

Therefore, we are soliciting comments from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule. The Public Comments Solicited section of the proposed rule (68 FR 28647; May 23, 2003) includes a list of topics for which we are particularly seeking comments.

Previously submitted comments need not be resubmitted. If you submit comments by electronic mail (e-mail), please submit them as an ASCII file and avoid the use of special characters and any form of encryption. Please also include "Attn: RIN 1018-AI68" and your name and address in your e-mail message. If you do not receive a confirmation from the system that we have received your e-mail message, contact us directly by calling the Sacramento Fish and Wildlife Office (see ADDRESSES).

Author

The primary authors of this notice are Adam Zerrenner, Senior Fish and Wildlife Biologist and Arnold Roessler, Chief, Listing Branch (see ADDRESSES).

Authority

The authority for this action is the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*).

Dated: September 24, 2003.

Steve Williams,

Director, Fish and Wildlife Service.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 622

[Docket No. 030908224-3224-01; I.D. 080403B]

RIN 0648-AM23

Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic; Shrimp Fishery of the Gulf of Mexico; Amendment 10

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS issues this proposed rule to implement Amendment 10 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico

(Amendment 10), as prepared and submitted by the Gulf of Mexico Fishery Management Council (Council). This proposed rule would require, with limited exceptions, the use of NMFS-certified bycatch reduction devices (BRDs) in shrimp trawls in the Gulf of Mexico exclusive economic zone (Gulf EEZ) east of 85°30' W. long. (approximately Cape San Blas, FL). In addition, this proposed rule would identify the certified BRDs currently authorized for use in the Gulf EEZ east of 85°30' W. long. and would modify the *Gulf Of Mexico Bycatch Reduction Device Testing Protocol Manual* to reflect the specific bycatch reduction criterion applicable for certification of BRDs used in this area of the Gulf EEZ. The intended effect of this proposed rule is to reduce bycatch in the Gulf of Mexico shrimp fishery to the extent practicable.

DATES: Comments must be received no later than 4:30 p.m., eastern time, on November 14, 2003.

ADDRESSES: Written comments on the proposed rule should be sent to Dr. Steve Branstetter, Southeast Regional Office, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702. Comments also may be sent via fax to (727) 570-5583. Comments will not be accepted if submitted via e-mail or Internet.

Requests for copies of Amendment 10, which includes an environmental assessment, regulatory impact review (RIR), initial regulatory flexibility analysis (IRFA), and a social impact assessment should be sent to the Gulf of Mexico Fishery Management Council, 3018 U.S. Highway 301 North, Suite 1000, Tampa, FL 33619-2266; telephone: 813-228-2815; fax: 813-225-7015; e-mail: gulfcouncil@gulfcouncil.org.

FOR FURTHER INFORMATION CONTACT: Dr. Steve Branstetter, telephone: (727) 570-5305, fax: (727) 570-5583, e-mail: Steve.Branstetter@noaa.gov.

SUPPLEMENTARY INFORMATION: The fishery for shrimp in the Gulf EEZ is managed under the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico (FMP). The FMP was prepared by the Council, approved by NMFS, and implemented under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) by regulations at 50 CFR part 622.

Background

The Magnuson-Stevens Act requires that fishery management plans establish a standardized reporting methodology to

assess the amount and type of bycatch occurring in the fishery, and include measures that minimize bycatch and minimize the mortality of bycatch which cannot be avoided. Previously, the Council prepared, and NMFS approved and implemented (63 FR 18139, April 14, 1998), Amendment 9 to the FMP to address bycatch in the Gulf shrimp fishery in the western Gulf. Amendment 9 focused primarily on reducing the shrimp trawl bycatch of juvenile red snapper and required use of NMFS-certified BRDs, with limited exceptions, shoreward of the 100-fathom (fm)(183-m) depth contour west of 85°30' W. long. Bycatch of juvenile red snapper occurs principally in the western Gulf. Amendment 10 and this proposed rule would extend the requirement for use of appropriately certified BRDs to the eastern Gulf to further reduce shrimp trawl bycatch in compliance with the Magnuson-Stevens Act requirements.

BRD Requirement

Amendment 10 specifies that the bycatch reduction criterion for certification of a BRD to be used in the Gulf EEZ east of 85°30' W. long. is a minimum of 30-percent reduction, by weight, of finfish bycatch. This proposed rule would require a shrimp trawler in the Gulf EEZ east of 85°30' W. long., the approximate longitude of Cape San Blas, FL, to have an appropriate NMFS-certified BRD installed in each net rigged for fishing. A shrimp trawler is defined as 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.

Currently available BRDs that would meet the applicable bycatch reduction criterion for the eastern Gulf and would be certified for use in that area include: Fisheye, Gulf Fisheye, Jones-Davis, Extended funnel, and Expanded mesh. Descriptions of these BRDs and minimum construction and installation requirements are provided in 50 CFR part 622 appendix D. As additional BRDs are tested and certified by NMFS, they would be added to the list of certified BRDs by publication of a notice in the **Federal Register**.

This proposed rule would exempt the following gear from the BRD requirement: (1) A single try net with a headrope length of 16 ft (4.9 m) or less; (2) up to two rigid-frame roller trawls of 16 ft (4.9 m) or less; (3) vessels trawling for royal red shrimp (*i.e.*, provided that at least 90 percent of all shrimp on board or offloaded are royal red shrimp); and (4) vessels trawling for groundfish

or butterfish. The Council has concluded that finfish bycatch associated with such gear or activities is likely to be minimal and that the costs associated with the BRD requirement would not be justified in such cases.

