BYCATCH REDUCTION DEVICE TESTING MANUAL

2008

National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

Galveston Laboratory
4700 Avenue U
Galveston, Texas 77551-5997

Mississippi Laboratories
Pascagoula Facility
3209 Frederic Street
Pascagoula, Mississippi 39568-1207

DEFINITIONS

Bycatch reduction criterion is the standard by which a BRD candidate will be evaluated. To be certified for use by the shrimp fishery in the Exclusive Economic Zone (EEZ) off the southeastern United States (North Carolina through Texas), the BRD candidate must demonstrate a successful reduction of total finfish bycatch by at least 30 percent by weight.

Bycatch reduction device (BRD) is any gear or trawl modification designed to allow finfish to escape from a shrimp trawl.

BRD candidate is a bycatch reduction device to be tested for certification for use in the commercial shrimp fishery of southeastern United States.

Certified BRD is a BRD that has been tested according to the procedure outlined herein and has been determined by the RA as having met the bycatch reduction criterion.

Control trawl means a trawl that is not equipped with a BRD during the evaluation.

Experimental trawl means the trawl that is equipped with the BRD candidate during an evaluation.

Evaluation and oversight personnel means scientists, observers, and other technical personnel who, by reason of their occupation or scientific expertise or training, are approved by the RA as qualified to evaluate and review the application and testing process.

Net/side bias means when the net(s) being fished on one side of the vessel demonstrate a different catch rate (fishing efficiency) than the net(s) being fished on the other side of the vessel during paired-net tests.

Observer means a person on the list maintained by the RA of individuals qualified to supervise and monitor a BRD certification test.

Paired-net test means a tow during certification trials where a control net and an experimental net are fished simultaneously, and the catches and catch rates between the nets are compared.

Provisional Certification Criterion means a secondary benchmark which would allow a BRD candidate to be used for a time-limited period in the southeastern shrimp fishery. To meet the criterion, the BRD candidate must demonstrate a successful reduction of total finfish bycatch by at least 25 percent by weight.

Provisionally certified BRD means a BRD that has been tested according to the procedure outlined herein and has been determined by the RA as having met the

provisional certification criterion. A BRD meeting the provisional certification criterion would be certified by the RA for a period of 2 years.

Regional Administrator (RA) means the Southeast Regional Administrator, National Marine Fisheries Service.

Required measurements refers to the quantification of gear characteristics such as the dimensions and configuration of the trawl, the BRD candidate, the doors, or the location of the BRD in relation to other parts of the trawl gear that are used to assess the performance of the BRD candidate.

Sample size means the number of successful tows (a minimum of 30 tows per test are required).

Shrimp trawler means any vessel that is equipped with one or more trawl nets whose on-board or landed catch of shrimp is more than 1 percent, by weight, of all fish comprising its on-board or landed catch.

Successful tow means that the control and experimental trawl were fished in accordance with the requirements set forth herein and the terms and conditions of the letter of authorization, and there is no indication problematic events, such as those listed in Appendix D-5, occurred during the tow to impact or influence the fishing efficiency (catch) of one or both nets.

Tow time means the total time (hours and minutes) an individual trawl was fished (i.e., the time interval beginning when the winch is locked after deploying the net overboard, and ending when retrieval of the net is initiated).

Trawl means a net and associated gear and rigging used to catch shrimp. The terms trawl and net are used interchangeably throughout the manual.

Try net means a separate net pulled for brief periods by a shrimp trawler to test for shrimp concentrations or determine fishing conditions (e.g., presence of absence of bottom debris, jellyfish, bycatch, seagrasses).

Tuning a net means adjusting the trawl and its components to minimize or eliminate any net/side bias that exists between the two nets that will be used as the control and experimental trawls during the certification test.

I. Introduction

This Bycatch Reduction Device Testing Manual (Manual) establishes a standardized process for evaluating the ability of bycatch reduction device (BRD) candidates to meet the established bycatch reduction criterion, and be certified for use in the Exclusive Economic Zone (EEZ) by the southeastern shrimp fishery. BRDs are required for use in shrimp trawls fished shoreward of the 100-fathom (183-meter) depth contour in the Gulf of Mexico, and within the EEZ of the South Atlantic region.

Various BRD requirements also exist in state waters in the South Atlantic and off Florida and Texas in the Gulf of Mexico. Persons wishing to conduct BRD candidate evaluations exclusively in state waters do not need to apply to the National Marine Fisheries Service (NOAA Fisheries Service) for authorization to conduct these tests, but should contact the appropriate state officials for authorizations. However, for data collected in such evaluations to be considered by NOAA Fisheries Service for certification, the operations plan and data collection procedures must meet the criteria established in this Manual.

II. BRD Candidate Evaluations

A. Application

Persons interested in evaluating the efficiency of a BRD candidate must apply for, receive, and have on board the vessel during the evaluation, a Letter of Authorization (LOA) from the Regional Administrator (RA). To receive an LOA, the applicant must submit the following documentation to the RA: (1) a completed application form (Appendix A); (2) a brief statement of the purpose and goal of the activity for which the LOA is requested; (3) an operations plan (see Section C below) describing the scope, duration, dates, and location of the test, and methods that will be used to conduct the test; (4) an 8.5-inch x 11-inch (21.6-cm x 27.9-cm) diagram drawn to scale of the BRD design; (5) an 8.5-inch x 11-inch (21.6-cm x 27.9-cm) diagram drawn to scale of the BRD in the shrimp trawl; (6) a description of how the BRD is supposed to work; (7) a copy of the testing vessel's U.S. Coast Guard documentation or its state registration; and (8) a copy of the testing vessel's Federal commercial shrimp vessel permit.

An applicant requesting an LOA to test an unapproved turtle excluder device (TED) as a BRD (including modifications to a TED that would enhance finfish exclusion) must first apply for and obtain from the RA an experimental TED authorization pursuant to 50 CFR 223.207(e)(2). Applicants should contact the Protected Resources Division of NOAA Fisheries Service's Southeast Regional Office for further information. The LOA applicant must include a copy of that authorization with the application.

Incomplete applications will be returned to the applicant along with a letter from the RA indicating what actions the applicant may take to make the application complete.

There is no cost to the applicant for the RA's administrative expenses such as reviewing applications, issuing LOAs, evaluating test results, or certifying BRDs. However, all other costs associated with the actual testing activities are the responsibility of the applicant, or any associated sponsor.

If an application for an LOA is denied, the RA will provide a letter of explanation to the applicant, together with relevant recommendations to address the deficiencies that resulted in the denial.

B. Allowable Activities

Issuance of an LOA to test a BRD candidate in the South Atlantic or Gulf of Mexico allows the applicant to remove or disable the existing certified BRD in one outboard net (to create a control net), and to place the BRD candidate in another outboard net in lieu of a certified BRD (to create an experimental net). All other trawls under tow during the test must have a certified BRD, unless these nets are specifically exempted in the LOA. All trawls under tow during the test must have an approved TED unless operating under an authorization issued pursuant to 50 CFR 223.207(e)(2), whereby the test is being conducted on an experimental TED. The LOA, and experimental TED authorization if applicable, must be on board the vessel while the test is being conducted. The term of the LOA will be 60 days; should circumstances require a longer test period, the applicant may apply to the RA for a 60-day extension.

C. Operations Plan

An operations plan should be submitted with the application describing a method to compare the catches of shrimp and fish in a control net (net without a BRD candidate installed) to the catches of the same species in an experimental net (a net configured identically to the control net but also equipped with the BRD candidate).

The applicant may choose to conduct a pre-certification test of a prototype BRD candidate. A pre-certification test would be conducted when the intent is to assess the preliminary effectiveness of a prototype BRD candidate under field conditions, and to make modifications to the prototype BRD candidate during the field test. For pre-certification testing, the operations plan must include only a description of the scope, duration, dates, and location of the test, along with a description of methods that will be used to conduct the test. No observer is required for a pre-certification test, but the applicant may choose to use an observer to maintain a written record of the test. The applicant will maintain a written record for both the control and experimental net during each tow. Mandatory data collection is limited to the weight of the shrimp catch and the weight of the total finfish catch in each test net during each tow. These data must be submitted to NOAA Fisheries Service at the conclusion of the test. Although not required, the applicant may wish to incorporate some or all the certification test requirements listed below.

