUETUSPUNCTA	<i>Equetus punctatus</i>	Drum, Spotted	18	RF	S
EQUETUSUMBROS	<i>Equetus umbrosus</i>	Drum, Cubbyu	18	RF	S
ETELIS OCULAT	<i>Etelis Oculatus</i>	Snapper, Queen	1	RF	S

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ETROPUS	<i>Etropus</i> sp	Flounder (Genus)	18	RF	S
ETROPUSCROSSO	<i>Etropus crossotus</i>	Flounder, Fringed	18	RF	S
ETROPUSMICROS	<i>Etropus microstomus</i>	Flounder, Smallmouth	18	RF	S
ETROPUSRIMOSU	<i>Etropus rimosus</i>	Flounder, Gray	18	RF	S
ETRUMEUTERES	<i>Etrumeus teres</i>	Herring, Round	1	RF	S
EUCERAMPRAELO	<i>Euceramus praelongus</i>	Crab, Olive-Pit Porcelain	6		S
EUCIDARTRIBUL	<i>Eucidaris tribuloides</i>	Urchin, Pencil	14		S
EUCINOS	<i>Eucinostomus</i> sp	Mojarra (Genus)	1	RF	S
EUCINOSARGENT	<i>Eucinostomus argenteus</i>	Mojarra, Spotfin	1	RF	S
EUCINOSGULA	<i>Eucinostomus gula</i>	Jenny, Silver	1	RF	S
EUCINOSHARENG	<i>Eucinostomus harengulus</i>	Mojarra, Tidewater	1	RF	S
EUCINOSHAVANA	<i>Eucinostomus havana</i>	Mojarra, Big Eye	18	RF	S
EUCINOSJONESI	<i>Eucinostomus jonesi</i>	Mojarra, Slender	1	RF	S
EUCINOSLEFROY	<i>Eucinostomus lefroy</i>	Mojarra, Mottled	1	RF	S
EUCINOSMELANO	<i>Eucinostomus melanopterus</i>	Mojarra, Flagfin	1	RF	S
EUECHINOIDEA	Euechinoidea	Sea Urchin (Subclass)	20		S
EUTHYNNALLETT	<i>Euthynnus alletteratus</i>	Bonito	1	RF	S
EUTHYNNPELAMI	<i>Euthynn pelami</i>	Skipjack Tuna	1	RF	
EUVOLA ZICZAC	<i>Euvola ziczac</i>	Scallop, Zigzag	12		S
EXHIPPOOPLOPH	<i>Exhippolysmata oplophoroides</i>	Shrimp, Redleg Humpback	3		S
FARFANTAZTECU	<i>Farfantepenaeus aztecus</i>	Shrimp, Brown	3		S
FARFANTDUORAR	<i>Farfantepenaeus duorarum</i>	Shrimp, Pink	3		S
FARFANTEPENAE	<i>Farfantepenaeus</i> sp.	Shrimp (Genus)	3		S
FASCIOL	Fasciolaria	Shell, Tulip	17		S
FASCIOLHUNTER	<i>Fasciolaria hunteria</i>	Shell, Hunter's Banded Tulip	16		S
FASCIOLLILIUM	<i>Fasciolaria lillium</i>	Shell, Banded Tulip	16		S
FASCIOLTULIPA	<i>Fasciolaria tulipa</i>	Snail, Tulip	16		S
FICUS COMMUN	<i>Ficus communis</i>	Fignail, Atlantic	17		S
FISTULAPETIMB	<i>Fistularia petimba</i>	Cornetfish, Red	18	RF	S
FISTULATABACA	<i>Fistularia tabacaria</i>	Coronetfish, Blue Spotted	18	RF	S
FUNDULUGRANDI	<i>Fundulus grandis</i>	Killifish, Gulf	18	RF	S
FUSININAE	Fusininae	Shell, Spindle (Sub-Family)	17		S
FUSINUSCOUEI	<i>Fusinus couei</i>	Spindle, Yucatan	17		S
GALEOCECUVIER	<i>Galeocerdo cuvier</i>	Shark, Tiger	18	RF	S
GASTROP	Gastropoda	Snail (Class)	17		S
GASTROPEGGCAS	Gastropoda Eggcase	Gastropoda (Class) Eggcase	20		S
GASTROPFRONTA	<i>Gastropsetta frontalis</i>	Flounder, Shrimp	18	RF	S
GEPHYRODARWIN	<i>Gephyroberyx darwinii</i>	Slimehead, Darwin's	18	RF	
GERREIDAE	Gerreidae	Mojarra (Family)	1	RF	S
GERRES CINERE	<i>Gerres cinereus</i>	Mojarra, Yellowfin	1	RF	S
GINGLYMCIRRAT	<i>Ginglymostoma cirratum</i>	Shark, Nurse	18	RF	S
GOBIESOSTRUMO	<i>Gobiesox strumosus</i>	Skilletfish	18	RF	S
GOBIIDA	Gobiidae	Goby (Family)	18	RF	S
GOBIOIDBROUSS	<i>Gobioides broussoneti</i>	Goby, Violet	18	RF	S
GOBIONECEANI	<i>Gobionellus oceanicus</i>	Goby, Highfin	18	RF	S
GOBIOSOMACROD	<i>Gobiosoma macrodon</i>	Goby, Tiger	18	RF	S
GONIOPLHISPAN	<i>Gonioplectrus hispanus</i>	Flag, Spanish	18	RF	
GORGONOCEPHAL	Gorgonocephalidae	Basket Star (Family)	14		S
GRAPSID	Grapsidae	Crab, Grapsid (Family)	5		S
GYMNACHMELAS	<i>Gymnachirus melas</i>	Sole, Naked	18	RF	S
GYMNACHTEXAE	<i>Gymnachirus texae</i>	Sole, Fringed	18	RF	S
GYMNOTHFUNEBR	<i>Gymnothorax funebris</i>	Moray, Green	18	RF	
GYMNOTHKOLPOS	<i>Gymnothorax kolpos</i>	Moray, Blacktail	18	RF	S

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GYMNOTHMORING	<i>Gymnothorax moringa</i>	Moray, Spotted	18	RF	S
GYMNOTHNIGROM	<i>Gymnothorax nigromarginatus</i>	Moray, Blackedge	18	RF	S
GYMNOTHORAX	<i>Gymnothorax sp.</i>	Moray (Genus)	18	RF	S
GYMNOTHSAXICO	<i>Gymnothorax saxicola</i>	Moray, Honeycomb	18	RF	S
GYMNOTHVICINU	<i>Gymnothorax vicinus</i>	Moray, Purplemouth	18	RF	
GYMNURA	<i>Gymnura sp</i>	Ray, Butterfly	22	RF	S
GYMNURAALTAVE	<i>Gymnura altavela</i>	Ray, Spiny Butterfly	22	RF	S
GYMNURAMICRUR	<i>Gymnura micrura</i>	Ray, Smooth Butterfly	22	RF	S
HAEMULIDAE	Haemulidae	Grunt (Family)	1	RF	S
HAEMULOALBUM	<i>Haemulon album</i>	Margate	1	RF	S
HAEMULOAUROLI	<i>Haemulon aurolineatum</i>	Tomtate	1	RF	S
HAEMULOMELANU	<i>Haemulon melanurum</i>	Cottonwick	1	RF	S
HAEMULON	<i>Haemulon</i>	Grunt (Genus)	1	RF	S
HAEMULOPARRA	<i>Haemulon parra</i>	Sailor's Choice	1	RF	S
HAEMULOPLUMIE	<i>Haemulon plumieri</i>	Grunt, White	1	RF	S
HAEMULOSCIURU	<i>Haemulon sciurus</i>	Grunt, Bluestriped	1	RF	S
HAEMULOSTRIAT	<i>Haemulon striatum</i>	Grunt, Striped	1	RF	S
HALICHO	<i>Halichoeres sp</i>	Wrasse (Genus)	18	RF	S
HALICHOBATHYP	<i>Halichoeres bathyphilus</i>	Wrasse, Greenband	18	RF	S
HALICHOCAUDAL	<i>Halichoeres caudalis</i>	Wrasse, Painted	18	RF	S
HALICHORADIAT	<i>Halichoeres radiatus</i>	Puddingwife	1	RF	S
HALICLOOCULAT	<i>Haliclona oculata</i>	Sponge, Finger	20		S
HALIEUTACULEA	<i>Haliutichthys aculeatus</i>	Batfish, Pancake	18	RF	S
HARENGU	<i>Harengula sp</i>	Herring (Genus)	1	RF	S
HARENGUCLUPEO	<i>Harengula clupeola</i>	Pilchard, False	1	RF	S
HARENGUHUMERA	<i>Harengula humeralis</i>	Sardine, Redear	1	RF	S
HARENGUJAGUAN	<i>Harengula jaguana</i>	Sardine, Scaled	1	RF	S
HELICOLDACTYL	<i>Helicolenus dactylopterus</i>	Rosefish, Blackbelly	0	RF	S
HEMANTHLEPTUS	<i>Hemanthias leptus</i>	Bass, Longtail	1	RF	S
HEMICARAMBLYR	<i>Hemicaranx amblyrhynchus</i>	Jack, Bluntnose	1	RF	S
HEMIPTEMARTIN	<i>Hemipteronotus martinicensis</i>	Razorfish, Rosy	18	RF	S
HEMIPTENOVACU	<i>Hemipteronotus novacula</i>	Razorfish, Pearly	18	RF	S
HEMIRAMBRASIL	<i>Hemiramphus brasiliensis</i>	Ballyhoo	1	RF	S
HEPATUSEPHELI	<i>Hepatus epheliticus</i>	Crab, Calico Box	5		S
HEPTRANPERLO	<i>Heptranchias perlo</i>	Shark, Sevengill	18	RF	
HETEROGRANUL	<i>Heterocypris granulata</i>	Crab, Chip	5		S
HEXANCH	<i>Hexanchus sp</i>	Shark, Sixgill (Genus)	18	RF	
HEXANCHGRISEU	<i>Hexanchus griseus</i>	Shark, Six Gill	18	RF	
HEXANCHVITULU	<i>Hexanchus vitulus</i>	Shark, Bigeye Sixgill	18	RF	S
HEXAPANANGUST	<i>Hexapanopeus angustifrons</i>	Crab, Smooth Mud	5		S
HILDEBRFLAVA	<i>Hildebrandia flava</i>	Conger, Yellow	18	RF	S
HIMANTOGROENL	<i>Himantolophus groenlandilus</i>	Footballfish, Atlantic	0	RF	S
HIPPOCA	<i>Hippocampus sp</i>	Seahorse (Genus)	18	RF	S
HIPPOCAERECTU	<i>Hippocampus erectus</i>	Seahorse, Lined	18	RF	S
HIPPOCAREIDI	<i>Hippocampus reidi</i>	Seahorse, Longsnout	18	RF	S
HIPPOLY	Hippolytidae	Shrimp, Broken Back (Family)	99		S
HOLACANBERMUD	<i>Holacanthus bermudensis</i>	Angelfish, Blue	18	RF	S
HOLACANCILIAR	<i>Holacanthus ciliaris</i>	Angelfish, Queen	18	RF	S
HOLANTHMARTIN	<i>Holanthias martinicensis</i>	Bass, Roughtongue	1	RF	
HOLOCENADSCEN	<i>Holocentrus adscensionis</i>	Squirrelfish	1	RF	S
HOLOCENRUFUS	<i>Holocentrus rufus</i>	Squirrelfish, Longspine	1	RF	S
HOLOCENTRIDAE	Holocentridae	Squirrelfishes (Family)	1	RF	
HOLOCENVEXILL	<i>Holocentrus vexillarius</i>	Squirrelfish, Dusky	1	RF	S