Standardized Bycatch Reporting

To address the Magnuson-Stevens Act requirement for a standardized bycatch reporting methodology, Amendment 10 proposes to use the annual Summer Shrimp/Groundfish and Fall Shrimp/ Groundfish Trawl Surveys to determine annual finfish and invertebrate bycatch in the Gulf shrimp fishery. Trawls used in these research surveys are not equipped with BRDs. Because shrimp trawlers are currently required to use BRDs in the western Gulf, and this rule proposes to require them in the eastern Gulf as well, estimates of bycatch from the research surveys would be reduced by at least 35 percent (the estimated bycatch reduction achieved by the most commonly used Fisheye BRD). The surveys' sampled bycatch data would then be converted into 24-hour (or per-day) estimates. These results would then be multiplied by the same year's estimated shrimp effort data, in days fished, to obtain annual estimates of total finfish and invertebrate bycatch.

Minor Revisions to the *Gulf Of Mexico Bycatch Reduction Device Testing Protocol Manual*

The current protocol manual was written to address testing and certification of BRDs based on a bycatch reduction criterion related to reduction of bycatch of juvenile red snapper in the western Gulf. Amendment 10 addresses bycatch in the eastern Gulf and establishes a different bycatch reduction criterion for evaluating BRDs to be used in that area, *i.e.*, a minimum of a 30-percent reduction, by weight, of finfish bycatch. This proposed rule would revise the appended protocol manual to distinguish, where necessary, the different criteria that would apply to BRD testing and certification in the specified eastern and western Gulf areas.

Additional Information

Additional background and rationale for the measures discussed here are contained in Amendment 10, the availability of which was announced in the **Federal Register** (68 FR 48592; August 14, 2003). The public comment period on Amendment 10 expires on October 14, 2003. All comments received on Amendment 10 or on this proposed rule during their respective comment periods will be addressed in the preamble to the final rule.

Classification

At this time, NMFS has not determined that Amendment 10 that this proposed rule would implement is consistent with the national standards of the Magnuson-Stevens Act and other applicable laws. In making that determination, NMFS will take into account the data, views, and comments received during the comment period on Amendment 10 and this proposed rule.

This proposed rule has been determined to be not significant for purposes of Executive Order 12866.

The Council prepared an IRFA that describes the economic impact this proposed rule, if adopted, would have on small entities. Subsequently, NMFS prepared a supplement to the IRFA to clarify and correct information contained within the analyses of the social and economic impacts of the options in the proposed amendment, and to update the data used in these analyses. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the **SUMMARY** section of the preamble. A summary of the analyses follows.

As amended, the Magnuson-Stevens Act provides the statutory basis for the proposed rule. The objective of this amendment is to further reduce bycatch in the Gulf shrimp fishery to the extent practicable. The proposed rule will require the use of BRDs in all NMFS statistical zones of the eastern Gulf of Mexico EEZ.

No duplicative, overlapping, or conflicting Federal rules have been identified.

In 2001, approximately 946 shrimp trawl fishing craft were known to operate in statistical areas 1 through 8 off the west coast of Florida. Within this group of affected entities, 460 operate in statistical areas 1 through 3, 283 operate in statistical areas 4 and 5, and 592 operate in statistical areas 6 through 8. Of the 946 shrimp trawlers affected by this proposed action, 736 craft are Coast Guard registered vessels and 210 are state registered boats; 474 are considered large vessels, while 472 are considered small vessels/boats; 868 (91.8 percent) shrimp trawlers landed shrimp in Florida, 102 landed shrimp in Alabama, 4 landed shrimp in Mississippi, and 31 landed shrimp in Texas; 49 landed in both Florida and Alabama, 7 landed in both Florida and Texas, and 1 each landed in Mississippi/Florida and Alabama/Texas.

Overall, average revenue per shrimp trawler from areas 1 through 8 is \$26,440. Average total costs per shrimp

trawler are \$38,991, resulting in an average annual loss of \$12,551. The average number of crew is 2.3 for small shrimp trawlers and 3.5 for large shrimp trawlers, resulting in an overall average of 2.9 crew per trawler. Each small trawler is assumed to use two nets, each large trawler is assumed to use 4 nets, and, in each case, each trawler is assumed to have at least one spare set of nets on board. A commercial fishing business is considered a small business entity if its annual gross revenues are less than or equal to \$3.5 million. Based on the average revenue information provided above, all harvesting operations within this fishery can be considered to be small business entities.

Additionally, 61 shrimp dealers would be affected by the proposed actions. Average Gulf shrimp purchases per dealer is \$2,029,221, with an average of \$692,622 coming from harvests in areas 1 through 8. The average number of employees per dealer is 37.

A substantial number of small entities will be affected by the proposed action, regardless of whether the entire universe of Florida west coast shrimp trawlers or only certain groups within that universe (*e.g.*, shrimp trawlers that operate in lower Florida or large shrimp trawlers that land in Florida) is considered. That is, the total number of affected shrimp trawlers are those who participate in the west Florida shrimp fishery, which is 946. Of those 946 shrimp trawlers, 868 land in Florida and 399 are specifically large shrimp trawlers that land in Florida. Any of these estimates would be considered a substantial number of small entities though the primary economic impacts of the proposed action are on the latter group. The total number of shrimp trawlers operating in the entire Gulf of Mexico is not the appropriate universe for determining whether the substantial number criterion has been met, or whether the impacts to small entities are significant, since only those entities operating in areas 1 through 8 off the Florida west coast will be impacted by the proposed action.

Employment data within the dealer sector are sparse. However, for 12 of the affected shrimp dealers, the number of employees ranged from 1 to 168, with an average of 37 employees, based on the most recently available data. Further, only the single largest shrimp processor in the Gulf employed more than 500 workers on average per year. Since shrimp dealers are typically smaller operations than shrimp processors in terms of volume and employment, it can be assumed that all dealers affected by the proposed action

employ less than 500 workers per year on average. A dealer is considered a small business entity if it employs less than or equal to 500 employees. All of the 61 affected shrimp dealers can, therefore, be considered to be small business entities.