For a BRD candidate to be considered for certification, the operations plan must be more detailed and address the following topics:

- The primary assumption in assessing the bycatch reduction efficiency of the BRD candidate during paired-net tests is that the inclusion of the BRD candidate in the experimental net is the only factor causing a difference in catch from the control net. Therefore, the nets to be used in the tests must be calibrated (tuned) to minimize, to the extent practicable, any net/side bias in catch efficiency prior to beginning a test series, and tuned again after any gear modification or change. Additional information on tuning shrimp trawls to minimize bias is available from the Harvesting Technology Branch, Mississippi Laboratories, Pascagoula Facility, 3209 Frederic Street, Pascagoula, Mississippi 39568-1207; phone (601) 762-4591.

- A standard tow time for a proposed evaluation should be defined. Tow times must be representative of the tow times used by commercial shrimp trawlers. The applicant should indicate what alternatives will be considered should the proposed tow time need adjustment once the test begins.

- A minimum sample size of 30 successful tows using a specific BRD candidate design is required for the statistical analysis described in Section F. No alterations of the BRD candidate design are allowed during a specific test series. If the BRD candidate design is altered, a new test series must be started. If a gear change (i.e., changing nets, doors, or rigging) is required, the nets should be tuned again before proceeding with further tests to complete the 30-tow series. Minor repairs to the gear (e.g., sewing holes in the webbing; replacing a broken tickler chain with a new one of the same configuration) are not considered a "gear change."

- For tests conducted on twin-rig vessels, biases that might result from the use of a try net should be minimized. Total fishing times for a try net must be a consistent percentage of the total tow time during each tow made in the test.

- To incorporate any potential net/side bias that remains after the tuning tows (e.g., the effect of a try net), or to accommodate for bias that develops between the control and experimental nets during the test, the operations plan should outline a timetable ensuring that an equal number of successful tows are made with the BRD candidate employed in both the port and starboard nets.

- Mandatory data to be collected during a test includes: (1) detailed gear specifications as set forth in Appendices B and C, and (2) pertinent information concerning the location, duration and catch from individual tows as set forth in Appendices D and F.

- Following each paired tow, the catches from the control and experimental nets must be examined separately. This requires that the catch from each net be kept separate from each other, as well as from the catch taken in other nets fished during that tow. Mandatory data collections include recording the weight of the total catch of each test net (control and experimental nets), the catch of shrimp (i.e., brown, white, pink, rock, or other shrimp by species) in each test net, and the catch of total finfish in aggregate in each test net.

- When recording the detailed information on the species found in the catch, if the catch in a net does not fill one standard 1-bushel [ca. 10 gallon] (30 liters) polyethylene shrimp basket (ca. 70 pounds) (31.8 kg), but the tow is otherwise considered successful, data must be collected on the entire catch of the net, and recorded as a "select" sample (see Appendices D and F), indicating that the values represent the total catch of the particular net. If the catch in a net exceeds 70 pounds (31.8 kg), a well-mixed sample consisting of one standard 1-bushel [ca. 10 gallon] (30 liters) polyethylene shrimp basket must be taken from the total catch of the net. The total weight of the sample must be recorded, as well as the weights (and numbers as applicable) of the various species or species groups found within that sample. These sample values can then be extrapolated to estimate the quantity of those species or species groups found in the total catch of the particular net.

- Although not a criterion for certification, applicants testing BRD candidates are encouraged to collect additional information that may be pertinent to addressing bycatch issues in their respective regions. For example, in the western Gulf of Mexico applicants are especially encouraged to collect information on red snapper. If the applicant chooses to collect these data, the total ("select") catch of the target species from each test net (not just from the sample) should be recorded along with lengths for as many individuals per net per tow as set forth in Appendices E and F. Additional information in regard to the catch can be recorded on forms such as Appendix G.

The operations plan should address what the applicant will do should it become necessary to deviate from the primary procedures outlined in the operations plan. The plan should describe in detail what will be done to continue the test in a reasonable manner that is consistent with the primary procedures. For example, it may become necessary to alter the pre-selected tow time to adapt to local fishing conditions to successfully complete the test. Prior to issuing a LOA, the RA may consult with evaluation personnel review the acceptability of these proposed alterations.

D. Observer Requirement

It is the responsibility of the applicant to ensure that a qualified observer is on board the vessel during the certification tests. A list of qualified observers is available from the RA. Observers may include employees or individuals acting on behalf of NOAA

Fisheries Service, state fishery management agencies, universities, or private industry, who meet the minimum requirements outlined in Appendix H. Any change in information or testing circumstances, such as replacement of the observer, must be reported to the RA within 30 days. Under 50 CFR 600.746, when any fishing vessel is required to carry an observer as part of a mandatory observer program under the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801, *et seq.*), the owner or operator of the vessel must comply with guidelines, regulations, and conditions to ensure their vessel is adequate and safe to carry an observer, and to allow normal observer functions to collect information as described in this Manual. A vessel owner is deemed to meet this requirement if the vessel displays one of the following: (i) a current Commercial Fishing Vessel Safety Examination decal, issued within the last 2 years, that certifies compliance with regulations found in 33 CFR, chapter I, and 46 CFR, chapter I; (ii) a certificate of compliance issued pursuant to 46 CFR 28.710; or (iii) a valid certificate of inspection pursuant to 46 U.S.C. 3311. The observer has the right to check for major safety items, and if those items are absent or unserviceable, the observer may choose not to sail with the vessel until those deficiencies are corrected.

E. Reports

A report on the BRD candidate test results must be submitted by the applicant or associated sponsor before the RA will consider the BRD for certification. The report must contain a comprehensive description of the tests, copies of all completed data forms used during the tests, and photographs, drawings, and similar material describing the BRD. The captain, vessel owner, or the applicant must sign and submit the cover form (Appendix I). The report must include a description and explanation of any unanticipated deviations from the operations plan which occurred during the test. These deviations must be described in sufficient detail to indicate the tests were continued in a reasonable manner consistent with the approved operations plan procedures. Applicants must provide information on the cost of materials, labor, and installation of the BRD candidate. In addition, any unique or special circumstances of the tests, such as special operational characteristics or fishing techniques which enhance the BRD's performance, should be described and documented as appropriate.

F. Certification

The RA will determine whether the required reports and supporting materials are sufficient to evaluate the BRD candidate's efficiency. The determination of sufficiency would be based on whether the applicant adhered to the prescribed testing procedure or provided adequate justification for any deviations from the procedure during the test. If the RA determines that the data are sufficient for evaluation, the BRD candidate will be evaluated to determine if it meets the bycatch reduction criterion. In making a decision, the RA may consult with evaluation and oversight personnel. Based on the data submitted for review, the RA will determine the effectiveness of the BRD candidate, using appropriate statistical procedures such as Bayesian analyses, to determine if the BRD candidate meets the following conditions:

#1) There is at least a 50-percent probability that the true reduction rate of the BRD candidate meets the bycatch reduction criterion (i.e., the BRD candidate demonstrates a best point estimate [sample mean] that meets the certification criterion); and

#2) There is no more than a 10-percent probability that the true reduction rate of the BRD candidate is more than 5 percentage points less than the bycatch reduction criterion.

To be certified for use in the fishery, the BRD candidate will have to satisfy both criteria. The first condition ensures that the observed reduction rate of the BRD candidate has an acceptable level of certainty that it meets the bycatch reduction criterion. The second condition ensures the BRD candidate demonstrates a reasonable degree of certainty the observed reduction rate represents the true reduction rate of the BRD candidate. This determination ensures the operational use of the BRD candidate in the shrimp fishery will, on average, provide a level of bycatch reduction that meets the established bycatch reduction criterion. Interested parties may obtain details regarding the hypothesis testing procedure to be used by contacting the Harvesting Technology Branch, Mississippi Laboratories, Pascagoula Facility, 3209 Frederic Street, Pascagoula, Mississippi 39568-1207; phone (228) 762-4591. Following a favorable determination of the certification analysis, the RA will certify the BRD (with any appropriate conditions as indicated by test results) and publish the notice of certification in the *Federal Register*.