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HOLOTHU	Holothuroidea	Sea Cucumber (Class)	20		S
HOPLUNN	Hoplunnis sp	Eel, Pike-Conger	18	RF	S
HOPLUNNMACRUR	Hoplunnis macrurus	Conger, Silver	18	RF	S
HOPLUNNTENUIS	Hoplunnis tenuis	Spotted Pike-conger	18	RF	S
HYDROZOA	Hydrozoa	Hydrozoan (Class)	20	RF	S
HYPEROGBYTHIT	Hyperoglyphe bythites	Driftfish, Black	1	RF	
HYPEROGPERCIF	Hyperoglyphe perciferomis	Barrelfish	1	RF	
HYPLEURAEQUIP	Hypleurochilus aequipinnis	Blenny, Oyster	18	RF	S
HYPLEURGEMINA	Hypleurochilus geminatus	Blenny, Crested	18	RF	S
HYPOPLEUNICOL	Hypoplectrus unicolor	Hamlet, Butter	2	RF	S
HYPSELOEDENTI	Hypselodoris edenticulata	Nudibranch, Greek Goddess	20		S
ICTALURFURCAT	Ictalurus furcatus	Catfish, Blue	1	RF	S
ILIACANLIODAC	Iliacantha liodactylus	Crab, Purse	6		S
ILIACANTHA	Iliacantha	Purse Crab (Genus)	6		S
ILLEX ILLECE	Illex illecebrosus	Squid, Northern Shortfin	13		S
INVERTE	Invertebrate	Invertebrate	99	RF	S
INVERTECRUSTA	NONE	Inverts & Non-Penaeid Crustaceans	99		S
IRCINIACAMPAN	Ircinia campana	Sponge, Vase	20		S
IRCINIASTROBI	Ircinia strobilina	Sponge, Cake	20		S
ISODICT	Isodictya sp.	Sponge, Palmate (Genus)	20		S
ISOGNOM	Isognomon	Shell, Purse (Genus)	11		S
ISTIOPHPLATYP	Istiophorus platypterus	Sailfish	24	RF	S
ISURUS OXYRIN	Isurus oxyrinchus	Shark, Shortfin Mako	99	RF	S
KATHETOALBIGU	Kathetostoma albigutta	Stargazer, Lancer	18	RF	S
KYPHOSUSECTAT	Kyphosus sectatrix	Chub, Bermuda	1	RF	
LABRIDAE	Labridae	Wrasses (Family)	18	RF	S
LACHNOLMAXIMU	Lachnolaimus maximus	Hogfish	1	RF	S
LACTOPHBICAUD	Lactophrys bicaudalis	Trunkfish, Spotted	18	RF	S
LACTOPHPOLYGO	Lactophrys polygonia	Cowfish, Honeycomb	18	RF	S
LACTOPHQADRI	Lactophrys quadricornis	Cowfish, Scrawled	18	RF	S
LACTOPHTRIGON	Lactophrys trigonus	Trunkfish	18	RF	S
LAEVICALAEVIG	Laevicardium laevigatum	Eggcockle	11		S
LAGOCEPLAEVIG	Lagocephalus laevigatus	Pufferfish, Smooth	18	RF	S
LAGODONRHOMBO	Lagodon rhomboides	Pinfish	1	RF	S
LARIMUSFASCIA	Larimus fasciatus	Croaker, Banded	18	RF	S
LEATHESDIFFOR	Leathesia difformis	Sea Potato	20		S
LEIOLAMNITIDU	Leiolambrus nitidus	Crab, White Elbow	5		S
LEIOSTOXANTHU	Leiostomus xanthurus	Spot (Flat Croaker)	18	RF	S
LEPISOSOSSEUS	Lepisosteus osseus	Gar, Longnose	18		S
LEPOPHI	Lepophidium	Cusk-eel (Genus)	18	RF	S
LEPOPHIBREVIB	Lepophidium brevibarbe	Cusk-eel, Blackedge	18	RF	S
LEPOPHICERVIN	Lepophidium cervinum	Eel, Fawn Cusk	18		S
LEPOPHIJEANNA	Lepophidium jeannae	Cusk-eel, Mottled	18	RF	S
LEPOPHISTAURO	Lepophidium staurophor	Cusk-eel, Barred	18	RF	S
LEPTAST	Leptasterias	Seastar (Geuns)	14		S
LEPTOGO	Leptogorgia sp	Soft Coral (Genus)	20		S
LEPTOGOVIORGUL	Leptogorgia virgulata	Sea Whip	20		S
LEPTONI	Leptonidae	Bivalve (Family)	99		S
LIBINIA	Libinia sp	Crab, Spider (Genus)	6	RF	S
LIBINIADUBIA	Libinia dubia	Crab, Longnose Spider	6		S
LIBINIAEMARGI	Libinia emarginata	Crab, Portly Spider	6		S
LIMULUSPOLYPH	Limulus polyphemus	Crab, Horseshoe	5		S
LINDAPEMUSCOS	Lindapecten muscosus	Rough Scallop	12		S

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LITOPENSETIFE	<i>Litopenaeus setiferus</i>	Shrimp, White	3	S
LOBOTESSURINA	<i>Lobotes surinamensis</i>	Tripletail	18	RF S
LOLIGINIDAE	Loliginidae	Squid (Family)	13	S
LOLIGO	<i>Loligo</i> sp	Squid (Genus)	13	S
LOLIGO PEALEI	<i>Loligo pealeii</i>	Squid, Longfin	13	S
LOLIGO PLEII	<i>Loligo pleii</i>	Squid, Slender Inshore	13	S
LOLLIGUBREVIS	<i>Lolliguncula brevis</i>	Squid, Atlantic Brief	13	S
LONCHOPMICROG	<i>Lonchopisthus micrognathus</i>	Jawfish, Swordtail	18	RF S
LOPHIOD	<i>Lophiodes</i> sp	Goosefish (Genus)	18	RF S
LOPHIODRETICU	<i>Lophiodes reticulatus</i>	Goosefish, Reticulate	18	RF S
LOPHOLACHAMAE	<i>Lopholatus chamaeleonticeps</i>	Tilefish	1	RF S
LOPHOLACHAMAE	<i>Lopholatilus chamaeleonticeps</i>	Tilefish	1	
LOVENIACORDIF	<i>Lovenia cordiformis</i>	Urchin, Heart	20	S
LUCINIDAE	Lucinidae	Lucinid Shell (Family)	11	S
LUIDIA ALTERN	<i>Luidia alternata</i>	Seastar, Limp or Weak	99	S
LUIDIA CLATHR	<i>Luidia clathrata</i>	Seastar, Slender	14	S
LUIDIA SENEGA	<i>Luidia senegalensis</i>	Seastar, 9-armed	0	S
LUTJANIDAE	Lutjanidae	Snapper (Family)	1	RF S
LUTJANU	<i>Lutjanus</i> sp	Snapper (Genus)	1	RF S
LUTJANUANALIS	<i>Lutjanus analis</i>	Snapper, Mutton	1	RF S
LUTJANUAPODUS	<i>Lutjanus apodus</i>	Schoolmaster	1	RF S
LUTJANUBUCCAN	<i>Lutjanus buccanella</i>	Snapper, Blackfin	1	RF S
LUTJANUCAMPEC	<i>Lutjanus campechanus</i>	Snapper, Red	1	RF S
LUTJANUCYANOP	<i>Lutjanus cyanopterus</i>	Snapper, Cubera	1	RF S
LUTJANUGRISEU	<i>Lutjanus griseus</i>	Snapper, Gray	1	RF S
LUTJANUJOCU	<i>Lutjanus jocu</i>	Snapper, Dog	1	RF S
LUTJANUSYNAGR	<i>Lutjanus synagris</i>	Snapper, Lane	1	RF S
LUTJANUVIVANU	<i>Lutjanus vivanus</i>	Snapper, Silk	1	RF S
LYSIOSQSCABRI	<i>Lysiosquilla scabricauda</i>	Spring Tailed Mantis Shrimp	3	S
LYSMATAWURDEM	<i>Lysmata wurdemanni</i>	Shrimp, Peppermint	3	S
LYTECHIVARIEG	<i>Lytechinus variegatus</i>	Urchin, Variable	20	S
MACOMA	Macoma	Bivalve (Genus)	11	S
MACROCAMACULA	<i>Macrocallista maculata</i>	Clam, Calico	11	S
MACROCOSUBPAR	<i>Macrocoeloma subparallelum</i>	Crab, Sponge Spider	6	S
MACROCOTRISPI	<i>Macrocoeloma trispinosum</i>	Crab, Spongy Decorator	6	S
MAJIDAE	Majidae	Crab, Spider (Family)	6	S
MALACANPLUMIE	<i>Malacanthus plumieri</i>	Tilefish, Sand	1	RF S
MALACANTHIDAE	Malacanthidae	Tilefish (Family)	1	RF S
MALACLETERRAP	<i>Malaclemys terrapin</i>	Terrapin, Diamondback	99	S
MANTA BIROST	<i>Manta birostris</i>	Manta, Atlantic	22	RF S
MELLITAQUINQU	<i>Mellita quinquiesperforata</i>	Urchin, Keyhole (Sand Dollar)	20	S
MEMBRASMARTIN	<i>Membras martinica</i>	Silverside, Rough	1	RF S
MENIDIA	Menidia	Silverside (Genus)	1	RF S
MENIDIABERYLL	<i>Menidia beryllina</i>	Inland Silverside	1	RF S
MENIDIAMENIDI	<i>Menidia menidia</i>	Silverside, Atlantic	1	RF S
MENIDIAPENINS	<i>Menidia peninsulae</i>	Silverside, Tidewater	1	RF S
MENIPPEMERCEN	<i>Menippe mercenaria</i>	Crab, Florida Stone	5	S
MENTICI	<i>Menticirrhus</i> sp	Drum, Kingfish (Genus)	18	RF S
MENTICIAMERIC	<i>Menticirrhus americanus</i>	Kingfish, Southern	18	RF S
MENTICILITTOR	<i>Menticirrhus littoralis</i>	Kingfish, Gulf	18	RF S
MENTICISAXATI	<i>Menticirrhus saxatilis</i>	Kingfish, Northern	18	RF S
MEOMA VENTRI	<i>Meoma ventricosa</i>	Urchin, Cake	20	S
MERCENA	<i>Mercenaria</i> sp	Clam (Genus)	11	S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB
MERCENACAMPEC	<i>Mercenaria campechiensis</i>	Quahog, Southern	11	S
MERLUCCALBIDU	<i>Merluccius albidus</i>	Hake, Offshore	18	RF S
METOPORCALCAR	<i>Metoporphis calcarata</i>	Crab, False Arrow	6	S
MICROPASCULPT	<i>Micropanope sculptipes</i>	Crab, Sculptured Mud	5	S
MICROPHBICORN	<i>Microphrys bicomutus</i>	Crab, Decorator	6	S
MICROPHBRACHY	<i>Microphis brachyurus</i>	Pipefish, Opossum	18	RF S
MICROPOUNDULA	<i>Micropogonias undulatus</i>	Croaker, Atlantic	18	RF S
MITHRAX	<i>Mithrax</i>	Crab, Spider (Genus)	6	S
MITHRAXACUTIC	<i>Mithrax acuticornis</i>	Crab, Sharp-horn Clinging	6	S
MITHRAXFORCEP	<i>Mithrax forceps</i>	Crab, Red-Ridged Clinging	6	S
MITHRAXSPINOS	<i>Mithrax spinosissimus</i>	Crab, Spiny Spider	6	S
MOIRA ATROPO	<i>Moira atropos</i>	Urchin, Heart	0	S
MOLA MOLA	<i>Mola mola</i>	Sunfish, Ocean	99	RF S
MOLLUSC	<i>Mollusca</i>	Mollusk (Phylum)	99	S
MONACAN	<i>Monacanthus</i> sp	Filefish (Genus)	18	RF S
MONACANCILIAT	<i>Monacanthus ciliatus</i>	Filefish, Fringed	18	RF S
MONACANHISPID	<i>Monacanthus hispidus</i>	Filefish, Planehead	18	
MONACANSETIFE	<i>Monacanthus setifer</i>	Filefish, Pigmy	18	RF S
MONACANTUCKER	<i>Monacanthus tuckeri</i>	Filefish, Slender	18	RF S
MONTACU	Montacutidae	Bivalve, Lepton (Family)	11	S
MORONE AMERIC	<i>Morone americana</i>	Perch, White	1	RF S
MUGIL	<i>Mugil</i> sp	Mullet (Genus)	1	RF S
MUGIL CEPHAL	<i>Mugil cephalus</i>	Mullet, Striped	1	RF S
MUGIL CUREMA	<i>Mugil curema</i>	Mullet, White	1	RF S
MULLIDAE	Mullidae	Goatfish (Family)	1	RF S
MULLOIDMARTIN	<i>Mulloidichthys martinicus</i>	Goatfish, Yellow	1	RF S
MULLUS AURATU	<i>Mullus auratus</i>	Goatfish, Red	1	RF S
MURAENARETIFE	<i>Muraena retifera</i>	Moray, Reticulate	18	RF S
MUREX	<i>Murex</i> sp	Shell, Rock (Genus)	17	S
MUSTELU	<i>Mustelus</i>	Shark, Dogfish	18	RF S
MUSTELUCANIS	<i>Mustelus canis</i>	Shark, Smooth Dogfish	18	RF S
MUSTELUNORRIS	<i>Mustelus norrisi</i>	Shark, Florida Smoothhound	18	RF S
MYCTERO	<i>Mycteroperca</i>	Grouper, (Genus)	1	RF
MYCTEROBONACI	<i>Mycteroperca bonaci</i>	Grouper, Black	1	RF S
MYCTEROINTERS	<i>Mycteroperca interstitialis</i>	Grouper, Yellowmouth	1	RF S
MYCTEROMICROL	<i>Mycteroperca microlepis</i>	Gag	1	RF S
MYCTEROPHENAX	<i>Mycteroperca phenax</i>	Scamp	18	RF S
MYCTEROVENENO	<i>Mycteroperca venenosa</i>	Grouper, Yellowfin	1	RF
MYLIOBAFREMIN	<i>Myliobatis freminvillei</i>	Ray, Bullnose	22	RF S
MYLIOBAGOODEI	<i>Myliobatis goodei</i>	Ray, Southern Eagle	22	RF S
MYRIPRIJACOBUS	<i>Myripristis jacobus</i>	Soldierfish, Blackbar	1	RF S
MYROPHIPUNCTA	<i>Myrophis punctatus</i>	Eel, Speckled Worm	18	RF S
MYROPSIQUINQU	<i>Myropsis quinquespinosa</i>	Crab, Fivespine Purse	6	S
NARCINEBRASIL	<i>Narcine brasiliensis</i>	Ray, Lesser Electric	22	RF S
NASSARIOBSOLE	<i>Nassarius obsoletus</i>	Whelk, Mud Dog	17	S
NATICID	Naticidae	Shell, Moon (Family)	11	S
NAUCRATDUCTOR	<i>Naucrates ductor</i>	Pilotfish	1	RF S
NEGAPRIBREVIR	<i>Negaprion brevirostris</i>	Shark, Lemon	18	RF S
NEOMERIHEMING	<i>Neomerinthe hemingwayi</i>	Scorpionfish, Spinycheek	18	RF S
NEOTIA PONDER	<i>Neotia ponderosa</i>	Shell, Ponderosa Ark	11	S
NEPHROPACULEA	<i>Nephropsis aculeata</i>	Lobsterette, Florida	8	S
NEPHROPAGASSI	<i>Nephropsis agassizii</i>	Lobsterette, Prickly	8	S
NEZUMIABAIRDI	<i>Nezumia bairdi</i>	Marlin-Spike	18	RF S