Since all shrimp harvest and dealer operations affected by the proposed action are considered to be small business entities, the issue of disproportionate effects between large and small entities does not arise.

NMFS' analysis indicates that the average revenue per shrimp trawler is \$26,440, and the average annual profit is negative, equaling a loss of \$12,511. Under the proposed action, the average reduction in revenue and profits per shrimp trawler would be \$1,444 and \$1,112, which represent reductions of 5.5 percent and 8.9 percent respectively. Although these figures can be broken down according to various criteria, such as vessel size category, state of landing, and area of fishing, they are generally representative of the analysis' results and need not be presented in this summary. The detailed break-outs are provided in the IRFA.

In order for a firm to continue operating in the short-run, revenues must at least cover variable costs. Due to the relatively large losses throughout the west Florida shrimp fishery, many shrimp trawlers cannot apparently currently cover their variable costs and additional regulatory burdens at the levels noted above will accelerate the rate at which these vessels' operations are forced to shut down. It is not possible at this time, however, to accurately determine how many more of these operations will in fact shut down as a result of the proposed actions.

In terms of the value of shrimp purchases, the loss per dealer is estimated to be \$22,393, which represents an average of 1.1 percent for all dealers, but 2 percent for dealers in Florida. Since profitability is unknown in this sector, the significance of such losses cannot be determined with certainty. However, given that the number of dealers purchasing shrimp from the west Florida fishery declined from 84 in 1998 to 61 in 2001, and the poor economic health of the harvesting sector, it is logical to assume that losses are being incurred in the dealer sector. Dealers in Key West, Ft. Myers Beach, Tampa, St. Petersburg, and Tarpon Springs would likely be most susceptible to potential impacts of the proposed action.

Significant alternatives to the proposed action include area closures, seasonal closures, and modifications to BRD requirements. With respect to area

and seasonal closures, the proposed action is to retain the status quo and thus would impose no adverse economic impacts on small entities. With regards to BRD requirements, two alternatives would require BRDs over the identical geographic range, statistical areas 1 through 8, as the proposed action and, thus would not reduce the expected negative economic impacts. Two alternatives would limit the BRD requirement to statistical areas 4 through 8, which would significantly reduce the negative economic impacts attributable to the proposed action. Two other alternatives, the status quo, which would not require BRDs, and an alternative that would limit the requirement to statistical areas 6 through 8 would further reduce the negative economic impacts of the proposed action. However, none of these alternatives would satisfy the requirement and Councils' intent to minimize bycatch "to the extent practicable." Of the various alternatives that require BRDs, the proposed action would accomplish the greatest total bycatch reduction since BRDs would be required over a greater geographic range. Requiring BRDs over the entire area (statistical areas 1–8) would result in the bycatch reduction of approximately 4.006 million pounds, whereas requiring BRDs in only statistical areas 4–8 would result in the bycatch reduction of approximately 1.91 million pounds.

In conclusion, the proposed action is expected to create a significant and adverse economic impact on a substantial number of small entities. These impacts are likely even greater for shrimp trawlers that operate primarily or exclusively in lower Florida, particularly large shrimp trawlers. For these operations, the percentage increase in annual losses due to the proposed action likely ranges from 9.2 percent to as much as 23.4 percent. Although the impact on shrimp dealers is not as large in percentage terms (1.1 percent to 2 percent), the impact on this group of small entities is also likely significant, given the high probability that losses are also being incurred in this sector.

Copies of the IRFA and RIR are available upon request (*see ADDRESSES*).

List of Subjects in 50 CFR Part 622

Fisheries, Fishing, Puerto Rico, Reporting and recordkeeping requirements, Virgin Islands.

Dated: September 24, 2003.

Rebecca Lent,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 622 is proposed to be amended as follows:

PART 622—FISHERIES OF THE CARIBBEAN, GULF, AND SOUTH ATLANTIC

1. The authority citation for part 622 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*

2. In § 622.41, paragraphs (h)(1) and (2) are revised to read as follows:

§ 622.41 Species specific limitations.

* * * * *

(h) * * *

(1) *BRD requirement.* (i)

West of 85°30' W. long. On a shrimp trawler in the Gulf EEZ west of 85°30' W. long. and shoreward of the 100-fathom (183-m) depth contour, each net that is rigged for fishing must have a certified BRD listed in paragraph (h)(2)(i) of this section installed, unless exempted as specified in paragraphs (h)(1)(iii) through (v) or paragraph (h)(3)(iii) of this section.

(ii) *East of 85°30' W. long.* On a shrimp trawler in the Gulf EEZ east of 85°30' W. long., each net that is rigged for fishing must have a certified BRD listed in paragraph (h)(2)(ii) of this section installed, unless exempted as specified in paragraphs (h)(1)(iii) through (v) or paragraph (h)(3)(iii) of this section.

(iii) A shrimp trawler is exempt from the requirement to have a certified BRD installed in each net provided that at least 90 percent (by weight) of all shrimp on board or offloaded from such trawler are royal red shrimp.

(iv) A shrimp trawler is exempt from the requirement to have a BRD installed in a single try net with a headrope length of 16 ft (4.9 m) or less provided the single try net is either pulled immediately in front of another net or is not connected to another net.

(v) A shrimp trawler is exempt from the requirement to have a certified BRD installed in up to two rigid-frame roller trawls that are 16 ft (4.9 m) or less in length used or possessed on board. A rigid-frame roller trawl is a trawl that has a mouth formed by a rigid frame and a grid of rigid vertical bars; has rollers on the lower horizontal part of the frame to allow the trawl to roll over the bottom and any obstruction while being towed; and has no doors, boards, or similar devices attached to keep the mouth of the trawl open.