In addition, based on the data provided, the RA may provisionally certify a BRD candidate based on the following condition:

#1) There is at least a 50-percent probability that the true reduction rate of the BRD candidate is no more than 5 percentage points less than the bycatch reduction criterion (i.e., the BRD candidate demonstrates a best point estimate [sample mean] within 5 percentage points of the certification criterion).

A provisional certification will be effective for 2 years from the date of publication of a notice in the *Federal Register* announcing this provisional certification. This time period will allow additional wide scale industry evaluation of the BRD candidate, during which additional effort would be made to improve the efficiency of the BRD to meet the certification criterion.

III. BRDs Not Certified and Resubmission Procedures

The RA will advise the applicant, in writing, if a BRD is not certified. This notification will explain why the BRD was not certified and what the applicant may do to either modify the BRD or the testing procedures to improve the chances of having the BRD certified in the future. If certification was denied because of insufficient information, the RA will explain what information is lacking. The applicant must provide the additional information within 60 days from receipt of such notification. If the RA subsequently certifies the BRD, the RA will announce the certification in the *Federal Register*.

IV. Decertification of BRDs

The RA will decertify a BRD whenever NOAA Fisheries Service determines a BRD no longer satisfies the bycatch reduction criterion. Before determining whether to decertify a BRD, the RA will notify the appropriate Fishery Management Council in writing, and the public will be provided an opportunity to comment on the advisability of any proposed decertification. The RA will consider any comments from the Council and public, and if the RA elects to proceed with decertification of the BRD, the RA will publish proposed and final rules in the *Federal Register* with a comment period of not less than 15 days on the proposed rule.

V. Interactions with sea turtles

The following section is provided for informational purposes. Sea turtles are listed under the Endangered Species Act as either endangered or threatened. The following procedures apply to incidental take of sea turtles under 50 CFR 223.206(d)(1):

"Any sea turtles taken incidentally during the course of fishing or scientific research activities must be handled with due care to prevent injury to live specimens, observed for activity, and returned to the water according to the following procedures:

> A) Sea turtles that are actively moving or determined to be dead (as described in paragraph (B)(4) below) must be released over the stern of the boat. In addition, they must be released only when fishing or scientific collection gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by vessels.
>
> B) Resuscitation must be attempted on sea turtles that are comatose or inactive by:
>
> > (1) Placing the turtle on its bottom shell (plastron) so that the turtle is right side up and elevating its hindquarters at least 6 inches (15.2 cm) for a period of 4 to 24 hours. The amount of elevation depends on the size of the turtle; greater elevations are needed for larger turtles. Periodically, rock the turtle gently left to right and right to left by holding the outer edge

of the shell (carapace) and lifting one side about 3 inches (7.6 cm) then alternate to the other side. Gently touch the eye and pinch the tail (reflex test) periodically to see if there is a response.

(2) Sea turtles being resuscitated must be shaded and kept damp or moist but under no circumstance be placed into a container holding water. A water-soaked towel placed over the head, carapace, and flippers is the most effective method in keeping a turtle moist.

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

(4) A turtle is determined to be dead if the muscles are stiff (rigor mortis) and/or the flesh has begun to rot; otherwise, the turtle is determined to be comatose or inactive and resuscitation attempts are necessary.

Any sea turtle so taken must not be consumed, sold, landed, offloaded, transshipped, or kept below deck."

OMB No. 0648-0345 Form Approval Expires: 06/30/2008

U.S. DEPT OF COMMERCE, NOAA
National Marine Fisheries Service, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701

APPENDIX A - APPLICATION TO TEST A BYCATCH REDUCTION DEVICE IN THE EXCLUSIVE ECONOMIC ZONE

☐ Pre Certification ☐ Certification

FOR OFFICE USE ONLY	
Expiration Date:	
Reviewer Initials and Date	
Violation Number and Hold Date	
Violation Clear Date and Clearers initials:	
Non Reporting Hold Date	
Non Reporting Cleared Date	

SECTION 1. VESSEL INFORMATION (please type)

VESSEL NAME	CG SAFETY STICKER NO.	USCG DOCUMENT NUMBER or STATE REGISTRATION NUMBER	
HOMEPORT - CITY AND STATE	ENGINE HORSEPOWER	LENGHT(IN FEET)	HOLD CAPACITY (TONS)

SECTION 2. APPLICANT INFORMATION

OWNER'S NAME	AREA/CODE TELEPHONE		
MAILING ADDRESS			
CITY	STATE	ZIP CODE	DATE OF BIRTH: MONTH - DAY - YEAR
TIN (EIN or SSN)			

SECTION 3. OWNER/OPERATOR INFORMATION IF REQUIRED: See instructions for requirements

OWNER'S NAME	AREA/CODE TELEPHONE		
MAILING ADDRESS			
CITY	STATE	ZIP CODE	DATE OF BIRTH: MONTH - DAY - YEAR
TIN (EIN or SSN)			

SECTION 4. LEASE INFORMATION: See instructions for requirements

OWNER'S NAME	AREA/CODE TELEPHONE		
MAILING ADDRESS			
CITY	STATE	ZIP CODE	LEASE EXPIRATION - MONTH - DAY - YEAR

SECTION 5. SIGNATURE (ALL APPLICATIONS MUST BE SIGNED)

Applicant's Signature	Applicant's Position	Date
Owner's Signature (if different from Applicant	Position - if owner is a business	Date

GENERAL INSTRUCTIONS

Under 50 CFR part 622.41(g), a person who proposes a bycatch reduction device (BRD) for pre-certification or for certification for use in the southeastern shrimp fishery must submit this application to test a BRD, conduct the testing, and submit the results of the test in accordance with the **Bycatch Reduction Device Testing Manual**. A BRD that meets the certification criterion, as determined under the testing protocol, will be added to the list of certified BRDs.

1. Type or print legibly in ink. Incomplete or unreadable applications will be returned.

2. Each application must be accompanied by a copy of the vessel's CURRENT Coast Guard certificate of documentation or, if not documented, its state registration certificate; and a test plan showing: (1) an 8.5" x 11" diagram drawn to scale of the BRD; (2) an 8.5" x 11" diagram drawn to scale of the BRD and turtle excluder device in the shrimp trawl; (3) a description of how the BRD is supposed to work; (4) the results of previous tests including but not limited to location, time, and area where tested; (5) the location, time, and area where the proposed tests would take place; and (6) the identify of the qualified observer (for certification phase testing only), and a basis for the observer's qualifications.

3. Mail the application, and copy of documentation/registration to: NMFS , 263 13th Avenue South, St. Petersburg, FL, 33701. Questions may be phoned to (727) 824-5305 between 8:00 am and 4:30 pm, eastern time.

4. Additional copies of this **application** and the **Bycatch Reduction Device Testing Manual** are available from NMFS at the address in

APPLICATION INSTRUCTIONS

SECTION 1 Enter name, official number and length of vessel as they appear on the certificate of documentation or, if not documented, on the state registration certificate. Enter Coast Guard Vessel Safety number. Under "Home Port", enter the city and state where the vessel is customarily kept, not necessarily the home port on a certificate of documentation. The vessel owner must display a current vessel safety sticker from the Coast Guard, before NMFS will assign an observer.

SECTION 2 Provide the name, address, telephone number and other identifying information of the applicant.

SECTION 3 COMPLETE THIS SECTION ONLY IF THE OWNER / OPERATOR IS DIFFERENT THAN THE APPLICANT. Any change in the information in Section 3 must be reported to the Regional Administrator within 30 days after such change.

SECTION 4 COMPLETE THIS SECTION ONLY WHEN THE VESSEL IS BEING OPERATED UNDER A LEASE OR OTHER WRITTEN MANAGEMENT AGREEMENT THAT BESTOWS CONTROL OVER THE DESTINATION, FUNCTION OR OPERATION OF THE VESSEL TO A PERSON OTHER THAN THE PERSON SHOWN IN SECTION 2. Provide the name, address, telephone number and other identifying information of the controlling person. Enter the date of expiration of the lease or written management agreement that transferred control of the vessel from the person shown in Section 2. If such lease or written management agreement exists, the controlling person is the owner for the purposes of the authorization. Any change in the information in Section 4 must be reported to the Regional Administrator within 30 days after such change.