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NICHOLSUSTA	Nicholsina usta	Parrotfish, Emerald	18	RF	S
NOCATCH	Nocatch	Catch, None	99	RF	S
OCTOCORALLIA	Octocorallia	Coral, Soft (Subclass)	20		S
OCTOPODA	Octopoda	Octopus (Order)	13	RF	
OCTOPUS	Octopus sp	Octopus (Genus)	13	RF	S
OCTOPUSBRIARE	Octopus briareus	Octopus, Caribbean Reef	13		S
OCTOPUSJUBIN	Octopus joubin	Octopus, Atlantic Pigmy	13		S
OCTOPUSVULGAR	Octopus vulgaris	Octopus, Common	13		S
OCYURUSCHRYSU	Ocyurus chrysurus	Snapper, Yellowtail	1	RF	S
ODONTASTAURUS	Odontaspis taurus	Shark, Sand tiger	18	RF	S
ODONTOSDENTEX	Odontoscion dentex	Croaker, Reef	18	RF	S
OGCOCEP	Ogcocephalus sp	Batfish (Genus)	18	RF	S
OGCOCEPCORNIG	Ogcocephalus corniger	Batfish, Longnose	18	RF	S
OGCOCEPDECLIV	Ogcocephalus declivirostris	Batfish, Slantbrow	18	RF	S
OGCOCEPNASUTU	Ogcocephalus nasutus	Batfish, Shortnose	18	RF	S
OGCOCEPPANTOS	Ogcocephalus pantostictus	Batfish, Spotted	18	RF	S
OGCOCEPPARVUS	Ogcocephalus parvus	Batfish, Roughback	18	RF	S
OGCOCEPRADIAT	Ogcocephalus radiatus	Batfish, Polkadot	18	RF	S
OLIGOPLSAURUS	Oligoplites saurus	Leatherjacket	1	RF	S
OLIVA RETICU	Oliva reticularis	Olive, Netted	17		S
OLIVIDA	Olividae	Olive Shell (Family)	17		S
OPHICH_	Ophichthidae	Eel, Snake (Family)	18	RF	S
OPHICHT	Ophichthus sp	Eel, Banded Shrimp	18	RF	S
OPHICHTGOMESI	Ophichthus gomesi	Eel, Shrimp	18	RF	S
OPHICHTMELANO	Ophichthus melanoporus	Eel, Blackpored	18	RF	
OPHICHTOPHIS	Ophichthus ophis	Eel, Spotted Snake	18	RF	S
OPHICHTPUNCTI	Ophichthus puncticeps	Eel, Pale Spotted	18	RF	S
OPHICHTREX	Ophichthus rex	Eel, King Snake	18	RF	S
OPHIDI	Ophidiidae	Cusk-eel (Family)	18	RF	S
OPHIDIGRAYI	Ophidion grayi	Cusk-eel, Blotched	18	RF	S
OPHIDIHOLBRO	Ophidion holbrooki	Cusk-eel, Bank	18	RF	S
OPHIDIOMARGIN	Ophidion marginatum	Cusk-eel, Striped	18	RF	S
OPHIDIOSELENO	Ophidion selenops	Cusk-eel, Mooneye	18	RF	S
OPHIDIOWELSHI	Ophidion welshi	Cusk-eel, Crested	18	RF	S
OPHIOPHACULEA	Ophiopholis aculeata	Star, Daisy Brittle	14		S
OPHIURO	Ophiuroidea	Brittle Star (Subclass)	14		S
OPISTHOGLINU	Opisthonema oglinum	Herring, Atlantic Thread	1	RF	S
OPISTOG	Opistognathus sp	Jawfish, Spotfin	18	RF	S
OPSANUS	Opsanus sp	Toadfish (Genus)	18	RF	S
OPSANUSBETA	Opsanus beta	Toadfish, Gulf	18	RF	S
OPSANUSPARDUS	Opsanus pardus	Toadfish, Leopard	18	RF	S
OPSANUSTAU	Opsanus tau	Toadfish, Oyster	18	RF	S
OREASTERETICU	Oreaster reticulatus	Starfish, Cushion (Reticulated)	15		S
ORTHOPRCHRYSO	Orthopristis chrysoptera	Pigfish	1	RF	S
OTHER	Other	Catch Besides Shrimp	99		S
OTOPHIDOMOSTI	Otophidium omostigmum	Cusk-eel, Polka-dot	18	RF	S
OVALIPE	Ovalipes sp	Crab, Lady (Genus)	5		S
OVALIPEFLORID	Ovalipes floridanus	Crab, Florida Lady	5		S
OVALIPEGUADUL	Ovalipes guadulpensis	Crab, Lady (w/o spots)	5		S
OVALIPEOCELLA	Ovalipes ocellatus	Crab, Lady (w/specks)	5		S
OVALIPESTEPHE	Ovalipes stephensoni	Crab, Coarsehand Lady	5		S
PACHYGRGRACIL	Pachygrapsus gracilis	Crab, Wharf	5		S
PAGRUS	Pagrus sp	Porgy (Genus)	1	RF	S

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PAGRUS PAGRUS	Pagrus pagrus	Porgy, Red	1	RF	S
PAGURID	Paguridae	Crab, Right-Handed Hermit (Family)	6		S
PAGUROIDEA	Paguroidea	Crab, Hermit (Superfamily)	6		S
PAGURUS	Pagurus	Crab, Right-Handed Hermit (Genus)	6		S
PAGURUSACADIA	Pagurus acadianus	Crab, Acadian Hermit	6		S
PAGURUSPOLLIC	Pagurus pollicaris	Crab, Flat Claw Hermit	6		S
PANOPEU	Panopeus sp	Crab, Mud	5		S
PANOPEUTURGID	Panopeus turgidus	Crab, Ridgeback Mud	5		S
PANULAIRARGUS	Panulirus argus	Lobster, Caribbean Spiny	8	RF	
PANULIRARGUS	Panulirus argus	Lobster, Caribbean Spiny	8		S
PARACONCAUDIL	Paraconger caudilimbatus	Conger, Margintail	18	RF	S
PARACONCAUDIL	Paraconger caudilimbatus	Conger, Margintail	18		
PARALIC	Paralichthys sp	Flounder, Lefteye (Genus)	18	RF	S
PARALICALBIGU	Paralichthys albigutta	Flounder, Gulf	18	RF	S
PARALICDENTAT	Paralichthys dentatus	Flounder, Summer	18	RF	S
PARALICLETHOS	Paralichthys lethostigma	Flounder, Southern	18	RF	S
PARALICOBLONG	Paralichthys oblongus	Flounder, Fourspot	18	RF	S
PARALICSQUAMI	Paralichthys squamilentus	Flounder, Broad	18	RF	S
PARANTHFURCIF	Paranthias furcifer	Creole-Fish	1	RF	S
PARANTHRAPIFO	Paranthus rapiformis	Onion Anemone	10	RF	S
PARRIBAANTARC	Parribacus antarcticus	Lobster, Sculptured Slipper	8		S
PARTHEN	Parthenopidae	Crab, Elbow (Family)	5		S
PARTHENPOURTA	Parthenope pourtalesii	Crab, Spinous Elbow	5		S
PARTHENSERRAT	Parthenope serrata	Crab, Sawtoothed Elbow	5		S
PECTEN RAVENE	Pecten raveneli	Scallop, Ravenel	11		S
PECTINI	Pectinidae	Scallop (Family)	12		S
PENAEIDAE	Penaeidae	Shrimp, Penaeid (Family)	3		S
PENAEUS	Penaeus sp	Shrimp, Penaeid (brown,white, pink)	3		S
PENAEUSDISCAR	Penaeus Discard	Shrimp, Discard (brown,white, pink)	99		S
PEPRILU	Peprilus sp	Butterfish (Genus)	1	RF	S
PEPRILUALEPID	Peprilus alepidotus	Harvestfish	1	RF	S
PEPRILUBURTI	Peprilus burti	Butterfish, Gulf	1	RF	S
PEPRILUTRIACA	Peprilus triacanthus	Butterfish, Atlantic	1	RF	S
PERISTEMINIAT	Peristedion miniatum	Searobin, Armored	18	RF	S
PERISTETHOMPS	Peristedion thompsoni	Searobin, Rimspine	18	RF	S
PERISTIGRACIL	Peristedion gracile	Searobin, Slender	18	RF	S
PERSEPHCRINIT	Persephona crinita	Crab, Pink Purse	6		S
PERSEPHMEDITE	Persephona mediterranea	Crab, Mottled Purse	6		S
PERSEPHPUNCTA	Persephona punctata	Crab, Purse	6		S
PETROCH	Petrochirus	Crab, Left-Handed Hermit (Genus)	6		S
PETROCHDIOGEN	Petrochirus diogenes	Crab, Giant Hermit	6		S
PETROLIGALATH	Petrolisthes galathina	Crab, Banded Porcelain	5		S
PHAEOPTPIGMEN	Phaeoptyx pigmentaria	Cardinalfish, Dusky	1	RF	S
PHAEOPTXENUS	Phaeoptyx xenus	Cardinalfish, Sponge	1	RF	S
PHALIUMGRANUL	Phalium granulatum	Bonnet, Scotch	17	RF	S
PIKEA MEXICA	Pikea Mexica	Bass, Yellowtail	99	RF	S
PILUMNU	Pilumnus sp	Crab, Hairy Mud (Genus)	5		S
PILUMNU SAYI	Pilumnus sayi	Crab, Spineback Hairy	5		S
PILUMNUASYPO	Pilumnus dasypodus	Crab, Brown Hairy Wharf	6		S
PILUMNUFLORID	Pilumnus floridanus	Crab, Plumed Hairy	5		S
PILUMNUPANNOS	Pilumnus pannosus	Crab, Beaded Hairy	5		S
PINNOTH	Pinnotheres sp	Crab, Pea (Genus)	6		S
PINNOTHOSTREU	Pinnotheres ostreum	Crab, Oyster	5		S

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PISCES	Pisces	Fish (Superclass)	99	RF	S
PISCES BAIT	Pisces - Bait Fish	Fish, Miscellaneous Bait	99	RF	
PITAR CORDAT	Pitar cordatus	Pitar, Schwengel	11		S
PLACOPEMAGELL	Placopecten magellanicus	Scallop, Deep Sea	12		S
PLECTRYRETROS	Plectrypops retrospinus	Soldierfish, Cardinal	1	RF	
PLEURONECTIFO	Pleuronectiformes	Flatfish (Order)	18	RF	S
PODOCHESIDNEY	Podochela sidneyi	Crab, Shortfinger Neck	5		S
POGONIAACROMIS	Pogonias cromis	Drum, Black	18	RF	S
POLINICDUPLIC	Polinices duplicatus	Shell, Lobed Moon	20		S
POLYDACOCTONE	Polydactylus octonemus	Threadfin, Atlantic	1	RF	S
POLYSTIALBIDA	Polystira albida	Turris, White Giant	17		S
POLYSTITELLEA	Polystira tellea	Turris, Delicate Giant	99		S
POMACANARCUAT	Pomacanthus arcuatus	Angelfish, Gray	20	RF	S
POMACANPARU	Pomacanthus paru	Angelfish, French	18	RF	S
POMATOMSALTAT	Pomatomus saltatrix	Bluefish	1	RF	S
PONTINULONGIS	Pontinus longispinis	Scorpionfish, Longspine	18	RF	S
PORCELL	Porcellana sp	Crab, Porcelain (Genus)	5		S
PORCELLSAYANA	Porcellana sayana	Crab, Spotted Porcelain	5		S
PORCELLSIGSB	Porcellana sigsbeiana	Crab, Striped Porcelain	5		S
PORICHT	Porichthys sp	Midshipman/Toadfish (Genus)	18	RF	S
PORICHTPLECTR	Porichthys plectrodon	Midshipman, Atlantic	18	RF	S
PORIFER	Porifera	Sponge (Phylum)	20		S
PORTUNI	Portunidae	Crab, Swimming (Family)	5		S
PORTUNU	Portunus sp	Crab, Swimming (Genus)	5		S
PORTUNUDEPRES	Portunus depressifrons	Crab, Flatface Swimming	5		S
PORTUNUGIBBES	Portunus gibbesii	Crab, Iridescent Swimming	5		S
PORTUNUSAYI	Portunus sayi	Crab, Sargassum	5		S
PORTUNUSPINIC	Portunus spinicarpus	Crab, Longspine Swimming	5		S
PORTUNUSPINIM	Portunus spinimanus	Crab, Blotched Swimming	5		S
PRIACANARENAT	Priacanthus arenatus	Bigeye	1	RF	S
PRIACANCRUENT	Priacanthus cruentatus	Snapper, Glasseye	18	RF	S
PRIONOT	Prionotus sp	Searobin (Genus)	18	RF	S
PRIONOTALATUS	Prionotus alatus	Searobin, Spiny	18	RF	S
PRIONOTCAROLI	Prionotus carolinus	Searobin, Northern	18	RF	S
PRIONOTEVOLAN	Prionotus evolans	Searobin, Striped	18	RF	S
PRIONOTLONGIS	Prionotus longispinosus	Searobin, Bigeye (Blackfin)	18	RF	S
PRIONOTMARTIS	Prionotus martis	Searobin, Barred	18	RF	S
PRIONOTOPHRYA	Prionotus ophryas	Searobin, Bandtail	18	RF	S
PRIONOTPARALA	Prionotus paralatus	Searobin, Mexican	18	RF	S
PRIONOTROSEUS	Prionotus roseus	Searobin, Bluespotted	18	RF	S
PRIONOTRUBIO	Prionotus rubio	Searobin, Blackwing	18	RF	S
PRIONOTSCITUL	Prionotus scitulus	Searobin, Leopard	18	RF	S
PRIONOTSTEARN	Prionotus stearnsi	Searobin, Shortwing	18	RF	S
PRIONOTTRIBUL	Prionotus tribulus	Searobin, Bighead	18	RF	S
PRISTIGALTA	Pristigenys alta	Bigeye, Short	1	RF	S
PRISTIPAQUILO	Pristipomoides aquilonaris	Wenchman	1	RF	S
PROGNICGIBBIF	Prognichthys gibbifrons	Flyingfish, Bluntnose	1	RF	S
PSEUDUPMACULA	Pseudupeneus maculatus	Goatfish, Spotted	1	RF	S
PTEROISANTENN	Pterois antennata	Lionfish, Banded	18	RF	
RACHYCECANADU	Rachycentron canadum	Cobia, Ling	1	RF	S
RAJA	Raja	Skate (Genus)	22	RF	S
RAJA EGLANT	Raja eglanteria	Skate, Clearnose	22	RF	S
RAJA FLORID	Raja floridana	Skate, Blackpored	22	RF	