(vi) A trawl net is rigged for fishing if it is in the water, or if it is shackled, tied, or otherwise connected to a sled, door, or other device that spreads the net, or to a tow rope, cable, pole, or extension, either on board or attached to a shrimp trawler.

(2) *Certified BRDs*. The following BRDs are certified for use by shrimp trawlers in the respective areas of the Gulf EEZ specified in paragraphs (h)(2)(i) and (ii) of this section. Specifications of these certified BRDs are contained in appendix D to this part.

(i) *West of 85°30' W. long.*

- (A) Fisheye.
- (B) Gulf fisheye.
- (C) Jones-Davis.

(ii) *East of 85°30' W. long.*

- (A) Fisheye.
- (B) Gulf fisheye.
- (C) Jones-Davis.
- (D) Extended funnel.
- (E) Expanded mesh.

* * * * *

Note: The *Gulf Of Mexico Bycatch Reduction Device Testing Protocol Manual* and appendices H and I to the Manual are published as appendices to this document. These appendices will not appear in the Code of Federal Regulations.

Appendix—Gulf Of Mexico Bycatch Reduction Device Testing Protocol Manual

Definitions

Bycatch reduction criterion means—

(1) In the Gulf EEZ west of 85°30' W. long., that the BRD reduces the mortality of juvenile (age 0 and age 1) red snapper by a minimum of 44 percent from the average level of bycatch mortality ($F=2.06$) on these age classes during the years 1984–1989.

(2) In the Gulf EEZ east of 85°30' W. long., that the BRD reduces the bycatch of total finfish 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 the Gulf of Mexico.

Catch per unit of effort (CPUE) means the number or pounds of fish (e.g., red snapper) or shrimp taken during a pre-defined measure of fishing activity (e.g., per hour).

Certification phase is a required testing phase whereby an individual so authorized by the RA may conduct a discrete testing program, with a sample size adequate for statistical analysis (no less than 30 tows), to determine whether a BRD candidate meets the bycatch reduction criterion.

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

Control trawl means a trawl used during the certification testing that is not equipped with a BRD. The catch of this trawl is

compared to the catch of the experimental trawl.

Experimental trawl means the trawl used during the certification tests that is equipped with the BRD candidate.

Evaluation and oversight personnel includes scientists, observers, and other technical personnel who, by reason of their occupational or other experience, scientific expertise or training, are approved by the RA as qualified to evaluate and oversee the application and testing process. Scientists and other technical personnel will (1) review a BRD certification test application for its merit, and (2) critically review the scientific validity of the certification test results.

Observer means a person on the list maintained by the RA of individuals qualified to supervise and monitor a BRD certification test. Applicants may obtain the list of individuals qualified to be an observer from the RA. The observer chosen by the applicant may not have any current or prior financial relationship with the entity seeking BRD certification. For information on observer qualification criteria and the observer application process, see Appendix I.

Pre-certification phase is an optional testing phase whereby an individual, so authorized by the RA, can experiment with the design, construction, and configuration of a BRD and gather data.

Regional Administrator (RA) means the Southeast Regional Administrator, National Marine Fisheries Service, 9721 Executive Center Drive North, St. Petersburg, FL 33702, phone 727–570–5301.

Required measurements refers to the quantification of the dimensions and configuration of the trawl, the BRD candidate, the doors, the location of the BRD in relation to other parts of the trawl gear, and other quantifiable criteria 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 loss means the percent difference in average CPUE (e.g. kg/hr) between the amount of shrimp caught in the control trawl and the amount of shrimp caught in the experimental trawl.

Successful tow means that the control and experimental trawl were fished in accordance with the requirements set forth in the protocol and the terms and conditions of the letter of authorization; that no indication exists that problematic events, such as those listed in Appendix D–5, occurred during the tow which would impact or influence the fishing efficiency (catch) of one or both nets; and, in the Gulf EEZ west of 85°30' W. long., that the control or experimental net caught at least five red snapper during the tow.

Tow time means the total time (hours and minutes) an individual trawl was fished while being towed (i.e., the time between “dog-off” and start of haul back).

Trawl means a net and associated gear and rigging, as illustrated in Appendix B–5 of this manual, used to catch shrimp. The terms trawl and net are used interchangeably throughout the manual.

Tuning a net means adjusting the trawl and its components to minimize the differences in shrimp catch between the two nets that

will be used as the control and experimental trawls during the certification tests.

I. Introduction

Purpose of the Protocol

This protocol sets forth a standardized scientific procedure for the testing of a BRD candidate and for the evaluation of its ability to meet the bycatch reduction criterion. For a BRD candidate to be certified by the RA, the BRD candidate must meet the bycatch reduction criterion.

There are two phases to this procedure: An optional, but recommended, pre-certification phase and a required certification phase. An applicant is encouraged to take advantage of the pre-certification phase which allows experimentation with different BRD designs and configurations prior to certification phase testing (see below for details). The certification phase requires the applicant to conduct a discrete testing program, with a sample size of no less than 30 tows to determine whether the BRD candidate meets the bycatch reduction criterion. There is no cost to the applicant for the RA's administrative expenses such as preparing applications, issuing letters of authorization (LOAs), or evaluating test results or certifying BRDs. However, all other costs associated with either phase (e.g., field testing) are at the applicant's expense.

II. Pre-Certification Phase (Optional)

The pre-certification phase provides a mechanism whereby an individual can experiment with the design, construction, and configuration of a prototype BRD for up to 60 days to improve the design's effectiveness at reducing bycatch and to determine whether it is likely to meet the bycatch reduction criterion. To conduct pre-certification phase evaluations of a prototype BRD, the applicant must apply for, receive, and have on board the vessel during testing, an LOA from the RA.