SECTION 5 ALL APPLICATIONS MUST BE SIGNED OTHERWISE IT WILL BE RETURNED.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Public reporting burden for this collection of information is estimated to average 140 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to National Marine Fisheries Service, 263 13th Avenue South, St. Petersburg, FL 33701. OMB No. 068-0345

OMB No. 0648 -0345 Approval Expires - 06/30/2008

APPENDIX B

GEAR SPECIFICATION FORM
BRD TESTING PROTOCOL

Gear ID # ☐

Control (C) or Experimental (E) ☐

ORG PRO ☐ ☐

TRIP NO. ☐☐☐☐☐ VESSEL ☐☐☐ TOW NO. ☐☐☐ DATE MO ☐☐ DY ☐☐ YR ☐☐

NET POSITION ☐

SECTION I NET GEAR MEASUREMENTS

NET TYPE AND HEAD/FOOTROPE MEASUREMENTS

Net Type ☐☐☐☐☐☐☐☐☐☐

Headrope Length ☐☐☐☐☐ Feet

Footrope Length ☐☐☐☐☐ Feet

Comments _____

LEG LINE MEASUREMENTS

Top Leg Length ☐☐.☐☐ Feet

Bottom Leg Length ☐☐.☐☐ Feet

Top Leg Dummy ☐☐.☐☐ Feet

Bottom Leg Dummy ☐☐.☐☐ Feet

TRAWL BODY

Type Nylon ☐ Poly ☐ Spectra ☐

Mesh Size ☐☐.☐☐ Inches

Comments _____

TRAWL EXTENSION

Type Nylon ☐ Poly ☐ Spectra ☐

Mesh Size ☐☐.☐☐ Inches

Comments _____

COD END

Type Nylon ☐ Poly ☐ Spectra ☐

Mesh Size ☐☐.☐☐ Inches Twine Size ☐☐

Comments _____

CHAFFING GEAR

Type Whiskers ☐ Mesh ☐ Metal ☐

_____

TICKLER CHAIN

Chain Length ☐☐☐.☐☐ Feet

Chain Size (guage) ☐.☐☐ Inches

Comments _____

DOORS

Type Aluminum ☐ Wood ☐ Other ☐

Door Length ☐☐.☐☐ Feet

Door Height ☐☐.☐☐ Feet

Dummy Door Length ☐☐.☐☐ Feet

Comments _____

LAZY LINE

Rigging: Elephant Ears ☐ Choke ☐

Comments

SECTION II BRD MEASUREMENTS

BRD TYPE Fisheye ☐ Jones Davis ☐ Other ☐☐☐☐☐☐☐☐☐☐

Fisheye position: Top ☐ Offset ☐

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, if other

Specify ☐☐☐☐☐☐☐☐☐☐

Looking from the mouth of the net, is the BRD located in front of, at, or behind the point of attachment of the elephant ears: (check one) 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

REVISED 08/31/99

INSTRUCTIONS FOR THE GEAR SPECIFICATION FORM BRD TESTING PROTOCOL

A Gear Specification Form must be completed once for each net used in the control and experimental net positions during trawling operations. The control and experimental net positions should be changed every other day and a gear specification forms should be completed. 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 remeasured for possible changes. All measurements should be recorded in feet and/or 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. The organization will provide this information to the observer prior to their departure from port.

VESSEL: Enter the vessel code.

TOW NUMBER: Enter the starting tow number for a given vessel. 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 there are only two nets being towed, the nets will be identified as nets numbered 2 and 3.

CONTROL - EXPERIMENTAL: Enter "C" for control net , this net will always closed or "E" for experimental net, the BRD is always open.

NET TYPE AND MEASUREMENTS
NET TYPE

NET TYPE: semi-balloon, balloon, flat, mongoose, etc.

HEADROPE LENGTH: Measure the length of the trawl headrope (feet and inches) where webbing is attached.

FOOTROPE LENGTH: Measure the length of the trawl footrope (feet and inches) where webbing is attached.

COMMENTS: (I.E.: Changed net type, replaced cut headrope or footrope).

LEG LINE

TOP LEGLINE LENGTH ON DOOR: Measure the length of the top legline (feet and inches) 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) 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) on the trawl's dummy door.

BOTTOM LEGLINE LENGTH ON DUMMY DOOR: Measure the bottom legline length (feet and inches) on the trawl's dummy door.

TWINE, MESH, AND OTHER GEAR MEASUREMENTS

TRAWL BODY

TYPE - Select the appropriate answer, nylon, poly or spectra.
MESH SIZE - Measure the stretched length to the nearest 1/4".
COMMENTS - (i.e., Changed net).

TRAWL EXTENSION

TYPE - Circle the appropriate answer, nylon, poly or spectra.
MESH SIZE - Measure the stretched length to the nearest 1/4".
COMMENTS -

COD END

TYPE - Circle the appropriate answer, nylon, poly or spectra.
MESH SIZE - Measure to nearest 1/4".
COMMENTS -

CHAFFING GEAR

TYPE - Select the appropriate answer; plastic, mesh or metal.
COMMENTS - (i.e., none used).

DOORS

DOOR TYPE - Select the appropriate answer, aluminum, wood or other.
If other, identify it in the comments section.
DOOR LENGTH - Measure the length of door (feet and inches).
DOOR HEIGHT - Measure the height of the door (feet and inches).
DUMMY DOOR LENGTH - Enter the length of the dummy door (feet and inches).
COMMENTS - any appropriate information on the doors.

TICKLER CHAIN

CHAIN LENGTH - Measure the length of the chain (feet and inches) from door to door.
CHAIN SIZE - Measure the length of the metal part of the link to the nearest 1/16 inch (do not measure the area where it is connected to another link or an area that has been welded).

COMMENTS - any appropriate information on the chain (i.e., replaced).

LAZY LINE

RIGGING - Select one, Elephant ears or Choke.
COMMENTS - any appropriate information on its use

TURTLE EXCLUDER DEVICE

TED TYPE - Enter Hard or Soft type.
TOP OR BOTTOM OPENING - Self explanatory.
COMMENTS - any appropriate information on its use