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RAJA GARMAN	<i>Raja garmani</i>	Rosette skate	22	RF
RAJA LAEVIS	<i>Raja laevis</i>	Skate, Barndoor	22	RF S
RAJA OLSENI	<i>Raja olseni</i>	Skate, Spreadfin	22	RF S
RAJA SENTA	<i>Raja senta</i>	Skate, Smooth	0	RF S
RAJA TEXANA	<i>Raja texana</i>	Skate, Roundel	22	RF S
RAJIDAE	Rajidae	Skate (Family)	22	RF S
RAJIFORMES	Rajiformes	Skate and Ray (Order)	99	RF S
RANINOILOUSI	<i>Raninoides louisianensis</i>	Crab, Gulf Frog	5	S
REMORA REMORA	<i>Remora remora</i>	Remora	18	RF S
RENILLA	Renilla	Sea Pansy	20	S
RHINOBALENTIG	<i>Rhinobatos lentiginosus</i>	Guitarfish, Atlantic	18	RF S
RHINOPTBONASU	<i>Rhinoptera bonasus</i>	Ray, Cownose	22	RF S
RHIZOPRTERRAE	<i>Rhizoprionodon terraenovae</i>	Shark, Atlantic Sharpnose	18	RF S
RHOMBOPAUORU	<i>Rhomboplites aurorubens</i>	Snapper, Vermillion (B-liner)	1	RF S
RIMAPENCONSTR	<i>Rimapenaeus constrictus</i>	Shrimp, Roughneck	3	S
RYPTICUMACULA	<i>Rypticus maculatus</i>	Soapfish, Whitespotted	18	RF S
RYPTICUSUBBIF	<i>Rypticus subbifrenatus</i>	Soapfish, Spotted	18	RF S
SARDA SARDA	<i>Sarda sarda</i>	Atlantic bonito	1	RF
SARDINE	<i>Sardinella sp</i>	Herring (Genus)	1	RF S
SARDINEAURITA	<i>Sardinella aurita</i>	Sardine, Spanish	1	RF S
SARDINEBRASIL	<i>Sardinella brasiliensis</i>	Sardine, Orange Spot	1	RF S
SAURIDABRASIL	<i>Saurida brasiliensis</i>	Lizardfish, Largescale	1	RF S
SAURIDACARIBB	<i>Saurida caribbaea</i>	Lizardfish, Smallscale	1	RF S
SAURIDANORMAN	<i>Saurida normani</i>	Lizardfish, Shortjaw	1	RF S
SCARIDAE	Scaridae	Parrotfish (Family)	1	RF S
SCARTELCRISTA	<i>Scartella cristata</i>	Miller, Molly	18	RF S
SCARUS VETULA	<i>Scarus vetula</i>	Parrotfish, Queen	1	RF S
SCHIZOPORELLA	<i>Schizoporella</i>	Bryosoan (Genus)	20	S
SCHIZOPPUNGEN	<i>Schizoporella pungens</i>	Bryozoan, Gulf Staghorn	20	S
SCHULTZBETA	<i>Schultzea beta</i>	Bass, School	1	RF S
SCIAENI	Sciaenidae	Drum (Family)	99	RF S
SCIAENOOCELLA	<i>Sciaenops ocellatus</i>	Drum, Red	18	RF S
SCLERODBRIARE	<i>Sclerodactyla briareus</i>	Hairy Sea Cucumber	20	RF S
SCOMBERCAVALL	<i>Scomberomorus cavalla</i>	Mackerel, King	1	RF S
SCOMBERJAPONI	<i>Scomber japonicus</i>	Mackerel, Chub	1	RF S
SCOMBERMACULA	<i>Scomberomorus maculatus</i>	Mackerel, Spanish	1	RF S
SCOMBERREGALI	<i>Scomberomorus regalis</i>	Cero	99	RF S
SCOMBERSCOMBR	<i>Scomber scombrus</i>	Mackeral, Atlantic	1	RF S
SCOMBRIDAE	Scombridae	Mackerel (Family)	1	RF S
SCONSIASRIAT	<i>Sconsia striata</i>	Bonnet, Royal	17	S
SCOPHTHAQUOSU	<i>Scophthalmus aquosus</i>	Windowpane	18	RF S
SCORPAE	<i>Scorpaena sp</i>	Scorpionfish	18	RF S
SCORPAEAGASSI	<i>Scorpaena agassizi</i>	Scorpionfish, Longfin	18	RF S
SCORPAEBRACHY	<i>Scorpaena brachyptera</i>	Scorpionfish, Shortfin	18	RF S
SCORPAEBRASIL	<i>Scorpaena brasiliensis</i>	Barbfish	18	RF S
SCORPAECALCAR	<i>Scorpaena calcarata</i>	Scorpionfish, Smoothead	18	RF S
SCORPAECARIBB	<i>Scorpaenodes caribbaeus</i>	Scorpionfish, Reef	18	RF S
SCORPAEDISPAR	<i>Scorpaena dispar</i>	Scorpionfish, Hunchback	18	RF S
SCORPAEGRANDI	<i>Scorpaena grandicornis</i>	Scorpionfish, Plumed	18	RF S
SCORPAEISTHME	<i>Scorpaena isthmensis</i>	Scorpionfish, Smoothcheek	18	RF S
SCORPAEPLUMIE	<i>Scorpaena plumieri</i>	Scorpionfish, Spotted	18	RF S
SCYLORRETIFE	<i>Scyliorhinus retifer</i>	Dogfish, Chain	99	RF S
SCYLLAR	<i>Scyllarides</i>	Lobster, Slipper (Genus)	8	S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB
SCYLLARAEQUIN	Scyllarides aequinoctialis	Lobster, Spanish Slipper	8	S
SCYLLARCHACEI	Scyllarus chacei	Lobster, Slipper	8	S
SCYLLARIDAE	Scyllaridae	Lobster, Slipper (Family)	8	S
SCYLLARNODIFE	Scyllarides nodifer	Lobster, Ridged Slipper	8	S
SCYPHOZ	Scyphozoa	Jellyfish (Class)	99	S
SELAR CRUMEN	Selar crumenophthalmus	Scad, Bigeye	1	RF S
SELENE SETAPI	Selene setapinnis	Moonfish, Atlantic	1	RF S
SELENE VOMER	Selene vomer	Lookdown	1	RF S
SEPIOLIDAE	Sepiolidae	Bobtail Squid (Family)	13	S
SEPIOTESEPIOI	Sepioteuthis sepioidea	Squid, Atlantic Oval	13	S
SERIOLA	Seriola sp	Jack (Genus)	1	RF
SERIOLADUMERI	Seriola dumerili	Amberjack, Greater	1	RF S
SERIOLAFASCIA	Seriola fasciata	Amberjack, Lesser	1	RF S
SERIOLARIVOLI	Seriola rivoliana	Jack, Almaco	1	RF S
SERIOLAZONATA	Seriola zonata	Rudderfish, Banded	1	RF S
SERRANIDAE	Serranidae	Sea Bass (Family)	2	RF S
SERRANIPUMILI	Serraniculus pumilio	Seabass, Pygmy	2	RF S
SERRANU	Serranus	Sea Bass (Genus)	18	RF S
SERRANUATROBR	Serranus atrobranchus	Seabass, Blackear	2	RF S
SERRANUNOTOSP	Serranus notospilus	Bass, Saddle	2	RF
SERRANUPHOEBE	Serranus phoebe	Tattler	99	RF S
SICYONI	Sicyonia sp	Shrimp, Rock (Genus)	3	S
SICYONIBREVIR	Sicyonia breviostris	Shrimp, Brown Rock	3	S
SICYONIBURKEN	Sicyonia burkenroadi	Shrimp, Spiny Rock	3	S
SICYONIDISCAR	Sicyonia Discards	Shrimp, Rock (Discards)	3	S
SICYONIDORSAL	Sicyonia dorsalis	Shrimp, Lesser Rock	3	S
SICYONITYPICA	Sicyonia typica	Shrimp, Kinglet Rock	3	S
SINUM PERSPE	Sinum perspectivum	Common Baby's Ear	17	S
SOLENOC	Solenocera sp	Shrimp, Humpback (Genus)	3	S
SOLENOATLANT	Solenocera Atlantidis	Shrimp, Dwarf Humpback	99	S
SOLENOCERIDAE	Solenoceridae	Shrimp, Solenocera (Family)	3	S
SOLENOCNECOPI	Solenocera necopina	Shrimp, Deepwater Humpback	99	S
SOLENOCVIOSCA	Solenocera voscai	Shrimp, Humpback	3	S
SPARIDA	Sparidae	Porgie (Family)	99	RF S
SPARISOAUROFR	Sparisoma aurofrenatum	Parrotfish, Redband	99	RF S
SPARISORADIAN	Sparisoma radians	Parrotfish, Bucktooth	18	RF S
SPARISORUBRIP	Sparisoma rubripinne	Parrotfish, Redfin	18	RF S
SPATANGOIDA	Spatangoida	Heart Urchin (Order)	20	S
SPEOCARLOBATU	Speocarcinus lobatus	Crab, Gulf Squareback	5	S
SPHAEROQUADRI	Sphaeroma quadridentatum	Sea Pill Bug	20	S
SPHOERO	Sphoeroides sp	Pufferfish (Genus)	18	RF S
SPHOERODORSAL	Sphoeroides dorsalis	Pufferfish, Marbled	18	RF S
SPHOEROMACULA	Sphoeroides maculatus	Pufferfish, Northern	18	RF S
SPHOERONEPHEL	Sphoeroides nephelus	Pufferfish, Southern	18	RF S
SPHOEROPACHYG	Sphoeroides pachygaster	Pufferfish, Blunthead	18	RF S
SPHOEROPARVUS	Sphoeroides parvus	Pufferfish, Least	18	RF S
SPHOEROSPENGL	Sphoeroides spengleri	Pufferfish, Bandtail	18	RF S
SPHOEROTESTUD	Sphoeroides testudineus	Pufferfish, Checkered	18	RF S
SPHYRAE	Sphyraena sp	Barracuda (Genus)	1	RF S
SPHYRAEBARRAC	Sphyraena barracuda	Barracuda, Great	1	RF S
SPHYRAEBOREAL	Sphyraena borealis	Sennet, Northern	1	RF S
SPHYRAEGUACHA	Sphyraena guachancho	Guaguanche	1	RF S
SPHYRAEPICUDI	Sphyraena picudilla	Sennet, Southern	1	RF S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB
SPHYRNA	Sphyrna sp	Shark, Hammerhead (Genus)	18	RF S
SPHYRNALEWINI	Sphyrna lewini	Shark, Hammerhead Scalloped	18	RF S
SPHYRNAMOKARR	Sphyrna mokarran	Shark, Great Hammerhead	18	RF S
SPHYRNATIBURO	Sphyrna tiburo	Shark, Bonnethead	18	RF S
SQUALUS	Squalus	Dogfish (Genus)	18	RF
SQUALUSACANTH	Squalus acanthias	Dogfish, Spiny	18	RF S
SQUALUSCUBENS	Squalus cubensis	Dogfish, Cuban	18	RF
SQUATINDUMERI	Squatina dumeril	Shark, Angel	18	RF S
SQUILLA	Squilla sp	Shrimp, Mantis (Genus)	3	RF S
SQUILLAEMPUSA	Squilla empusa	Shrimp, Mantis (empusa species)	3	S
SQUILLANEGLEC	Squilla neglecta	Shrimp, Mantis (neglecta species)	3	S
STEINDAARGENT	Steindachneria argentea	Hake, Luminous	18	RF S
STELLEROIDEA	Stelleroidea	Starfish (Class)	0	S
STELLIFLANCEO	Stellifer lanceolatus	Drum, Star	18	RF S
STENOCIFURCAT	Stenocionops furcatus	Crab, Furcate Spider	6	S
STENOCISPINOS	Stenocionops spinosissimus	Crab, Tenspine Spider	6	S
STENORHSETICO	Stenorhynchus seticomis	Crab, Yellowline Arrow	6	S
STENOTOCAPRIN	Stenotomus caprinus	Porgy, Longspine	1	RF S
STENOTOCHRYSO	Stenotomus chrysops	Scup	1	RF S
STEPHANHISPID	Stephanolepis hispidus	Filefish, Planehead	18	S
STOMATOPODA	Stomatopoda	Shrimp, Mantis (Order)	3	S
STOMOLOMELEAG	Stomolophus meleagris	Jellyfish, Cannonball	99	S
STRAMONHAEMAS	Stramonita haemastoma	Shell, Rock	17	S
STROMBU	Strombus sp	Conch (Genus)	17	S
STROMBUALATUS	Strombus alatus	Conch, Florida Fighting	99	S
STROMBUGIGAS	Strombus gigas	Conch, Queen	17	S
STRONGYMARINA	Strongylura marina	Needlefish, Atlantic	1	RF S
STYELA PLICAT	Styela plicata	Sea Squirt, Pleated	20	S
STYGNOLATEBR	Stygnobrotula latebricola	Brotula, Black	18	RF S
SYACIUM	Syacium sp	Flounder, Left-eye (Genus)	18	RF S
SYACIUMGUNTER	Syacium gunteri	Flounder, Shoal	18	RF S
SYACIUMPAPILL	Syacium papillosum	Flounder, Dusky	18	RF S
SYMPHUR	Symphurus sp	Tonguefish (Genus)	18	RF S
SYMPHURARAWAK	Symphurus arawak	Tonguefish, Caribbean	18	RF S
SYMPHURCIVITA	Symphurus civitatus	Tonguefish, Offshore	18	RF S
SYMPHURDIOMED	Symphurus diomedianus	Tonguefish, Spottedfin	18	RF S
SYMPHURMINOR	Symphurus minor	Tonguefish, Largescale	18	S
SYMPHURNEBULO	Symphurus nebulosus	Tonguefish, Freckled	18	RF S
SYMPHURPARVUS	Symphurus parvus	Tonguefish, Pygmy	18	RF S
SYMPHURPELICA	Symphurus pelicanus	Tonguefish, Longtail	18	RF S
SYMPHURPIGER	Symphurus piger	Tonguefish, Deepwater	18	RF S
SYMPHURPLAGIU	Symphurus plagiusa	Tonguefish, Blackcheek	18	RF S
SYMPHURUROSPI	Symphurus urospilus	Tonguefish, Spottail	18	RF S
SYNGNAT	Syngnathidae	Pipefish (Family)	18	RF S
SYNGNATFUSCUS	Syngnathus fuscus	Pipefish, Northern	18	RF S
SYNGNATLOUISI	Syngnathus louisianae	Pipefish, Chain	18	RF S
SYNGNATSCOVEL	Syngnathus scovelli	Pipefish, Gulf	18	RF S
SYNODON	Synodontidae	Lizardfish (Family)	1	RF S
SYNODUSFOETEN	Synodus foetens	Lizardfish, Inshore	1	RF S
SYNODUSINTERM	Synodus intermedius	Sand Diver	1	RF S
SYNODUSPOEYI	Synodus poeyi	Lizardfish, Offshore	1	RF S
SYNODUSSYNODU	Synodus synodus	Lizardfish, Red	1	RF S
TAGELUSPLEBEI	Tagelus plebeius	Tagel, Stout	11	S