A. Application

In order to obtain an LOA to conduct pre-certification phase evaluations of a prototype BRD, an individual must submit a complete application to the RA. A complete application consists of a completed application form, Application to Test A Bycatch Reduction Device in the Exclusive Economic Zone (the form is appended as Appendix J–1), and the following: (1) a brief statement of the purpose and goal of the activity for which the LOA is requested; (2) a statement of the scope, duration, dates, and location of the testing; (3) an 8.5-inch × 11-inch (21.6-cm × 27.9-cm) diagram drawn to scale of the BRD design; (4) an 8.5-inch × 11-inch (21.6-cm × 27.9-cm) diagram drawn to scale of the BRD and approved TED in the shrimp trawl; (5) a description of how the BRD is supposed to work; (6) a copy of the testing vessel's documentation or its state registration; and (7) a copy of the vessel's Federal shrimp permit.

An applicant requesting a pre-certification LOA of an unapproved hard or soft TED as a BRD must first apply for and obtain from the RA an experimental TED authorization pursuant to 50 CFR 223.207(e). The pre-certification phase LOA application must also append a copy of that authorization.

B. Issuance

The RA will review the application for completeness. If the application is incomplete, the RA will inform the applicant of the incompleteness and give the applicant an opportunity to cure. If incompleteness is not cured within 30 days, the application will be returned to the applicant. Upon receipt of a complete application, the RA will issue a LOA to conduct pre-certification phase testing upon the vessel specified in the application if the BRD design is substantially unlike BRD designs previously determined not to meet the current performance criterion, or if the design is substantially similar to BRD designs previously determined not to meet the current performance criteria and the application demonstrates that the design could meet the bycatch reduction criterion through design revision or upon retesting (*e.g.*, the application shows that statistical results could be improved upon retesting by such things as a larger sample size than that previously used). If a pre-certification phase LOA is denied, the RA will return the application to the applicant along with a letter of explanation including relevant recommendations as to curing the deficiencies which caused the denial. In arriving at a decision, the RA may consult with evaluation and oversight personnel. Issuance of a LOA allows the applicant to remove or disable the existing BRD in one net (to create a control net), and to place the prototype BRD in another net in lieu of a certified BRD (to create an experimental net). All other trawls under tow during the test must be equipped with a certified BRD. All trawls under tow during the pre-certification phase tests must be equipped with an approved TED unless operating under an authorization issued pursuant to 50 CFR 223.207(e). The LOA, and experimental TED authorization if applicable, must be on board the vessel while the pre-certification phase tests are being conducted. The term of the LOA will be 60 days.

C. Applicability

The pre-certification phase allows an individual to compare the catches of a control net to the catches of the experimental net (net equipped with the prototype BRD) to estimate the potential efficiency of the prototype BRD. If that individual subsequently applies for a certification phase LOA to test this design, he/she must include the results of the pre-certification phase evaluation with the certification application. The RA will use this information to determine if there is a reasonable scientific basis to conduct certification phase testing. Therefore, for each paired tow, the applicant should keep a written record of the weight of the shrimp catch, the weight of the finfish catch, and, if the testing is related to potential certification of the BRD for use in the Gulf EEZ west of 85°30' W. long., the total catch (in numbers) of red snapper of each net. The form contained in Appendix D should be used to record this information.

III. Certification Phase (Required)

In order to have a BRD certified, it must, under certification phase testing, be

consistent with the requirements of the testing protocol and LOA and be determined by the RA to meet the bycatch reduction criterion.

A. Application

To conduct certification phase testing, an individual must obtain a certification phase LOA. To obtain a certification phase LOA, an individual must submit a complete application to the RA. The complete test application consists of an Application to Test A Bycatch Reduction Device in the Exclusive Economic Zone (Appendix J-1), a copy of the vessel's current Coast Guard certificate of documentation or, if not documented, its state registration certificate; a copy of the vessel's Federal shrimp permit; the name of a qualified observer who will be on board the vessel during all certification test operations (*see* Appendix I); and a test plan showing: (1) An 8.5-inch × 11-inch (21.6-cm × 27.9-cm) diagram drawn to scale of the BRD candidate; (2) an 8.5-inch × 11-inch (21.6-cm × 27.9-cm) diagram drawn to scale of the BRD candidate and approved TED in the shrimp trawl; (3) a description of how the BRD candidate is supposed to work; (4) the results of previous pre-certification phase tests; (5) the location, time, and area where the certification phase tests would take place; and (6) the identity of the observer from the list of qualified individuals maintained by the RA and certification that the observer has no current or prior financial relationship with the applicant or entity seeking BRD certification.

An applicant requesting a certification phase LOA to test an unapproved hard or soft TED as a BRD must first apply for and obtain from the RA an experimental TED authorization pursuant to requirements of 50 CFR part 223.207(e). The application for the certification phase LOA also must append a copy of that authorization.

A.1 Special Circumstances Not Covered by Protocol

Because actual testing conditions may vary, it may be necessary to deviate from the prescribed protocol to determine if a BRD candidate meets the bycatch reduction criterion. Any foreseeable deviations from the protocol must be described and justified in the application, and if scientifically acceptable will be approved by the RA in the LOA. The RA may consult with evaluation personnel to determine whether the deviations are scientifically acceptable. Without the RA's approval in the LOA, results from any tests deviating from the protocol may be rejected as scientifically unacceptable, and could result in a denial of certification.

B. Observer Requirement

A qualified observer must be on board the vessel during all certification testing operations (*See* Appendix I). A list of qualified observers is available from the RA. Observers may include employees or individuals acting on behalf of NMFS, state fishery management agencies, universities, or private industry who meet the minimum requirements outlined in Appendix I, but the individual chosen may not have a current or prior financial relationship with the entity seeking BRD certification. It is the

responsibility of the applicant to ensure that a qualified observer is on board the vessel during the certification tests. Compensation to the observer, if necessary, must be paid by the applicant. 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, the owner and operator of any fishing vessel 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.*) is required to 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 scientific information as described in this protocol. 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.