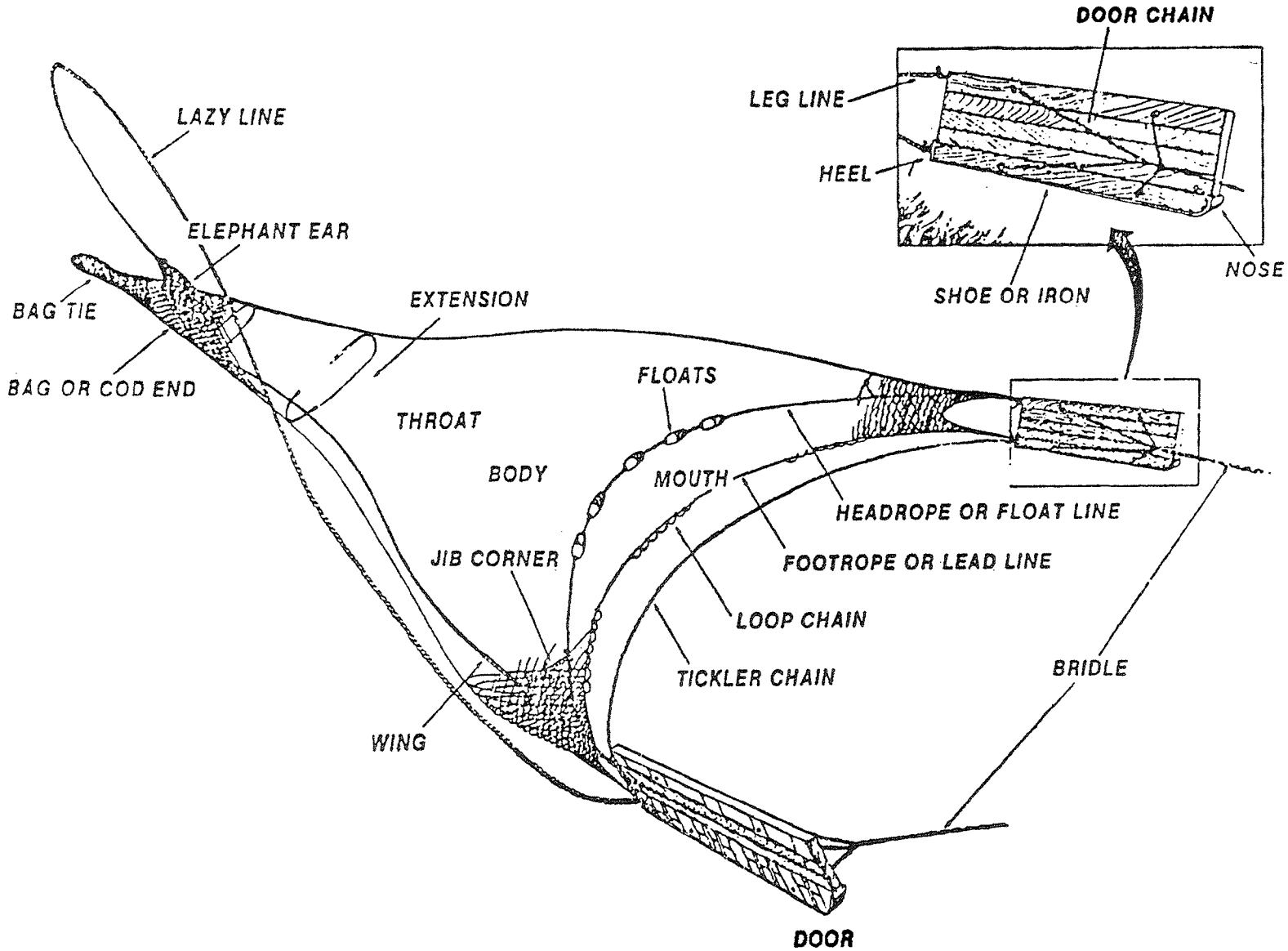
BYCATCH REDUCTION DEVICE (BRD)

TYPE - Select BRD type (i.e., Fisheye, Jones Davis or other).
FISHEYE - Select one by the location it is installed on the trawl net, top or offset.
CODEND LENGTH: Count the number of meshes in the length of the tailbag (codend) of the net.
MESHES IN CIRCUMFERENCE OF THE CODEND: Number of meshes in the circumference of the cod end.
DISTANCE OF ESCAPE OPENING FROM ELEPHANT EAR OR CHOKE RINGS: Measured in feet and inches.
DISTANCE OF ESCAPE OPENING FROM TIE OFF RINGS: Measured in feet and inches.
NUMBER OF MESHES THE FISHEYE IS OFFSET FROM TOP CENTER: Self explanatory.
FISHEYE ESCAPE OPENING: Measure the height and width
SHAPE OF THE ESCAPE OPENING: Write the shape in the squares marked "specify".
POSITION: Looking from the mouth of the net, is the BRD in front, centered or behind the elephant ears. (select one).
LENGTH OF ELEPHANT EAR: Measure, starting where the elephant ear is attached to the net to the tip of the ring (This is in inches).
SKETCH the fisheye including height and width on the back of the form being used to file your report and if possible make a cardboard outline of the opening.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery of the Gulf of Mexico. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Roy E. Crabtree, Southeast Regional Office, National Marine Fisheries Service, 263 13th Avenue South, St. Petersburg, FL 33701.

OTTER TRAWL COMPONENTS



APPENDIX C

OMB No. 0648 -0345 Approval Expires - 06/30/2008

TED/BRD SPECIFICATION FORM
BRD TESTING PROTOCOL

ORG PRO | TRIP NO. | VESSEL | TOW NO. | MO DY YR | DATE | NET POSITION

SECTION III — **TED MEASUREMENTS**

TED TYPE ☐ SOFT ☐ HARD

TED DESIGN (Circle one) WEEDLESS CURVED BAR STRAIGHT BAR UNKNOWN

TED OPENING ☐ TOP ☐ BOTTOM

TED FUNNEL (YES OR NO) ☐ **TED MATERIAL** ☐

TED FLAP (YES OR NO) ☐ **# OF TED FLOATS** ☐☐

TED ANGLE (DEGREES) ☐☐☐ **FLOAT TYPE** ☐

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 attact cardboard outline (if possible).

GEAR DESCRIPTION

GEAR DIAGRAM

REVISED 08/31/99

INSTRUCTIONS FOR THE TED/BRD SPECIFICATION FORM BRD TESTING PROTOCOL

A TED/BRD Specification Form must be completed once for each net used in the control and experimental net 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 remeasured for possible changes. All measurements should be recorded in feet and/or 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. The organization will provide this information to the observer prior to their departure from port.

VESSEL: Enter the vessel code.

TOW NUMBER: Enter the starting tow number for a given vessel. 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 there are only two nets being towed, the nets will be identified as nets numbered 2 and 3.

CONTROL - EXPERIMENTAL: Enter "C" for control net , this net will always closed or "E" for experimental net, the BRD is always open.

TED:

TED TYPE -
Circle the appropriate answer, hard or soft.
Circle the appropriate answer, weedless, curved bar, or straight.
Circle the appropriate answer, top opening or bottom opening.
Circle the appropriate answer, TED funnel or no TED funnel.
Circle the appropriate answer, TED flap or no TED flap.

ANGLE OF TED (in degrees) - Measure angle of TED in trawl.

SIZE OF TED - Specify dimensions of TED used in both control and BRD trawl.

MATERIAL - Identify what material TED is constructed of.

FLOATATION - List number and type of floats used.

BYCATCH REDUCTION DEVICE (BRD):

DETAILED DESCRIPTION - A detailed description of the configuration of the BRD are required.

BRD DIAGRAM - A detailed diagram of the BRD (B-4) used is required to be provided. Photographs of the BRD are required to be provided.

GEAR DIAGRAM - A detailed diagram of the BRD configuration including placement and measurements (e.g., number of meshes) of all trawl components including the BRD and TED used is required to be provided.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery of the Gulf of Mexico. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

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APPENDIX D OMB No. 0648 -0345 Approval Expires - 06/30/2008

STATION SHEET BRD EVALUATION
BRD TESTING PROTOCOL

ORG PRO | TRIP NO. | VESSEL | TOW NO. | OBSERVER | MONTH DAY YEAR | DATE

TIME IN | DEGREE MINUTE SECONDS LATITUDE IN | DEGREE MINUTE SECONDS LONGITUDE IN | DEPTH IN (FEET)

TIME OUT | DEGREE MINUTE SECONDS LATITUDE OUT | DEGREE MINUTE SECONDS LONGITUDE OUT | DEPTH OUT (FEET)

HOURS TOWED | KNOTS VESSEL SPEED | STAT ZONE | 1 2 3 4 OPERATION CODE | TOTAL NETS | SEA STATE

NET POSITION SAMPLED | BRD OPEN (E) BRD CLOSED (C) | SAMPLE WEIGHT (kg) *of one-basket characterization sample; if done.*

TOTAL CATCH WEIGHT (kg) | SHRIMP TOTAL WEIGHT (kg) | SHRIMP - OR | HEAD ON (O) HEAD OFF (X)

FINFISH TOTAL WEIGHT (kg)

Attach length frequency form for red snapper

RED SNAPPER TOTAL WEIGHT (kg) | RED SNAPPER TOTAL NUMBER | NO. OF RED SNAPPER LESS THAN OR EQUAL TO 100 mm | NO. OF RED SNAPPER GREATER THAN 100 mm

Comments:

NET POSITION SAMPLED | BRD OPEN (E) BRD CLOSED (C) | SAMPLE WEIGHT (kg) *of one-basket characterization sample; if done.*

TOTAL CATCH WEIGHT (kg) | SHRIMP TOTAL WEIGHT (kg) | SHRIMP - OR | HEAD ON (O) HEAD OFF (X)

FINFISH TOTAL WEIGHT (kg)

Attach length frequency form for red snapper

RED SNAPPER TOTAL WEIGHT (kg) | RED SNAPPER TOTAL NUMBER | NO. OF RED SNAPPER LESS THAN OR EQUAL TO 100 mm | NO. OF RED SNAPPER GREATER THAN 100 mm

Comments:

Characterization (one basket) for each net ☐ YES (Attach Species Forms) ☐ NO

Captain's Signature

INSTRUCTIONS FOR THE 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.