GENSP	SCIENTIFIC	COMMON	MEASURE CODE	DB	
TETRAODONTIDA	Tetraodontidae	Puffer (Family)	18	RF	S
TEUTHOIDEA	Teuthoidea	Squid (Order)	13		S
THUNNUS	Thunnus sp	Tuna (Genus)	1	RF	
THUNNUSATLANT	Thunnus atlanticus	Tuna, Blackfin	1	RF	S
THUNNUSOBESUS	Thunnus obesus	Big Eye Tuna	1	RF	
THYONELGEMMAT	Thyonella gemmata	Sea Cucumber, Stripped	20		S
TONNA	Tonna sp	Tun Shell (Genus)	17		S
TONNA GALEA	Tonna galea	Tun, Giant	17		S
TONNA MACULO	Tonna maculosa	Tun, Atlantic Partridge	17		S
TORPEDONOBILI	Torpedo nobiliana	Torpedo, Atlantic	22	RF	S
TRACHIN	Trachinotus sp	Jack (Genus)	1	RF	S
TRACHINCAROLI	Trachinotus carolinus	Pompano, Florida	1	RF	S
TRACHINFALCAT	Trachinotus falcatus	Permit	1	RF	S
TRACHINMYOPS	Trachinocephalus myops	Snakefish	1	RF	S
TRACHURLATHAM	Trachurus lathami	Scad, Rough	1	RF	S
TRACHYP	Trachypenaeus sp	Shrimp, Sugar/Blood	3		S
TRICHIULEPTUR	Trichiurus lepturus	Cutlassfish, Atlantic	23	RF	S
TRICHOPVENTRA	Trichopsetta ventralis	Flounder, Sash	18	RF	S
TRIGLIDAE	Triglidae	Searobin (Family)	18	RF	S
TRINECTINSCRI	Trinectes inscriptus	Sole, Scrawled	18	RF	S
TRINECTMACULA	Trinectes maculatus	Hogchoker	18	RF	S
TRIPNEUVENTRI	Tripneustes ventricosus	Sea Egg (Urchin)	20		S
TURRITE	Turritella sp	Turret-shell (Genus)	17		S
UMBRINACOROID	Umbrina coroides	Drum, Sand	18	RF	S
UNKNOWC	Unknowc	Unknown Crustacean	99		S
UNKNOWF	Unknowf	Unknown Fish	99	RF	S
UNKNOWI	Unknowi	Unknown Invertebrate	99		S
UNKNOWN	Unknown	Unknown Matter	99		S
UPENEUSPARVUS	Upeneus parvus	Goatfish, Dwarf	1	RF	S
UPOGEBIAFFINI	Upogebia affinis	Shrimp, Mud	3		S
URANOSCOPIDAE	Uranoscopidae	Stargazer (Family)	18	RF	S
URASPISSECUND	Uraspis secunda	Jack, Cottonmouth	1	RF	
UROBATJAMAIC	Urobatis Jamaicensis	Stingray, Yellow	22	RF	S
UROCHOR	Urochordata	Tunicate (Phylum)	20		S
UROCONGSYRING	Uroconger syringinus	Conger, Threadtail	18	RF	
UROPHYC	Urophycis sp	Hake (Genus)	99	RF	S
UROPHYCCIRRAT	Urophycis cirrata	Hake, Gulf	18	RF	S
UROPHYCEARLLI	Urophycis earlli	Hake, Carolina	18	RF	S
UROPHYCFLORID	Urophycis floridana	Hake, Southern	18	RF	S
UROPHYCREGIA	Urophycis regia	Hake, Spotted	18	RF	S
UROSALPPERRUG	Urosalpinx perrugata	Oyster Drill, Gulf	17		S
USEATURTLE	Unidentified Sea Turtle	Unidentified Sea Turtle	20		S
VENERID	Veneridae	Clam, Hardshell (Family)	11		S
XANTHICRINGEN	Xanthichthys ringens	Triggerfish, Sargassum	18	RF	S
XANTHID	Xanthidae	Crab, Xanthid (Family)	5		S
XIPHIASGLADIU	Xiphias gladius	Swordfish	24	RF	S
XIPHOPEKROYER	Xiphopenaeus kroyeri	Shrimp, Sea Bob	3		S
ZALIEUTMCGINT	Zalieutes mcgintyi	Batfish, Tricorn	99	RF	S

APPENDIX 1


Commercial Fishing Vessel Safety EXAMINATION

DATE ISSUED

VESSEL
 Documented
 Undocumented

LOCATION
 Beyond Boundary Line
 Inside Boundary Line
 Inside Outside
 3 NM
 12 NM
 20 NM
 50 NM
 >100 NM

NO. 154984



**THIS VESSEL
MEETS ALL
USCG COMMERCIAL
FISHING INDUSTRY
VESSEL REGULATIONS**

EXPIRES

2007

2008

2009

2010

2011

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

CG-5587A (Rev. 6/06)

U.S. Department of Homeland Security

United States Coast Guard Vessel Safety Decal
 This decal is mandatory on all vessels carrying NMFS observers.

APPENDIX 2 NMFS Contacts

Galveston Lab																							
Elizabeth Scott-Denton Office: 409-766-3571 Cell: 409-771-5954 Cell (Winston): 713-248-4883	Pat Cryer Office: 409-766-3525 * answering machine Govt Cell: 409-682-2447																						
Mike Harrelson Office: 409-766-3450 Govt Cell: 409-682-3187 Cell: 409-789-5976	Jeff Pulver Field Coordinator Office: 409-766-3527 Govt Cell: 409-682-0024																						
Lab Fax# Main: 409-766-3489 Alternate: 409-766-3508																							
Jim Nance - Fishery Management Office: 409-766-3507 Home: 409-744-1352 Sat Phone: 863-203-9445 Cell: 409-682-1834	Roger Zimmerman - Lab Director Office: 409-766-3500 Home: 409-763-8554 Sat. Phone: 863-203-9444 Cell: 409-682-4033																						
Bonnie Ponwith - Center Director Office: 305-361-4264 Cell: 301-787-1017																							
IAP World Services																							
Chad Lefferson - Project Manager Office: 228-549-1662 Fax: 228-769-9200 Cell: 228-218-1892 Home: 228-818-6634	Christine Gibson - Assistant Office: 228-549-1660 Home: 228-474-1831 Cheryl's Mullecker - Assistant Office: 228-549-1659																						
IAP Nurse 24 Hour Hotline 877-269-6877 Carol Missimer - (RN) IAP Nurse Office: 321-784-7167 Cell: 321-544-8789 carol.e.missimer@iapws.com																							
VMS Contacts (After Hours Call NOAA Enforcement)	State Fish & Wildlife Enforcement Dept																						
Pat O'Shaughnessy - Program Manager Office: 727-834-5358 Cell: 727-244-7353 Henry Fontanills - Tech GOM Reef Office: 727-551-5734 Jonathon Howard - Tech SA Rock and GOM Pelagic Longline Office: 727-824-5334 Eric Nunez - Tech SA Pelagic & Bot. Longline Office: 727-824-5322 Omar Purcell - Tech GOM Reef Office: 727-551-5609 <i>Note: VMS Emails are charged to vessel owner</i>	<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Texas: 281-842-8100</td> <td style="width: 40%;">Dispatch 24 hrs</td> </tr> <tr> <td>Louisiana: 225-765-2706</td> <td>Dispatch 24 hrs</td> </tr> <tr> <td>Mississippi: 228-523-4134</td> <td>Dispatch 24 hrs</td> </tr> <tr> <td>Alabama: 251-981-2673</td> <td>Enforcement (M-F)</td> </tr> <tr> <td>251-429-0227</td> <td>Sargent Kelly cell</td> </tr> <tr> <td>Florida: 888-404-3922</td> <td>Dispatch 24 hrs</td> </tr> <tr> <td>Georgia: 912-264-7232</td> <td>Enforcement (M-F)</td> </tr> <tr> <td>800-241-4113</td> <td>Dispatch 24 hrs</td> </tr> <tr> <td>S Carolina: 843-953-9387</td> <td>Charleston (M-F)</td> </tr> <tr> <td>800-922-5431</td> <td>Enforcement 24 hrs</td> </tr> <tr> <td>N Carolina: 800-662-4381</td> <td>Dispatch 24 hrs</td> </tr> </table>	Texas: 281-842-8100	Dispatch 24 hrs	Louisiana: 225-765-2706	Dispatch 24 hrs	Mississippi: 228-523-4134	Dispatch 24 hrs	Alabama: 251-981-2673	Enforcement (M-F)	251-429-0227	Sargent Kelly cell	Florida: 888-404-3922	Dispatch 24 hrs	Georgia: 912-264-7232	Enforcement (M-F)	800-241-4113	Dispatch 24 hrs	S Carolina: 843-953-9387	Charleston (M-F)	800-922-5431	Enforcement 24 hrs	N Carolina: 800-662-4381	Dispatch 24 hrs
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Federal Enforcement and Rescue NOAA/NMFS Enforcement	US Coast Guard																						
Matt Clark Office: 409-770-0815 Cell: 409-338-9737 Mark Kinsey Office: 409-338-0814 Cell: 409-338-9111 Charles Tyer Office: 409-770-0812 Cell: 409-599-7983 Home: 281-331-1528	Houston/Galveston Area: 713-678-9057 Dispatch 24 hrs Galveston Officer of the Day: 409-682-0142 District 8 Commander - W. GOM to Appalachicola, FL New Orleans: 504-589-6225 Command Center 24 hrs District 7 Commander - Rest of Florida and SE Coast Miami: 305-415-6800 Command Center 24 hrs District 7 Fisheries Enforcement Chad Brick: Office: 305-415-6781																						
Temporary Emergency Evacuation Satellite Phones all signed out to observers																							

APPENDIX 3

Observer Status Codes

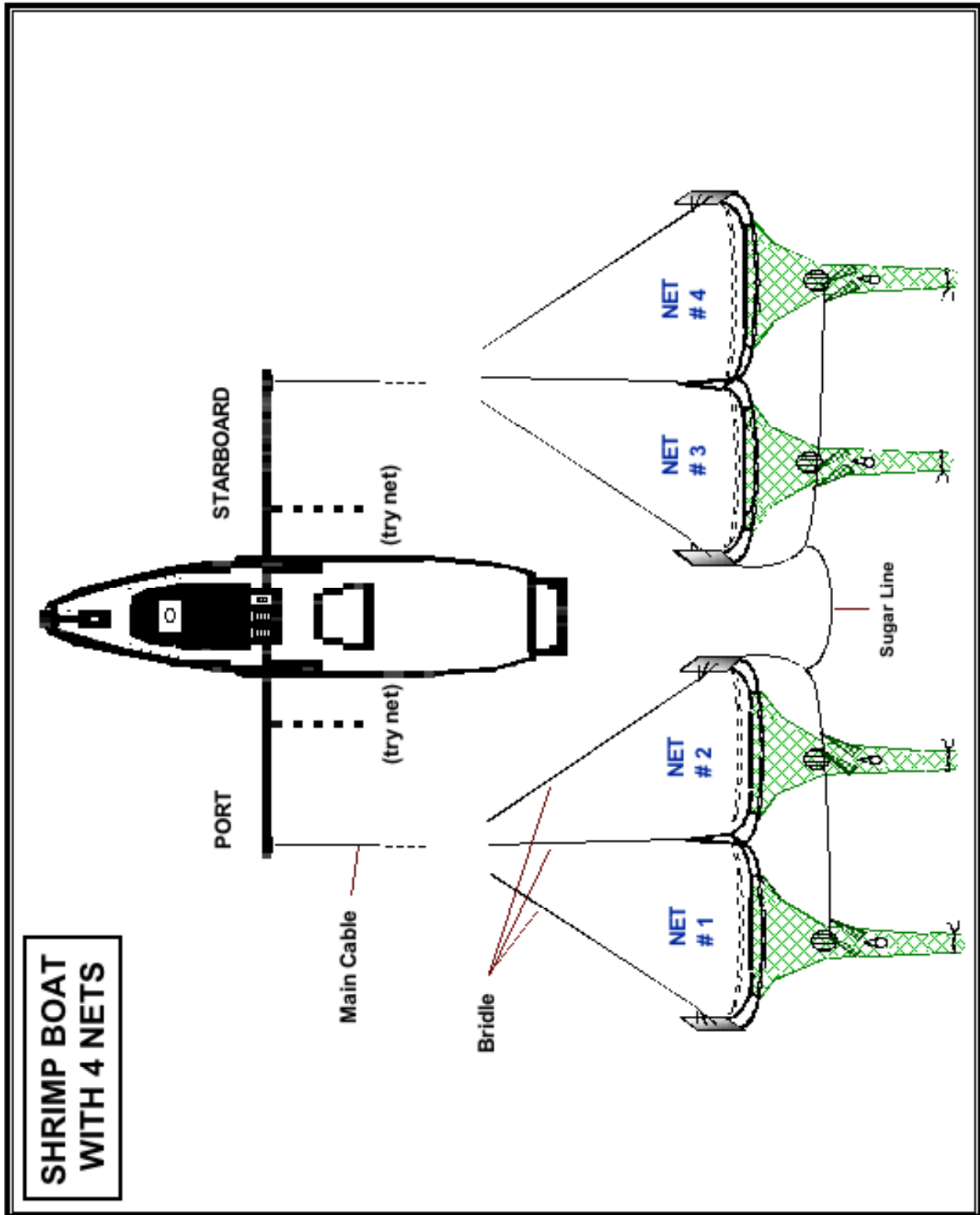
All observers are required to report in to their coordinators on a regular basis while offshore. The call-in dates will be determined during the observer-training workshop. The main reason for these call-ins is to ensure the safety and well-being of the observer. When your coordinator answers the phone, he or she will ask for the observer status code. The codes allow the observer to report his or her status without alerting anyone on the vessel about what you are reporting. These codes and descriptions are listed below:

001 All is ok (Self-explanatory).

666 Alert to a bad situation (This code should be used to alert the lab that a situation exist that could lead to possible removal of the observer, but at present not "life threatening" (i. e. illegal gear operation, observer sick and could get worse, or harassment from the crew or captain).