C. Issuance

The RA will review the application for completeness. If the application is not complete, the RA will notify the applicant of the incompleteness and give the applicant an opportunity to cure. If the incompleteness is not cured within 30 days, the RA will return the application to the applicant. Upon receipt of a complete application, the RA will issue a LOA to conduct certification phase testing of the BRD candidate specified in the application if: (1) The test plan meets the requirements of the protocol; (2) the qualified observer named in the application has no current or prior financial relationship with the entity seeking BRD certification; (3) the BRD candidate design is substantially unlike BRD designs previously determined not to meet the current bycatch reduction criterion, or if the BRD candidate design is substantially similar to a BRD design previously determined not to meet the current bycatch reduction criterion, the application demonstrates that the design could meet the bycatch reduction criterion upon retesting (*e.g.*, the application shows that statistical results could be improved upon retesting by such things as a larger sample size than that previously used); and (4) the results of any pre-certification phase testing conducted indicate a reasonable scientific basis for further testing. The submission of pre-certification phase data to provide a scientific basis for the conduct of certification testing is not an absolute requirement for the issuance of a certification phase LOA. For example, a request to conduct certification phase testing of a minor modification of a certified BRD design would not need to include pre-certification phase data. Similarly, a request for certification phase testing of a previously failed design that under a different test plan (*e.g.*, larger sample sizes) could yield improved statistical results would likewise not need pre-certification phase data. However, pre-

certification phase data would normally be needed to establish a reasonable scientific basis for conducting certification phase testing (e.g., that the BRD could meet the certification criterion upon certification testing). In making these determinations, the RA may consult with evaluation and oversight personnel. If a LOA to conduct certification phase testing is denied, the RA will provide a letter of explanation to the applicant, together with relevant recommendations to address the deficiencies resulting in the denial. Issuance of a LOA allows the applicant to remove or disable the existing certified BRD in one net (to create a control net) and to place the BRD candidate in another net in lieu of a certified BRD (to create an experimental net). All other trawls under tow during the tests must be equipped with a BRD. All trawls under tow during the certification tests must be equipped with an approved TED unless operating under an authorization issued pursuant to 50 CFR 223.207(e). The LOA will specify the date when the applicant may begin to test the BRD candidate, the observer who will conduct the onboard data collection, and the vessel to be used during the test. The LOA and experimental TED authorization, if applicable, must be onboard the vessel while the certification phase tests are being conducted.

D. Testing Protocol

Certification testing must be conducted in areas and at times when commercial quantities of penaeid shrimp and finfish pertinent to the certification testing are available to the gear.

Certification testing of BRDs for use in the Gulf EEZ west of 85°30' W. long., must be conducted in areas and at times when juvenile (age 0 and age 1) red snapper are available to the gear. The best time for testing such a BRD candidate is July and August (July 1–August 31) due to the availability of red snapper on the penaeid shrimp commercial grounds located shoreward of the 100-fm (183-m) depth contour west of 85°30' W. long., the approximate longitude of Cape San Blas, FL. A certification test conducted for BRD use west of 85°30' W. long. may also be evaluated for BRD use east of 85°30' W. long. because the requirement that “finfish” were available to the gear would have been satisfied. However, it is preferable that certification testing for BRD use east of 85°30' W. long. be conducted in that same area.

Data for all certification testing should be recorded on the forms found in Appendices B through G, using the instructions provided for each form.

D.1. Tuning the Control and Experimental Trawls Prior to BRD Certification Trials

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 that of the control net. Therefore, it is imperative that the fishing efficiency of the two nets be as similar as possible prior to starting the certification tests. Catch data from no more than 20 tuning tows should be collected on nets that will be used as control and

experimental trawls to determine if there is a between-net or between-side (port vs. starboard) difference in fishing efficiency (bias). Any net/side bias will be reflected as differing catch rates of shrimp and total finfish between two nets that were towed simultaneously. During the tuning tows, these nets should be equipped with identical approved hard TEDs, without the BRD candidate being installed. Using this information, the applicant should identify and minimize the causes for any net/side bias, to the extent practicable, by making appropriate trawl gear adjustments. Form D-1 from Appendix D should be used to record the net/side bias data collected from these tows. These data will enable the RA to determine if any net/side bias existed in either trawl in assessing the BRD candidate's performance.

If the applicant is testing a soft TED as a BRD, it will be imperative that little or no position or side bias with the trawl nets be demonstrated before the certification trials are initiated. Once any net/side bias is corrected using identical approved hard TEDs in both nets, any alterations in catch rate following the substitution of the soft TED into the experimental net can then be attributed to that TED's influence.

D.2. Retention of Data Collected During Tuning Trials

All data collected during tuning trials and used for minimizing the net/side bias must be documented and submitted to the RA along with the testing data for evaluation. Additional information on tuning shrimp trawls is available from the Harvesting Technology Branch, Mississippi Laboratories, Pascagoula Facility, 3209 Frederic Street, Pascagoula, Mississippi 39568–1207; phone (601) 762–4591.

D.3. Certification Tests

The certification tests must follow the testing protocol where paired identical trawls are towed by a trawler in acceptable testing areas (see introductory paragraph of section D). For tests of BRD candidates that do not encompass testing a hard or soft TED as the BRD candidate, identical approved hard TEDs are required in each trawl and one of the trawls must be equipped with a functioning BRD candidate. To test a hard or soft TED as a BRD candidate, the control net must be equipped with an approved hard TED, and the experimental net must be equipped with the TED that is acting as the BRD candidate.