SECTION 1

TRIP NO: Transcribe the Vessel Information Form.

VESSEL: Transcribe the Vessel Information Form.

TOW NUMBER: Enter the appropriate tow number. The tow number starts at 001 for each trip.

OBSERVER: Enter the observers (your) initials, first, middle, and last.

DATE: Using two digits for month, day, and year (MO/DY/YR) enter the appropriate information (e.g., 6 May 1998 is 050698).

TIME IN: Enter the time that the nets are set (i.e., "dog off" time). Use military time, midnight is 0000, 1 A.M. is 0100, 1 P.M. is 1300. Military time uses a 24 hour clock for time keeping.

LATITUDE IN: Enter the position of the vessel at the tow start time 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., .33 X 60 = 19.8 seconds this is rounded up to 20 seconds).

LONGITUDE IN: Enter the position of the vessel at the tow start time in 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 BUT THE WATER LINE THEN ADD THE DEPTH OF THE TRANSPONDER TO THE DEPTH READING.

TIME OUT: Enter the time at the start of haul back.

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 in 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).

VESSEL SPEED: This information comes from the Captain and should be in KNOTS.

STAT ZONE: Enter the appropriate statistical zone **(at time in)** for Gulf of Mexico or southeastern Atlantic. Leave blank if towing is done outside the statistical zones, and explain in comments.

OPERATIONAL CODE: Select the appropriate operational code for each net. Generally, a successful tow is denoted as ZZYZ, with Z being a successful trawl for a net position, and Y indicating that a "Try Net" was towed in front of net # 3. See the operational codes listing for the appropriate code for your situation. In situations were several problems affect a tow, generally the most severe problem is recorded. If the nets are bogged down due to mud, the operational code would read BBBB. For unsuccessful tows (other than ZZYZ) 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 in this count.

SEA STATE: Sea state is measured as wave height in feet. Enter the number that best describes the sea state: 1 = 0-2 feet, 2 = 3-5 feet, 3 = 6-8 feet, 4 = 8+ feet

SECTION 2

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 IN 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 and has BRD typically opened or "C" if net is the "Control" and the BRD is typically closed.

SAMPLE WEIGHT: After mixing the catch, obtain a one basket sample (approximately 70 pounds) from each the control and experimental nets. Then remove all target fish species (e.g., red snapper) and weigh the basket. Enter the weight in kilograms. If either the experimental net or the control net has an operational code of other than "Z", enter 99.9 as a default code denoting that a sample was not taken.

TOTAL CATCH WEIGHT: Enter the weight of the total catch (in kilograms) from the net.

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.

SHRIMP - HEAD ON OR HEAD OFF: Enter "O" if the head is left on the shrimp or "X" if the head is removed.

FINFISH TOTAL CATCH WEIGHT: Enter the weight of the total finfish catch (in kilograms) from the net, or if sampled, the total finfish catch in the sample.

RED SNAPPER TOTAL WEIGHT: Enter the total weight in kilograms of all red snapper.

RED SNAPPER TOTAL NUMBER: Enter the total number of red snapper.

NO. OF RED SNAPPER LESS THAN OR EQUAL TO 100 mm: Enter the total number of red snapper that have a fork length of less than 100 mm. (Attach the length frequency form for red snapper).

NO. OF RED SNAPPER GREATER THAN 100 mm: Enter the total number of red snapper that have a fork length greater than 100 mm. (Attach the length frequency form for red snapper).

COMMENTS: Enter any appropriate information to the trawl (e.g., nets bogged down with mud, net torn, tire blocking TED).

CAPTAIN'S SIGNATURE: At the Captain's convenience, have him sign this form. This is to verify that the data were collected.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery of the Gulf of Mexico. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

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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 quantity of sand or mud such that the net can not be easily towed.

C = Bag choked; the catch in the net is prevented from getting into the bag by something (grass, sticks, turtle, etc.) clogging net or by the twisting of the lazy-line.

D = Gear not digging; the net is fishing off the bottom due to insufficient weight.

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. Typically this involves the webbing and some object like a float or chains.

G = Bag untied; bag of net not tied when dragging net.

H = Rough weather; 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 webbing or lost net; usually results from hanging the net and tearing it loose. The net comes back with large tears 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 much trash, fish, sponge. Give reason in Comments.

K = No pick up; tow made but net not dumped on deck because nets are brought up, boat changes location and nets are towed more before decking.

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 and catches not separated.

N = Net did not fish; no apparent cause.

O = Gear fouled on object. Net may be towed but performance is affected. Give specifics in Comments.

P = No measurement taken of shrimp or total catch.

Q = Cable breaks and net lost. Describe in Comments.

R = Net caught in wheel.

S = Tickler chain fouled or tangled.

T = Other problems.

U = Excluder gear disabled.

W = Defective excluder gear.

Y = Net trailing behind try net.

Z = Successful tow.

Factors Affecting Shrimp Retention

High Shrimp Retention - Fish Eyes

1. Fast towing speed (2.8 - 3.0 knots).
2. Fast winch retrieval speed.
3. 120 meshes or greater bag.
4. Minimal /no turning.
5. Minimal tides.
6. Minimal debris.
7. Fair weather.

Reduced Shrimp Retention - Fish Eyes

1. Reduced/restricted tow speed <2.3 knots.
2. Slow winch retrieval.
3. Small bags 80-100 meshes.
4. Excessive turning.
5. Strong tides.
6. Debris, crab traps and jellyfish.
7. Rough weather.

Source: Georgia Marine Extension Service, 1997.

OMB No. 648-0345   Approval Expires- 06/30/2008

APPENDIX E

LENGTH FREQUENCY FORM (TARGET SPECIES)
BRD TESTING PROTOCOL

ORG PRO

TRIP NO.	VESSEL	TOW NUMBER	NET POSITION	Control (C) or Experimental (E)

GENUS	GENUS	GENUS
SPECIES / MEAS.CODE	SPECIES / MEAS.CODE	SPECIES / MEAS.CODE

	LENGTH (MM)		LENGTH (MM)		LENGTH (MM)
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	
13		13		13	
14		14		14	
15		15		15	
16		16		16	
17		17		17	
18		18		18	
19		19		19	
20		20		20	
21		21		21	
22		22		22	
23		23		23	
24		24		24	
25		25		25	
26		26		26	
27		27		27	
28		28		28	
29		29		29	
30		30		30	

REVISED 08/31/98

INSTRUCTIONS FOR
LENGTH FREQUENCY FORM
BRD TESTING PROTOCOL

The length frequency forms are provided for convenience should the applicant choose to take lengths on certain species taken in the bycatch, such as red snapper or weakfish. The applicant may need to use more than one column for a species depending the number contained in your net.

TRIP NO: Transcribe from Station Sheet.

VESSEL: Transcribe from Station Sheet.

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. If not identified to species, continue genus name into species block if longer than seven characters. Use family name if specimen can not be identified to species. The highlighted last two squares are for the measurement code which indicates the measurement utilized. For red snapper, Spanish mackerel and king mackerel the measurement code is 01 (measure fork length).

L	U	T	J	A	N	U	
C	A	M	P	E	C	0	1

MEASUREMENT CODE:

Step # 1: Identify the sample species.

Step # 2: Measure the organism (in millimeters) and record the measurement on the sheet.