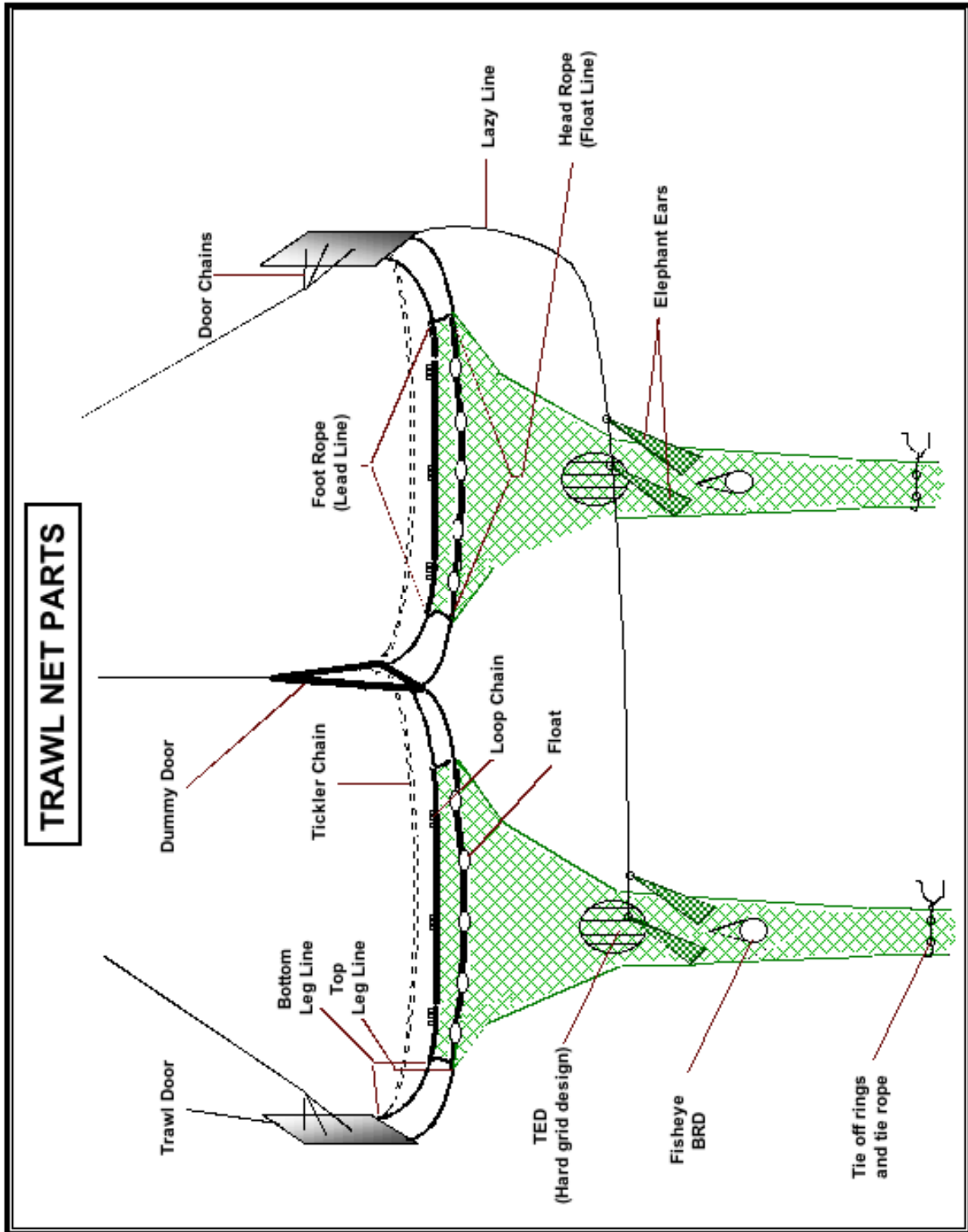
999 Get observer off the boat "NOW" (Use this code to inform the coordinator of a situation where the observer feels his or her life is endangered).

APPENDIX 4

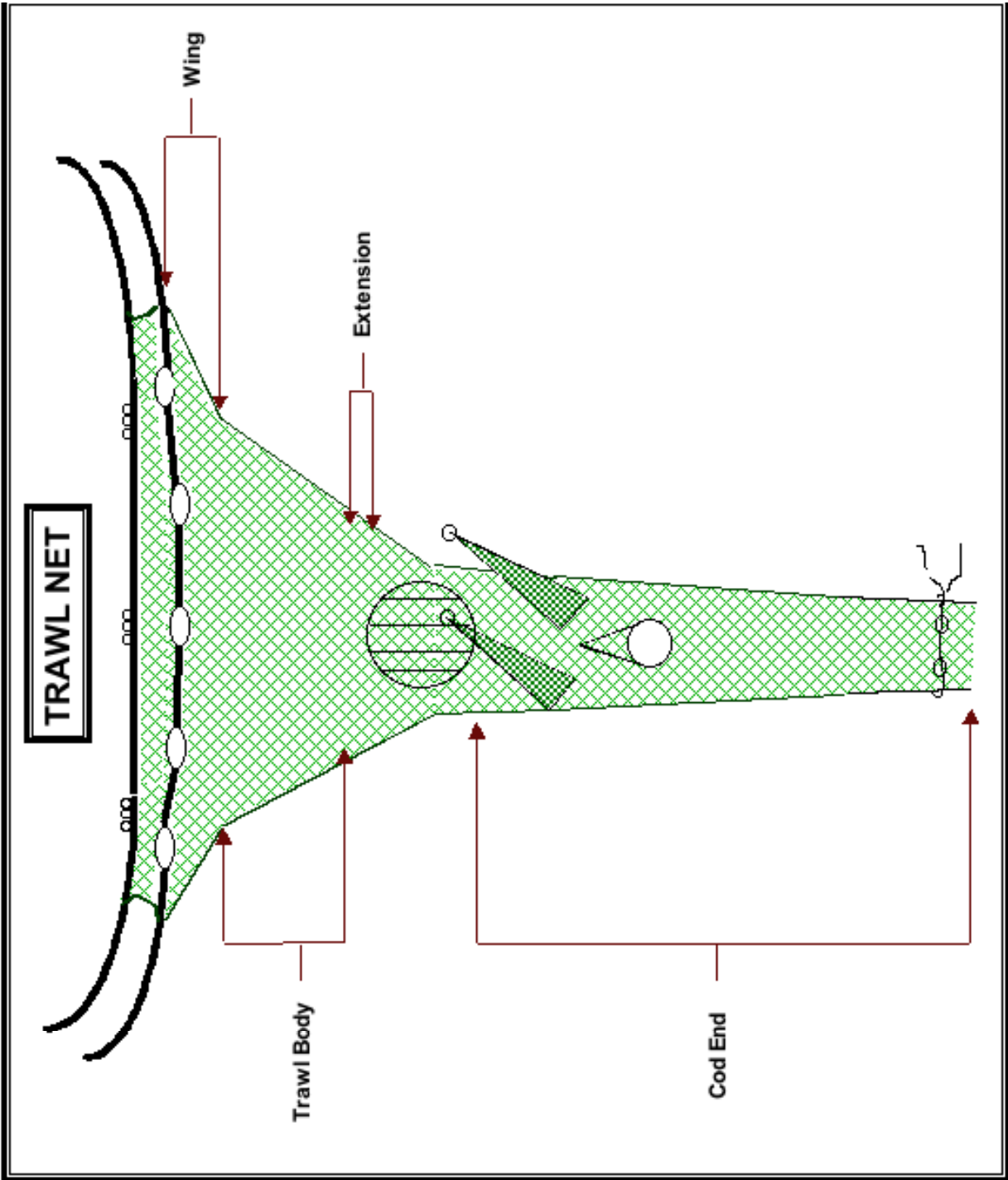


**SHRIMP BOAT
WITH 4 NETS**

APPENDIX 5



APPENDIX 6

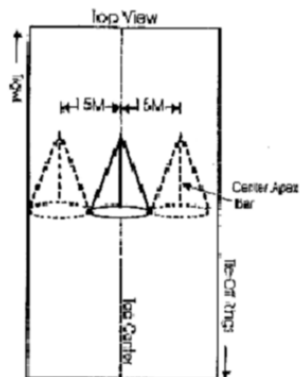


APPENDIX 7

Gulf Fisheye Installation (Cont.)

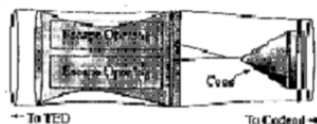
The Gulf fisheye must be installed so that the center apex bar is against the codend webbing and the exit hole is facing the mouth of the trawl.

The center apex bar must be no more than 15 meshes to either side of the top center of the codend.



Recommendation: Test data indicates that maximum shrimp retention was achieved with the Gulf fisheye in the forward mast top center position (12.5 ft). Optimum placement of the Gulf fisheye, however, may be affected by different fishing conditions and catch rates.

Jones Davis BRD



The Jones Davis is a funnel type BRD. It uses a webbing funnel, placed in an extension of webbing, to separate fish and shrimp. Four windows cut in the extension webbing, around the funnel, allow fish to escape. A cone constructed of webbing is placed behind the funnel to enhance finfish reduction.

For information on the construction and installation of the Jones Davis BRD, contact the National Marine Fisheries Service, Harvesting Systems and Engineering Branch at (228) 762-4591.

At this time, the Gulf fisheye and Jones Davis BRDs have not been approved. We anticipate approval prior to May 14, 1998. Please refer to the federal regulations, 50 CFR part 622 and the Federal Register for specific and controlling BRD requirements.

For additional information:
 Technical: (228) 762-4591
 Fisheries Operations: (813) 570-5305
 Enforcement: (813) 570-5344
 Enforcement Hotline: (800) 851-1964



Information

Shrimp Trawl Bycatch Reduction Devices (BRDs)

Gulf of Mexico, 1998



National Marine Fisheries Service

Bycatch Reduction Devices (BRDs)

BRDs are devices that are installed in shrimp trawls to reduce the take of juvenile red snapper as well as other finfish bycatch.

Who is Required To use BRDs?

Effective May 14, 1998 all shrimp trawlers fishing in the EEZ (federal waters) in the Gulf of Mexico shoreward of the 100 fms (183 m) depth contour west of 85° 30' W, long. (West of Cape San Blas, Florida)

Are BRDs be Required in Trawl-nets?

BRDs are required in trawl nets with a headrope length greater than 16 ft (4.9 m).

What will be Exempt From Using BRDs?

(See Federal Register for definitions)

- ◆ Royal Red Shrimp Trawlers
- ◆ Trawl nets with a 16 ft. Headrope length or smaller
- ◆ Rigid-Frame Roller Trawls

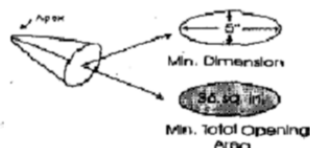
What Types of BRDs are Allowed?

- ◆ The Gulf fisheye BRD*
- ◆ The Jones Davis BRD*
- ◆ Fisheye BRD

* Approval expected through October 1999 with potential extension through April 1999.

Gulf Fisheye BRD

Approved Gulf fisheyes (includes fisheye) are cone-shaped rigid frames constructed from aluminum or steel rod of at least 1/4 in diameter. They are inserted into the top of the codend to form an escape opening.



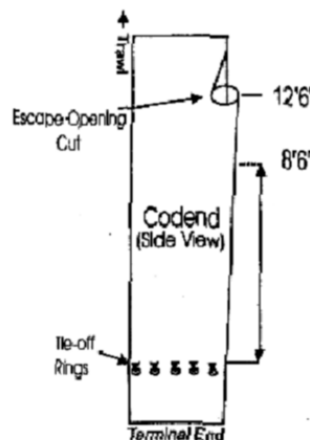
The escape opening can vary in shape, but cannot have a diameter any smaller than 5 inches or total escape opening area smaller than 36 square inches. Below are the minimum height and width dimensions needed to achieve 36 square inches for oval and diamond shaped Gulf fisheyes.

Example: If the height of a diamond shaped Gulf fisheye is 6 inches the width has to be at least 12 inches.