A minimum sample size of 30 successful tows per test is required. Additional tows may be necessary for sufficient statistical evidence, especially if catch of the species upon which the bycatch reduction criterion is based (e.g., red snapper) is highly variable. A gear change (i.e., changing nets, doors, or rigging) during a test constitutes the beginning of a new test. All certification tows must be no less than 2 hours and no more than 8 hours in duration. The applicant may select any tow time within this range. Once a tow time is selected, no tow time during a series of tests may vary by more than 10 percent.

To avoid potential biases associated with trynet catches, the outside trawls on quad-

rigged vessels must be used as the control and experimental trawls, and for double-rigged vessels, the use of a trynet is prohibited.

The functioning BRD candidate must be switched every 4–6 tows (approximately every 2 days) between the two trawl nets. This process must be repeated, ensuring that an equal number of successful tows are made with the BRD candidate employed in both the port and starboard nets, until a minimum of 30 successful tows have been completed. For BRDs incorporated in the codend of the net, this process can be facilitated by the use of zippers, or other quick-connection devices, to more easily move the codends between nets; however, simply switching the entire net will not satisfy this requirement because doing so would not resolve net bias. Such quick-connection devices must be attached behind the TED. The TED must not be moved unless the BRD is actually incorporated into the TED portion of the net. Where a hard TED is being tested as a BRD candidate, that portion of the net including the TEDs must be moved, and again, quick-connection devices located in front of the TEDs may be used.

A different procedure must be followed to conduct tests of an approved or experimental soft TED as a BRD candidate. To conduct these tests, the applicant must first demonstrate that little or no side/net bias exists between the two nets to be used in the test (see D.1.). Removing the soft TED from one trawl net and installing it in the other net is not required. For these tests, the control (with a hard TED) and experimental (with the soft TED) nets must be disconnected from the doors and their positions switched from one side of the vessel to the other. The first switch must be made after successfully completing approximately 25 percent of the total number of intended tows. This process must be repeated, at 25 percent intervals, until at least 30 successful tows are completed (i.e., every 7–8 successful tows).

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. First, the observer must weigh the total catch of each test net (control and experimental nets). 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 that net, and recorded as a “select” sample (see Appendix E). 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 that net.

Data must be collected on Form E-1 for the following species or general groups found in each of the samples: (1) Penaeid shrimp—brown, white and pink shrimp from each sample must be separated by species, counted and weighed; in addition, the weight for those penaeid shrimp species caught in each test net, but that were not included in the sample, must be recorded so that a total

shrimp catch for each net (by weight) is documented; (2) crustacea—mantis shrimp, sugar shrimp, seabobs, crabs, lobsters and other similar species—must be weighed as an aggregate; (3) other invertebrates—squid, jellyfish, starfish, sea pansies, shells, and other similar species—must be weighed as an aggregate; (4) each finfish species or species group listed in Appendix E must be weighed and counted; (5) other finfish—including all other fish not listed on the above-referenced form must be weighed as an aggregate; and (6) debris (mud, rocks, and related matter) must be weighed as an aggregate.

“Select” finfish species (page E-3 of this Manual) (*i.e.*, particular species to be quantified from the total catch and not just the sample) are red snapper, Spanish mackerel, and king mackerel. All individuals of the “Select” species from each test net (control and experimental net) must be collected, counted, weighed, and recorded. Lengths for as many as 30 individuals of each select species must be recorded on Form F-1. These data are necessary to robustly determine age-class composition, and specific mortality reductions attributable to each of the age classes.

Applicants must also collect qualitative information, using Form G-1, on the condition (alive or dead) and fate (floated off, swam down, eaten) of the discards whenever possible, and note the presence of any predator species such as sharks, porpoises, and jacks that are observed. The condition and fate of the bycatch is important for determining the fishing mortality and waste associated with this discard.

E. Reports

A report on the BRD candidate test results must be submitted for certification. The report must contain a comprehensive description of the tests, copies of all completed data forms used during the certification trials, and photographs, drawings, and similar material describing the BRD. The captain or owner must sign and submit the cover form (Appendix A). The report must include a description and explanation of any unforeseen deviations from the protocol which occurred during the test. 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, including 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 RA also will determine whether the applicant adhered to the prescribed testing protocol, and whether the BRD candidate meets the bycatch reduction criterion. In making a decision, the RA may consult with evaluation and oversight personnel.

The RA will determine the effectiveness of the BRD candidate. For the western Gulf, the statistical protocol in Appendix H provides the methodology that the RA will use to

estimate the reduction in bycatch mortality on age-1 juvenile red snapper if the test is conducted during the primary period (July or August). Tests conducted during other parts of the year will, most likely, catch both age 0 and age 1 red snapper. To evaluate the overall reduction in mortality rate of these juvenile age classes attributable to the BRD candidate will require alternative extensive analysis, involving use of the Goodyear (1995) stock assessment model to assign mortality reductions by specific size classes within the age 0 and age 1 red snapper catch.

For the eastern Gulf the RA will determine the effectiveness of the BRD candidate to, on average, reduce the bycatch of finfish by 30 percent by weight compared to the bycatch of finfish in the designated control net. To evaluate the efficiency of the BRD candidate, the RA will rely on the Southeast Fisheries Science Center to provide statistically valid mean reduction rates in finfish bycatch attributable to the BRD candidate.

Following a favorable determination of these criteria, the RA will certify the BRD (with any appropriate conditions as indicated by test results) and publish the certification in the **Federal Register**.

IV. 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; thereafter, the applicant must re-apply. If the RA subsequently certifies the BRD, the RA will announce the certification in the **Federal Register**.

V. Decertification of BRDs

The RA will decertify a BRD whenever it is determined that it no longer satisfies the bycatch reduction criterion. Before determining whether to decertify a BRD, the Council and public will be advised and 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.