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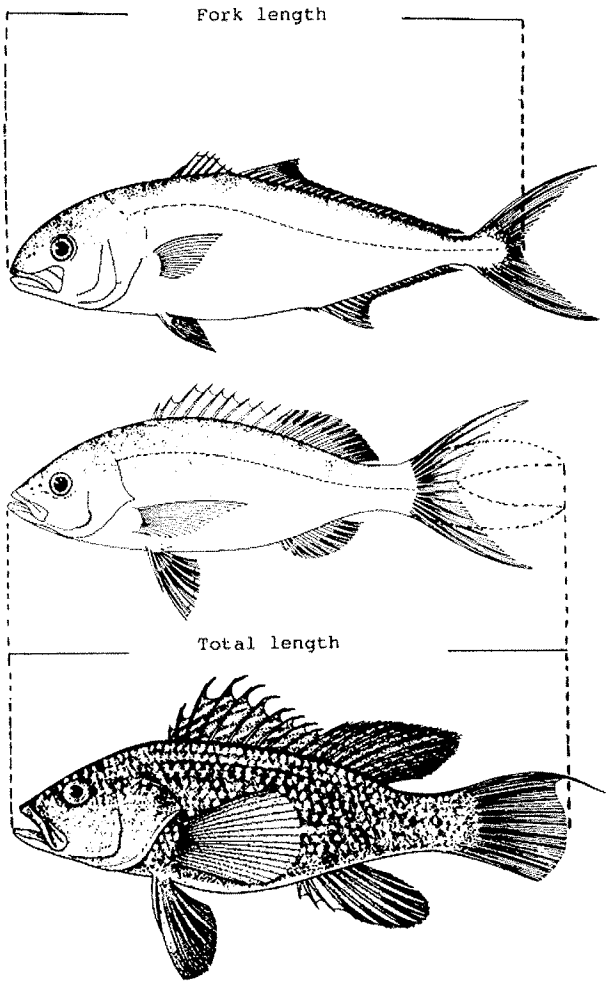
Illustration of fork Length and Total Length Measurement



OMB No. 0648-0345 Approval Expires - 06/30/2008

APPENDIX F

SPECIES CHARACTERIZATION FORM
BRD TESTING PROTOCOL

Trip No. | Vessel | Tow No. | Net Position | Control (C) Experimental (E)

COMMON NAME	GENUS	SPECIES	YOY X	NUMBER	SAMPLE WEIGHT(kg)	SELECT WEIGHT (kg)
CRABS, LOBSTERS, ETC.	CRUSTACE			1		
OTHER INVERTEBRATES	INVERTE			1		
SHARKS (ALL SPECIES)	CARCHAR					
TROUT	CYNOSCI					
SNAPPER (OTHER)	LUTJANU					
LANE SNAPPER	LUTJANU	SYNAGR				
CROAKER	MICROPO	UNDULA				
SOUTHERN FLOUNDER	PARALIC	LETHOS				
BLACK DRUM	POGONIA	CROMIS				
COBIA	RACHYCE	CANADU				
VERMILION SNAPPER	RHOMBOP	AURORU				
RED DRUM	SCIAENO	OCELLA				
SPOTTED SEATROUT	CYNOSCI	NEBULO				
KING MACKEREL	SCOMBER	CAVALL				
SPANISH MACKEREL	SCOMBER	MACULA				
LONGSPINE PORGY	STENOTO	CAPRIN				
OTHER FINFISH-GROUPED	PISCES			1		
DEBRIS	DEBRIS			1		

OTHER NOT LISTED						

FOR ATLANTIC						
WEAKFISH (GRAY TROUT)	CYNOSCI	REGALI				

REVISED 08/21/00

INSTRUCTIONS FOR THE
SPECIES CHARACTERIZATION FORM
BRD TESTING PROTOCOL

TRIP NO.: Enter the trip number. The organization will provide this information to the observer prior to their departure from port.

VESSEL: Enter the vessel code.

TOW NUMBER: Enter the appropriate tow number.

NET POSITION: Enter the net position sample was taken from.

CONTROL (C) OR EXPERIMENTAL (E): Enter the appropriate code for this the sample net.

Procedure.

After obtaining a total weight for each the control and experimental nets, keep one basket (approximately 70 pounds) from each of the nets for species characterization (i.e., one basket from control net and one basket from the experimental net). Weigh the basket to obtain a sample weight which is entered on the station sheet (Remember to enter 9's for sample weight if a characterization is not done).

Processing the Catch

Become familiar with the species listed on this form. These organisms will be grouped by species, counted and weighed. All other organisms will be separated into the following categories:

1) Crabs, Lobster, etc. (Crustacea): includes shrimp other than brown, white, and pink shrimp. Mantis shrimp, sugar shrimp, seabobs, crabs, lobsters, etc. would be included in this group as well.

2) Other Invertebrates: includes organisms like squid, jelly fish, 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.

4) Debris: Includes miscellaneous debris such as chunks of mud, rocks, sticks, etc.

A group weight should be obtained for each of these four categories and entered this 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.

1) Brown, White, and Pink Shrimp: All penaeid shrimp should be removed from the sample first. Separate by species, count, and weigh. The weights of these shrimp have to be added to the total

weight for all shrimp from the sampled net. If the boat is heading their shrimp, then these shrimp have to weighed without heads before adding the weight to the total shrimp weight.

2) Fish: Sharks - use this category for all species of sharks; Trout - this includes all species of sea trout except spotted seatrout; Snapper (Other) - remember, this category is for "Lutjanus" species only. This does not include wenchman snappers; Lane snapper - commonly referred to as a "candy snapper"; Whiting - this category is for all species of whiting; Croaker - sometimes confused with the spot which has a conspicuous spot just above the pectoral fin; Southern Flounder - be careful not to confuse this species with other common flatfish found in the trawls; Black Drum - juveniles sometimes confused with sheepshead; Cobia - Juveniles sometimes confused with sharksuckers; Vermilion Snapper - easily confused with wenchman snapper which are usually more common offshore; Red Drum; Spotted Seatrout; King Mackerel - deep posterior downward slope to lateral line; Spanish Mackerel - Shallow posterior slope to lateral line; Longspine Porgy - very common on offshore shrimp grounds.

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. Generally this occurs when the species is of commercial importance (i.e., mackerels) 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 of the net selected for sampling. If the catch was worked up in its entirety (i.e., less than one basket), all entries will be in the select column.

OMB No. 648-0345 Approval Expires- 06/30/2008

APPENDIX G

CONDITION AND FATE FORM
BRD TESTING PROTOCOL

CONTROL NET | NET POSITION ☐

CONDITION AND FATE OF BYCATCH PRIOR TO DISCARDING

FISH

- ☐ MORE THAN 50% OF CATCH ALIVE
- ☐ MORE THAN 50% OF CATCH DEAD
- ☐ NOT DETERMINED
- ☐ NOT OBSERVED

COMMENTS: _____

INVERTEBRATES

- ☐ MORE THAN 50% OF CATCH ALIVE
- ☐ MORE THAN 50% OF CATCH DEAD
- ☐ NOT DETERMINED
- ☐ NOT OBSERVED

COMMENTS: _____

PREDATORS OBSERVED

- ☐ SHARKS
- ☐ DOLPHINS
- ☐ SEA BIRDS
- ☐ OTHER FISH
- ☐ NONE
- ☐ NOT OBSERVED

COMMENTS: _____

(ESTIMATED # OF ORGANISMS) SEEN EXITING BRD DURING NET RETRIEVAL

- ☐ (1 - 10)
- ☐ (10 - 50)
- ☐ (50 - 100)
- ☐ (100 OR MORE)
- ☐ NONE
- ☐ N/A (BRD closed)
- ☐ NOT OBSERVED (or not able to see.)

COMMENTS: _____

PREDATORS ACTIVELY FEEDING ON ORGANISMS ESCAPING FROM BRD OPENING? (CHECK ONE)

☐ Yes ☐ No ☐ Not Observed (or not able to see.)