Oval		Diamond	
Height	Width	Height	Width
5"	9.12"	5"	14.4"
6"	7.61"	6"	12"
6.75"	6.75"	7"	10.25"
		8"	9"
		8.5"	8.5"

Gulf Fisheye Installation

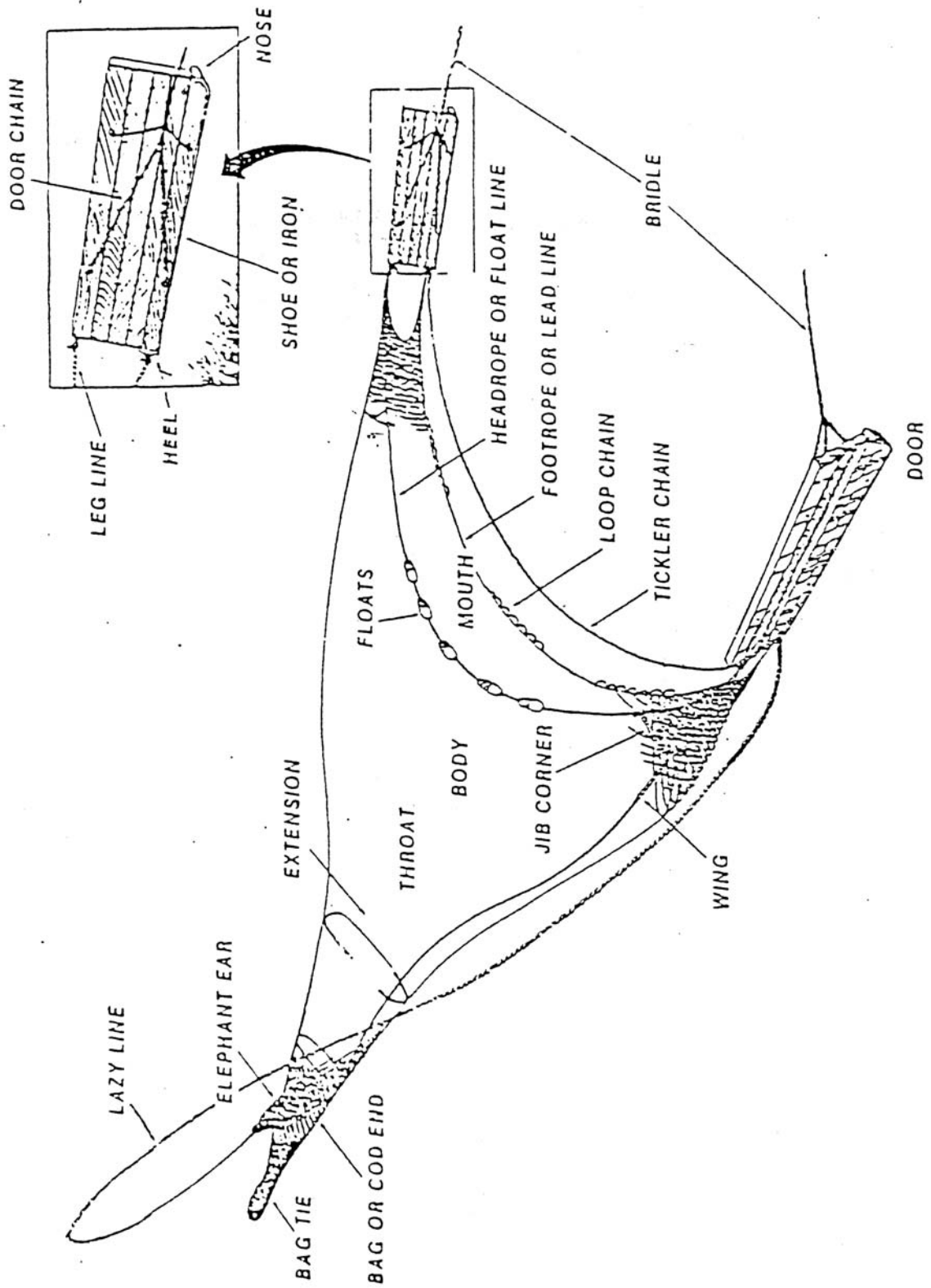
The Gulf fisheye frame must be installed in the top of the codend (tailbag) with the apex of the frame pointing forward.



The escape opening cut must be no farther than 12 ft 6 inches and no less than 8 ft 6 inches from the bag drawstring (tie-off rings).

APPENDIX 8

OTTER TRAWL COMPONENTS



APPENDIX 9 - OPERATION CODES

- A - Nets not spread; typically doors are flipped or doors hung together so net could not spread.
- B - Gear bogged; the net has picked up a large quantity of sand, clay, mud, or debris in the tail bag possibly affecting trawl performance.
- C - Bag obstructed; the catch in the net is prevented from getting into the bag by something (i.e. grass, sticks, turtle, tires, metal/plastic containers etc.) or constriction of net (i.e. twisting of the lazy-line around net).
- D - Gear not digging; the net is fishing off the bottom due to insufficient weight or not enough cable let out (etc.).
- E - Twisted warp or line; the cables composing the bridle get twisted (from passing over blocks which occasionally must be removed before continuing to fish). Use this code if catch was affected.
- F - Gear fouled; the gear has become entangled in itself or with another net. Typically this involves the webbing and some object like a float or chains or lazy line (etc.).
- G - Bag untied; bag of net not tied when dragging net.
- H - Rough weather. Bags mixed due to rough seas (too dangerous to separate); if the weather is so bad fishing is stopped, then the previous tow should receive this code if the rough conditions affected the catch.
- I - Torn, damaged, or lost net; usually results from hanging the net and tearing it loose. The net comes back with large tears etc. if at all. Do not use this code if there are only a few broken meshes. Continue using this code until net is repaired or replaced
- J - Dumped catch; tow was made but catch was discarded, perhaps because of too mud. Give reason in comments.
- K - Catch not emptied on deck; nets brought to surface, boat changes location, nets redeployed. (explain in comments)
- L - Hung up; untimely termination of a tow by a hang. Specify trawl(s) which were hung and caused lost time in Comments.
- M - Bags dumped together, catches could not be kept separate.
- N - Net did not fish; no apparent cause. Describe reasoning in comments.
- O - Gear fouled on submerged object but tow was not terminated. Performance of tow could be affected. Give specifics in Comments.
- P - No measurement taken of shrimp and/or total catch.
- Q - Main cable breaks and entire rigging lost. Describe in Comments.
- R - Net caught in wheel.
- S - Tickler chain heavily fouled, tangled, or broken.
- T - Other problems. Describe in comments.
- U - Turtle excluder gear intentionally disabled.
- V - Unknown operation code.
- W - Damaged (i.e., bent or broken) excluder gear.
- X - BRD intentionally disabled or non-functional. (Damaged) Describe in comments.
- Y - Net trailing behind try net.
- Z - Successful tow.

APPENDIX 10
NMFS MEASUREMENT CODES

01	Fish, fork length
02	Fish, standard length
03	Shrimp, total length
04	Shrimp, carapace length
05	Crab, carapace width (lateral measurement)
06	Crab, carapace length (anterior-posterior measurement)
07	Lobster carapace length (from rostral tip)
08	Lobster, total length
09	Lobster, tail length
10	Anemone and Coral Polyps, disc width
11	Bivalve, total length (parallel to hinge joint)
12	Scallop, total length (hinge to bill edge)
13	Squid, mantle length
14	Starfish, disc width (between arm bases)
15	Starfish, total radial diameter (arms, tip to tip)
16	Sea Pansy and Other Colonial Invertebrates, maximum disc width
17	Univalve Snail, total length (longitudinal axis of spire)
18	Fish, total length
19	Shrimp, tail length
20	Other, specify
22	Skates and Rays, disc width
23	Fish, snout, anal length
24	Billfish, curved lower jaw fork length

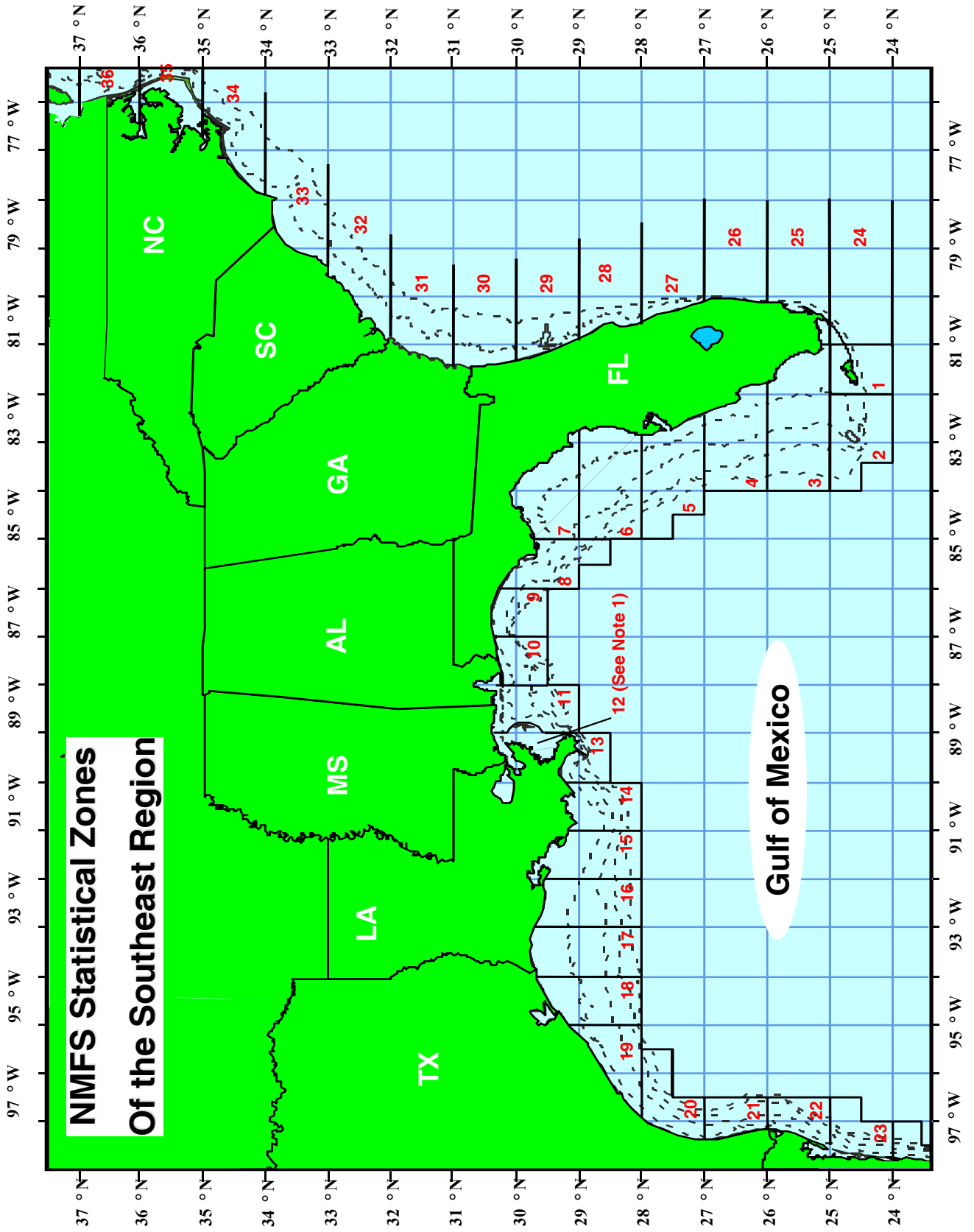
BOTTOM TYPE CODES

BD	=	Boulders	CL	=	Clay	CO	=	Coral
G	=	Gravel	GR	=	Grass	M	=	Mud
OZ	=	Ooze	RK	=	Rock	S	=	Sand
SH	=	Shell	SP	=	Sponge	W	=	Wreck
UN	=	Undetermined						

SEA STATE CODES

- 1 = 0 - 2 Feet
- 2 = 3 - 5 Feet
- 3 = 6 - 8 Feet
- 4 = 8 + Feet

APPENDIX 11



Note 1 - Stat zone 12 expands east to include Chandeleur Islands

APPENDIX 12

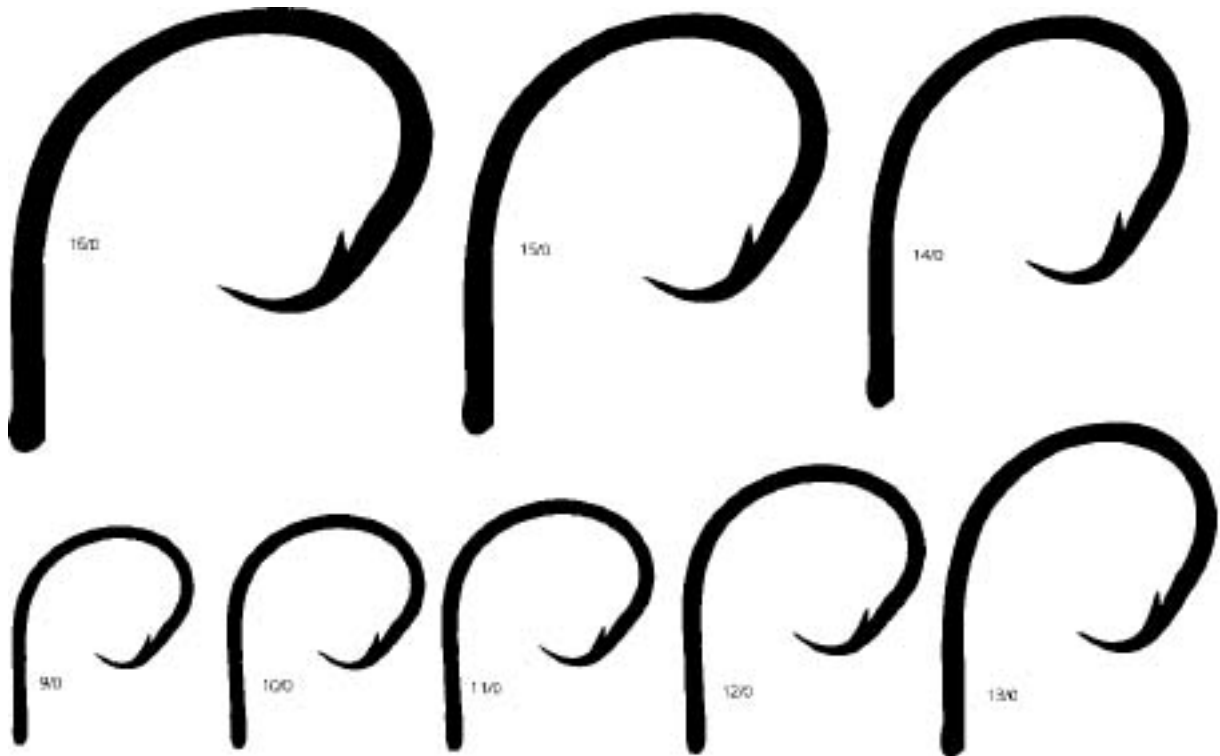
Table to convert decimal minutes to seconds.