VI. 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.

References

- Gulf of Mexico Fishery Management Council, 1997. Amendment 9 to the Fishery Amendment 9 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico, Including a Final Supplemental Environmental Impact Statement and Regulatory Impact Review and Social Impact Assessment. Gulf of Mexico Fishery Management Council, 3018 U.S. Highway 301 North, Suite 1000, Tampa, FL 33619, 153 p.
- Goodyear, C. P.; 1995. Red snappers in U.S. waters of the Gulf of Mexico. National Marine Fisheries Service, Southeast Fisheries Science Center, Miami Laboratory, Miami, FL. Laboratory Report, Contribution # MIA 95/96-05, 171 p.
- Hoese, H. Dickson and Richard H. Moore; 1977. Fishes of the Gulf of Mexico, Texas, Louisiana, and Adjacent Waters. Texas A&M University Press. College Station, TX, 327 p.
- SAFMC; 1997. Final Bycatch Reduction Device Testing Protocol Manual. South

Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407, 34 p.

Ward, John M., Teofilo Ozuma and Wade Griffen; 1995 Cost and Revenues in the Gulf of Mexico Shrimp Fishery. NOAA Tech. Mem. NMFS-SEFSC-371, 76 p.

Appendix H—Statistical Procedures for Analyzing BRD Evaluation Data Relative to the Western Gulf Criterion

NMFS will calculate the reduction in bycatch mortality (F) based on data gathered during the testing. Both age 0 and age 1 red snapper, ranging in length from 10 mm to 200 mm, occur frequently in shrimp trawls. During the July/August (July 1-August 31) period, the most recently spawned year class of fish have not fully recruited to the shrimp grounds; thus the catch is represented by a relatively narrow length range of individuals, all of which are considered to be age 1. The numerical reduction in catch-per-unit-effort (CPUE) of this specific age class is expected

to be a good predictor of fishing mortality (F) reduction, although the size composition data will be checked for any particular test. The analysis of the data collected under this testing protocol will be based on a modified paired t-test. Because of the varying age and size composition of the red snapper catch taken at other times of the year, more detailed analyses through use of a stock assessment model (Goodyear 1995) incorporating the size-specific reduction performance of the device and the seasonal progression of F must be conducted to determine if the BRD candidate will meet the bycatch reduction criterion. Based on the time of the year that the test is conducted, NMFS will utilize the appropriate technique to assess the performance of the BRD candidate as a service for the BRD sponsor.

All experimental tows must be conducted in conformance with the requirements of the BRD testing protocol. Data collected from no more than 20 tuning tows of the control and experimental trawls (without the BRD candidate installed) must be included to

determine if any net bias exists prior to beginning certification phase testing. To further reduce problems caused by no or low catches, a tow being considered for certification in the western Gulf must contain a minimum catch of 5 red snapper in at least one trawl for inclusion in the analysis. Once conducted, the tow and the corresponding collected data become the permanent part of the record and cannot be discarded. Only the successful tows will count toward the minimum required; however, information from other tows, if appropriate, will be used in the analysis.

Statistical Approach for Calculation of Bycatch Mortality (F) Reduction for Devices Tested in July/August

The statistical approach assumes that the BRD to be tested does not achieve the minimum required reduction rate, (R_o). The hypotheses to be tested are as follows:

H_o : BRD does not achieve the minimum required reduction rate,

$$R = \frac{\mu_c - \mu_b}{\mu_c} \leq R_o, \text{ i.e. } (1 - R_o) \mu_c - \mu_b \leq 0.$$

H_a : BRD does achieve the minimum required reduction rate,

$$R = \frac{\mu_c - \mu_b}{\mu_c} > R_o, \text{ i.e. } (1 - R_o) \mu_c - \mu_b > 0.$$

R denotes the actual reduction rate (unknown), R_o denotes the minimum required reduction rate, μ_c denotes the actual mean CPUE with the control, and μ_b denotes the actual mean CPUE with the BRD.

With any hypothesis testing, there are two risks involved known as type I error (rejection of true H_o) and type II error (acceptance of false H_o). The probabilities of committing these errors are denoted by alpha and beta, respectively. The probabilities are inversely related to each other. As alpha increases, beta decreases and vice versa. An alpha of 10 percent will be used. The two hypotheses are tested using a "modified" paired t-test.

The CPUE values for the control and BRD trawls for each successful tow is computed first and is used in the following computations:

$$t = \frac{(1 - R_o) \bar{x} - \bar{y}}{s_{d0} / \sqrt{n}}$$

Where:

$\bar{x}$ the observed mean CPUE for the control,
 $\bar{y}$ is the observed mean CPUE for the BRD,

s_{d0} is the standard deviation of $d_i =$

$\{(1 - R_o)x_i - Y_i\}$ values,

n is the number of successful tows used in the analysis, and
 $i = 1, 2, \dots, n$.

The H_o will be rejected if $t > t_{\alpha, n-1}$ where $t_{\alpha, n-1}$ denotes the $(1 - \alpha)100$ th percentile score in the t distribution with $(n - 1)$ degrees of freedom.

A $(1 - \alpha)$ 100-percent two-sided confidence interval on R consists of all values of R_o for which $H_o: R = R_o$ (versus $H_a: R \neq R_o$) cannot be rejected at the level of significance of alpha. One-sided confidence intervals on R could also be computed appropriately.

Appendix I—Qualifications of Observer

An observer:

1. 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 Development Foundation 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.

2. Must not have a current or prior financial relationship with the entity seeking BRD certification. In addition, any individual:

1. Applying to serve as an observer must provide 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.

2. Wishing to serve as an observer should submit a resume and supporting documents to the Director, Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149. The Center will use this information to determine which names will 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.

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