List predator types: _____

EXPERIMENTAL NET | NET POSITION ☐

CONDITION AND FATE OF BYCATCH PRIOR TO DISCARDING

FISH

- ☐ MORE THAN 50% OF CATCH ALIVE
- ☐ MORE THAN 50% OF CATCH DEAD
- ☐ NOT DETERMINED
- ☐ NOT OBSERVED

COMMENTS: _____

INVERTEBRATES

- ☐ MORE THAN 50% OF CATCH ALIVE
- ☐ MORE THAN 50% OF CATCH DEAD
- ☐ NOT DETERMINED
- ☐ NOT OBSERVED

COMMENTS: _____

PREDATORS OBSERVED

- ☐ SHARKS
- ☐ DOLPHINS
- ☐ SEA BIRDS
- ☐ OTHER FISH
- ☐ NONE
- ☐ NOT OBSERVED

COMMENTS: _____

(ESTIMATED # OF ORGANISMS) SEEN EXITING BRD DURING NET RETRIEVAL

- ☐ (1 - 10)
- ☐ (10 - 50)
- ☐ (50 - 100)
- ☐ (100 OR MORE)
- ☐ NONE
- ☐ N/A (BRD closed)
- ☐ NOT OBSERVED (or not able to see.)

COMMENTS: _____

PREDATORS ACTIVELY FEEDING ON ORGANISMS ESCAPING FROM BRD OPENING? (CHECK ONE)

☐ Yes ☐ No ☐ Not Observed (or not able to see.)

List predator types: _____

Revised 08/31/99

INSTRUCTIONS FOR THE CONDITION & FATE FORM BRD TESTING PROTOCOL

TRIP NUMBER: Transcribe this information from the Vessel Information form.

VESSEL: Transcribe this code information from the Vessel Information form.

TOW NUMBER: Enter the appropriate tow number. The Tow Number starts at 001 for each trip. Remember, tows not sampled do not receive a tow number.

THIS FORM IS USED FOR BOTH NETS; LEFT SIDE FOR THE CONTROL NET AND THE RIGHT SIDE FOR THE EXPERIMENTAL NET.

CONTROL NET (BRD CLOSED)

NET POSITION CONTROL NET (BRD CLOSED): Enter the net position number of the net which has the BRD closed.

CONDITION AND FATE OF BYCATCH PRIOR TO DISCARDING

FISH: Select and mark one of the four categories listed

INVERTEBRATES: Select and mark one of the four categories listed. In the comments block enter any appropriate information.

PREDATORS OBSERVED: Select and mark the appropriate category. In the comments block enter any appropriate information.

EXPERIMENTAL NET (BRD OPEN)

NET POSITION EXPERIMENTAL NET (BRD OPEN): Enter the net position number of the net which has the BRD open.

CONDITION AND FATE OF BYCATCH PRIOR TO DISCARDING

FISH: Select and mark one of the four categories listed

INVERTEBRATES: Select and mark one of the four categories listed. In the comments block enter any appropriate information.

PREDATORS OBSERVED: Select and mark the appropriate category. In the comments block enter any appropriate information.

ESTIMATED # OF ORGANISMS SEEN EXITING BRD DURING NET RETRIEVAL: Select and mark the appropriate category. In the comments block list any predator(s) seen feeding on escaping organisms. The predator(s) may be feeding at the BRD opening or anywhere along the net following the escaping organisms.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery of the Gulf of Mexico. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Southeast Regional Office, National Marine Fisheries Service, 263 13th Avenue South, St. Petersburg, FL 33701.

INSTRUCTIONS FOR THE VESSEL INFORMATION FORM

APPENDIX H

QUALIFICATIONS OF OBSERVER

To be qualified as an observer operating under this Protocol, an individual must have a Bachelor's degree in fisheries biology or closely related field from an accredited college, have at least 6 months experience working with a university, college, state fisheries agency, NMFS, or private research organization such as the Gulf and South Atlantic Fisheries Foundation, Inc., as an observer on a trawler (including research trawlers) in the southeast region, or have successfully completed a training course conducted or approved by the Director of the NMFS Southeast Fisheries Science Center. A list of qualified observers is maintained by the RA.

An individual wishing to be included on the list of qualified observers, but who is not directly involved in any current bycatch observer programs, should submit a resume and supporting documents to the Director, Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149. Supporting information must include the names, addresses, and telephone numbers of at least three references who can attest to the applicant's background, experiences, and professional ability. These references will be contacted; unsatisfactory references may be a basis for disapproval of an applicant as an observer. The Center will use this information to determine which names will to be included on a list of qualified observers. If an applicant is not approved as an observer, the RA will notify the applicant of the disapproval and will provide an explanation for the denial.

APPENDIX I

OMB NUMBER 0648-0345 OMB APPROVAL EXPIRES - 06/30/2008

VESSEL INFORMATION FORM
BRD TESTING PROTOCOL

___ ___ ___ ___ ___ _____ ___ ___ ___

Trip. No. Vessel

DATE (MO/DY/YR): _____

OBSERVER NAME: _____

VESSEL NAME: _____

VESSEL LENGTH (ft.) _____

VESSEL IDENTIFICATION NUMBER: _____

YEAR VESSEL BUILT: _____

VESSEL TYPE (CIRCLE ONE): FREEZER OR ICE BOAT

MATERIAL OF HULL CONSTRUCTION (CIRCLE ONE):

STEEL WOOD FIBERGLASS

GROSS TONNAGE: _____

HORSEPOWER OF ENGINE: _____

CREW SIZE (WITHOUT CAPTAIN): _____

OWNER NAME: _____

OWNER ADDRESS: _____

CAPTAIN'S NAME: _____

OWNER'S OR CAPTAINS SIGNATURE: _____

POSITION, IF OWNER IS
A CORPORATION OR PARTNER: _____

TRIP NO. The trip number will be assigned to you prior to departure. The trip number is designated by the organization (e.g., NMFS, Foundation, BRD certification applicant). The trip number consists of five 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.

B = BRD Evaluation
C = Bycatch Characterization
G = BRD Certification, Gulf of Mexico
M = Modified Bycatch Characterization
N = Naked Net (TED alternative)
R = Red Snapper Initiative
S = BRD Certification, South Atlantic
T = TED Evaluation
X = Rock Shrimp Characterization
Z = Soft TED Evaluation

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

VESSEL: Enter the vessel code. This will be provided to you prior to departure. This is typically the initials of the vessel (e.g., Miss Kelly - MKE). If a duplication should occur (i.e., more than one vessel having the same two letter code), the organization will assign the vessel another code. For repeat trips on the same vessel, the same vessel code should be used

DATE (MO/DY/YR): Enter month, day, and year.

OBSERVER NAME: Print full name of the qualified observer conducting the test.

VESSEL NAME: Write the vessel's full name.

VESSEL LENGTH (ft.): Enter the vessel's overall length (feet). Get this information from the Captain.

VESSEL IDENTIFICATION NUMBER: Enter State or Federal vessel registration number.

YEAR VESSEL BUILT: Self-explanatory.

VESSEL TYPE (CIRCLE ONE): FREEZER OR ICE BOAT Self-explanatory.

MATERIAL OF HULL CONSTRUCTION (CIRCLE ONE):
STEEL WOOD FIBERGLASS Self-explanatory.

GROSS TONNAGE: Get this information from the Captain.

HORSEPOWER OF ENGINE: Get this information from the Captain.

CREW SIZE (WITHOUT CAPTAIN): Self-explanatory.

OWNER NAME: Self-explanatory.

OWNER ADDRESS: Self-explanatory.

CAPTAIN'S NAME: Self-explanatory.

OWNER'S OR CAPTAIN'S SIGNATURE: Self-explanatory.

POSITION, IF OWNER IS A CORPORATION OR PARTNERSHIP: Self-explanatory.

The NMFS requires this collection of information to minimize the bycatch of finfish in the southeastern shrimp fishery. The data and testing will be used to develop improved bycatch reduction devices (BRDs). Responses are required under the Magnuson-Stevens Act to obtain certification that allows use of a BRD in the shrimp fishery of the Gulf of Mexico. Data will be confidential pursuant to the Magnuson-Stevens Act and other applicable law. Notwithstanding any other provisions of the law, no person is required to, nor shall any person be subject to a penalty to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Southeast Regional Office, National Marine Fisheries Service, 263 13th Avenue South, St. Petersburg, FL 33701.