Example - A location reading of 2932.89 is actually 29 degrees, 32 minutes, and 53 seconds

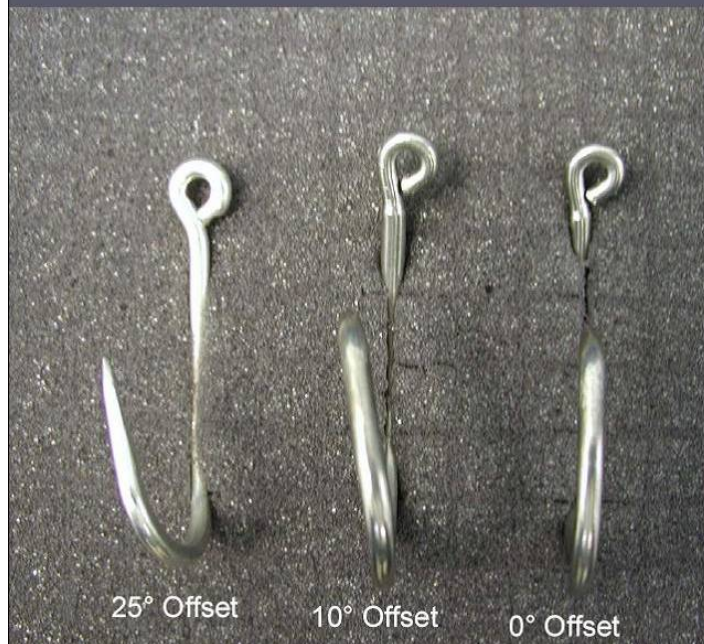
Decimal Minutes	Seconds	Decimal Minutes	Seconds	Decimal Minutes	Seconds	Decimal Minutes	Seconds
.01	1	.31	19	.61	37	.91	55
.02	1	.32	19	.62	37	.92	55
.03	2	.33	20	.63	38	.93	56
.04	2	.34	20	.64	38	.94	56
.05	3	.35	21	.65	39	.95	57
.06	4	.36	22	.66	40	.96	58
.07	4	.37	22	.67	40	.97	58
.08	5	.38	23	.68	41	.98	59
.09	5	.39	23	.69	41	.99	59
.10	6	.40	24	.70	42		
.11	7	.41	25	.71	43		
.12	7	.42	25	.72	43		
.13	8	.43	26	.73	44		
.14	8	.44	26	.74	44		
.15	9	.45	27	.75	45		
.16	10	.46	28	.76	46		
.17	10	.47	28	.77	46		
.18	11	.48	29	.78	47		
.19	11	.49	29	.79	47		
.20	12	.50	30	.80	48		
.21	13	.51	31	.81	49		
.22	13	.52	31	.82	49		
.23	14	.53	32	.83	50		
.24	14	.54	32	.84	50		
.25	15	.55	33	.85	51		
.26	16	.56	34	.86	52		
.27	16	.57	34	.87	52		
.28	17	.58	35	.88	53		
.29	17	.59	35	.89	53		
.30	18	.60	36	.90	54		

APPENDIX 13

Mustad #39965 series Actual Size



Hook Offset Angles



APPENDIX 14 - Common Errors

General

- Put ALL information you collect in your logbook
- If you have a question or are confused ask us, use satellite phone if offshore
- Get photos for any sea turtle interaction and fill out forms thoroughly. They are a BIG DEAL!
- Get ALL necessary forms signed by captain
- Make sure you do a pre-trip safety skill, remember safety is the #1 priority
- Do the safety check before leaving the dock, departing with expired/missing safety equipment is a cause for termination
- Make sure you pay attention to Coast Guard safety decal distance rating, the vessel is not allowed to exceed this, if they do contact the lab immediately
- If no turtles are captured / sighted put none in respective area on trip report
- Use trip dates, not sea dates, were applicable, i.e. cover sheet, trip report page 2, vessel information form
- Turtle sightings need a sea turtle life history form filled out
- Double check time flow between tows/sets, i.e. no overlapping times (except longline)
- Double check location flow between tows/sets, i.e. dragging 70 miles in 2 hours is not possible
- Unsampled tows/sets need a station sheet filled out for shrimp and reef
- Proof your trip thoroughly before submitting, we can tell the difference if you do not
- Take photos for species ID and gear
- If the vessel is using LORAN instead of GPS, leave GPS blank on station sheet and write LORAN in area above it, also leave statistical zones blank if unsure

Shrimp

- All gear information goes in the logbook, be thorough
- Do not multiply out baskets for shrimp total weight, each basket must be weighed
- Do not confuse 8's and 9's, 8's is too light to weigh, 9's is unknown
- Sample weight is 9's on station sheet if no characterization is done
- Ask if confused about sampled vs. unsampled tows
- Use your digital scale if you have one, it is much more accurate
- Red snapper found in your sample basket gets subtracted from the sample weight
- Add comments to station sheet when using operation codes besides Z or Y
- Add comments in logbook if you take a night/day off due to weather, repairs, etc.
- PENAEUS DISCARD represents white, brown or pink shrimp not being retained by the vessel. All other shrimp species (seabobs, rock, etc.) go in CRUSTACEAN
- Sample shrimp weights (white, brown, pink) are always head on
- Time in is when the winched are dogged off, time out is when the winches are engaged
- If the crew is keeping head on and head off shrimp, just leave the total shrimp area blank and write the respective weight in the comments section and we will calculate on our end
- Make sure your BRD measurements in the codend make sense, i.e. the distances between elephant ears and tie off rings to the BRD
- The correct calculation is Footrope + both bottom leglines = Tickler – setback
- Fill out the BRD and gear description thoroughly and include diagrams
- On the trip report nearshore is ≤ 60 feet depth (not miles), offshore is > 60 feet

- Broken red snapper should be identified as < or > 100mm
- If your sample weight is the entire catch all characterization weights are select
- Make sure to mix the piles well before obtaining your sample basket
- It helps to be consistent if your sample shrimp need to be added to total shrimp or you are reweighing, either is acceptable just find out what works best for you
- Make sure you are doing a full basket for characterization ~ 30 kgs.
- Get a trip number and vessel code. Use the satellite phone if offshore
- On a vessel with 2 nets only sample the net not behind the try net all trip, but fill out gear sheets for both nets and fill out the station sheet for both nets 2 and 3 and just fill the net not sampled with 9's for total weigh, total shrimp, red snapper, etc.
- On vessel utilizing only 2 nets put a 9 in for operation code for nets 1 and 4, i.e. with a try net in #3 position and #2 successful would be 9ZY9 for operation codes
- On the east coast characterization threadfin shad is not Shad ALOSA genus, also do not confuse lesser blue crabs with blue crabs
- If you cannot see if organisms are exiting the BRD, the predators cannot be feeding on them since you do not know if any are exiting
- Select species indicates all of that species from the entire net
- If you are selecting species from one net you need to make sure you are doing it for the other net as well, also make sure the select species weight is included in total weight

Reef

- Keep track of ALL reels and sample as many as possible
- Species ID is YOUR job, do not rely on the fisherman for ID
- Make sure you are using sink or swim when determining discard fate
- Transcribe in order from logbook to length frequency form, do not skip around to group species together when transcribing, however you can record in the log in any order
- If no fish are caught for a reel and gear configuration you need to reference that reel/gear with NOCATCH common name and genus on length frequency form
- You need to put hook calculations in logbook for sets with multiple reels and multiple gears
- The first time a gear code is used, use that set# and date on the gear form
- Fish must be measured to the nearest mm, not every 5th mm
- The # of fish caught on a reel cannot be greater than the # of hooks set for that reel, something is seriously wrong if this is happening
- Use the correct measurement for each species listed in the appendix. Some common errors are sharks, scamp, seabass, sand perch, and sharksuckers
- When you have reel with 2 different gears you need to specify what reel and gear the fish is caught on, i.e. use reel# 2A or #2B instead of just reel#2
- Use the correct full common name listed in the appendix; “amberjack” is not acceptable use “greater amberjack”, “beeliner” is not acceptable use vermilion snapper”, etc.
- Average haul in time is just average amount of time it takes to bring the reels up from fishing depth with fish on them, no calculation needed
- For longline, you need to sample all fish caught for a set, if for some reason you are unable to (weather, sick, etc.) you need to record a time when you stopped sampling and the number of hooks sampled out of the entire set
- Hard bottom usually means rock (limestone)

APPENDIX 15 GEAR CHECK-OFF SHEET

Date: _____ OUT
Date: _____ IN

Name _____

		Out	In
First Aid Kit			
Immersion Suit w/hemilight	size _____		
Flotation Coat	size _____		
Personal Marker Light			
Firefly Strobe Light			
C-Strobe/Light			
Signal Mirror & Whistle			
Life Vests (Primary + Secondary)	Type 1		
	Horse Collar		
	Fanny Pack (Optional)		
Inflatable recharge kits	Horse Collar		
	Fanny Pack		
PPERB REG #	_____		
Satellite Phone ID#	_____		
Satellite Phone #	_____		
Electronic Scale	Serial # _____		
	Serial # _____		
Salter Mechanical Scales	10 kg		
	50 kg		
Hard hat			
Flashlight			
Digital Camera Kit #	_____		
Batteries - C & D size			
Batteries Lithium - AA & C Size			
Batteries Rechargeable - AA			
Measuring Board Large			
Measuring Board Small			
Meter Stick			
Measuring Tape			
Measuring Rope			
Angle protractor			
Large Baskets (6-8)			
Small Baskets (20)			
Ice Chest (72 quart)			
Sampling stool			
Shovel			
Culling Rake			
Baggies			
Garbage bags (3)			
Duct Tape			
Twine & rope			
Scrub brush			
Duffel Bag			
Utility Cutter			
Hook Counter Stainless			
Hook Counter Plastic			
Shackles & Scale Hooks			
Deck boots	size _____		
Foul weather gear	size _____		
Sampling Gloves	Reef size _____		
	Shrimp size _____		

		Out	In
Log Books Orange			
Log Books Yellow			
Observer Manual Sampling Protocol			
Data Forms (master copies)			
Collecting Permits			
Rubber bands & Paper Clips			
Pencils (10) & Indelible Marker (3)			
Calculator			
Clipboard			
File box			
Hibiclens w/optional spraybottle			
Germ-X Hand Sanitizer			
RelyOn Antiseptic Hand Wipes			
StaphAseptic			
Protective Eyeware			
Carbon Monoxide Detector			
Fishes of the Gulf			
Atlantic Coast Fishes			
Shells of the Atlantic			
Atlantic Seashore			
SE & Caribbean Seashores			
Marine Mammals & Turtles			
Beating The Odds			
Sharks of North American Wat			
Shark Lament ID Sheets (3)			
USCG Training Video			
Species Identification CD			
CG Exam Guide Book			

Field Books

Turtle Kit Ammo Box			
Turtle Calipers			
Turtle Biopsy Pole	1		
Biopsy Pole Adapter & Corer	1		
Flipper Tags	10-12		
Tag Applicator	1		
Pit Tags	5		
Pit Tag Reader	1		
Pit Tag Applicator	1		
Biopsy Punches	5		
NaCl Solution Vials	5		
Dive Slate	1		
AAA Batteris	4		
Cable Ties	6		
Orange Paint	1		
Disposable Gloves	6		
Antibiotic Ointment	1		
Alcohol Prep Pads	20+		
Betadine Swabs	10+		
Waterproof Labels	1		
Turtle ID Card	1		
Parafilm Squares	20		
Whirl Packs	12		
Mechanical Pencils	2		
Extra Fine Sharpie	2		
Large Paperclips	2		
Scotch Tape Dispenser	1		
Stick-On labels	6		

Turtle Tag #s

PIT Tag #s

Observer Signature _____ (acknowledges RECEIPT of gear) Coordinator Initials _____

Observer Signature _____ (acknowledges RETURN of gear) Coordinator Initials _____

Fishing Vessel USCG Safety Requirements for the WARM WATERS of the Gulf of Mexico and South Atlantic

APPENDIX 16

These safety requirements are determined by the fishing location

Fishing Location	Inside the Boundary Line Within 3 Nautical Miles	Within 12 NM of Coastline (Boundary Line)	12 to 20 miles of Coastline	Between 20 & 50 miles	Over 50 Nautical Miles
Survival Craft Equipment	No Survival Craft Required	No Survival Craft Required	Life Float with light and line	Inflatable Life Raft with SOLAS B pack or Coastal Service Pack	Inflatable Life Raft with SOLAS A pack
EPIRBs	Not Required	Required	Required	Required	Required
Distress Signals	3 Red Flares OR 3 other flares with a night signal	3 - 6 - 3 Parachute - Hand - Smoke	3 - 6 - 3 Parachute - Hand - Smoke	3 - 6 - 3 Parachute - Hand - Smoke	3 - 6 - 3 Parachute - Hand - Smoke

*RED flares include parachute and hand flares which can be seen both day and night.

These safety requirements are determined by the vessel size

Vessel Size	Vessels < 26 feet long	Vessels 26 to 40 feet long	Vessels < 65 feet long	Vessels ≥ 65 feet long
Life Rings	1 Buoyant Cushion OR 1 Orange Life Ring	1 Orange Life Ring with 60 feet of line	1 Orange Life Ring with 60 feet of line	3 Orange Life Rings 1 with 90 feet of line
Fire Extinguishers	at least 1	1 to 2	2 to 3	2 in the Bridge, 1 in the Galley AND 2 in the Engine Room

* make sure fire extinguishers are charged and strategically placed around vessel (galley & engine room & near exits)

A *cheat sheet* to use when you are conducting your Fishing Vessel Safety Checks.

Keep this copy for your reference.