UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

To All Interested Government Agencies and Public Groups:

Under the National Environmental Policy Act (NEPA), an environmental review has been performed on the following action.

TITLE: Amendment 20A to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region (Amendment 20A)
(RIN 0648-AY74)

LOCATION: Exclusive economic zone off the South Atlantic coast

SUMMARY: The South Atlantic Fishery Management Council (Council) submitted the subject amendment for review and implementation by the Secretary of Commerce on December 19, 2011. Amendment 20A addresses the commercial sector of the wreckfish component of the snapper-grouper fishery, which is managed under an individual transferable quota program. The current total allowable catch for wreckfish for the commercial sector is 2 million pounds. In November 2011, the Council's Scientific and Statistical Committee (SSC) reviewed new data analysis regarding wreckfish, and revised their acceptable biological catch (ABC) recommendation from 250,000 pounds whole weight (ww) to 235,000 pounds ww. The Council reviewed the recommended ABC in December 2011, and passed a motion to concur with the process of adjusting the wreckfish annual catch limit (ACL) to reflect the revised ABC. NOAA Fisheries Service approved the Comprehensive ACL Amendment on January 18, 2012. This revised ACL for wreckfish will be implemented through the final rule for the Comprehensive ACL Amendment on April 16, 2012. Furthermore, 95 percent of the ACL (223,250 pounds ww) will be allocated to the commercial sector for wreckfish. With this reduction in the commercial sector's allowable catch, the annual allocation each wreckfish shareholder will receive under the revised ACL will also be reduced by approximately 89 percent. Thus, active shareholders, captains, crew, and dealers who depend on a certain level of wreckfish production to maintain their operations will be particularly affected by the reduction in the amount of wreckfish the sector may harvest.

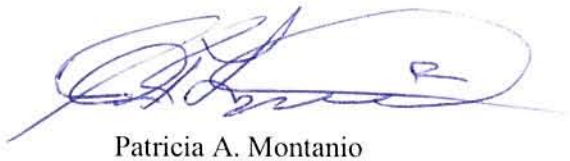
The actions contained in Amendment 20A would: (1) Define and revoke inactive wreckfish shares; (2) redistribute revoked shares to active shareholders; (3) define a cap on the number of shares one entity may own; and (4) establish an appeals process for determinations of share status and redistribution. The intended effects of Amendment 20A are to promote the management provisions of the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region and to allow commercial fishermen with wreckfish shares to maximize harvest potential within the constraints of the ACL.

RESPONSIBLE
OFFICIAL: Roy E. Crabtree, Ph.D.
Regional Administrator
National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
727-824-5301

The environmental review process led us to conclude that this action will not have a significant impact on the environment. Therefore, an environmental impact statement was not prepared. A copy of the finding of no significant impact (FONSI), including the environmental assessment (EA), can be found at the NOAA Fisheries Service Web site at: http://sero.nmfs.noaa.gov/sf/SGAmendment20A.htm.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist us in preparing future NEPA documents. Please submit any written comments to the Responsible Official named above.

Sincerely,



Patricia A. Montanio
NEPA Coordinator

Enclosure

# Amendment 20A
# to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

**with Environmental Assessment, Regulatory Flexibility Act Analysis, Regulatory Impact Review, and Fishery Impact Statement**

December 2011

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*This is a publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award No. NA05NMF4410004*

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ABC | Acceptable Biological Catch |
| ACCSP | Atlantic Coastal Cooperative Statistics Program |
| ACL | Annual Catch Limits |
| APA | Administrative Procedures Act |
| ASMFC | Atlantic States Marine Fisheries Commission |
| CEA | Cumulative Effects Analysis |
| CEQ | Council on Environmental Quality |
| CPUE | Catch per unit effort |
| CZMA | Coastal Zone Management Act |
| DBSRA | Depletion-Based Stock Reduction Analysis |
| DCAC | Depletion-Corrected Average Catch |
| EA | Environmental Assessment |
| EEZ | Exclusive Economic Zone |
| EFH | Essential Fish Habitat |
| EFH HAPC | Essential Fish Habitat - Habitat Area of Particular Concern |
| ESA | Endangered Species Act of 1973 |
| FMP | Fishery management plan |
| FMU | Fishery management unit |
| FONSI | Finding of No Significant Impact |
| GMFMC | Gulf of Mexico Fishery Management Council |
| IFQ | Individual fishing quota |
| ITQ | Individual transferable quota |
| MARMAP | Marine Resources Monitoring Assessment and Prediction Program |
| MBTA | Migratory Bird Treaty Act |
| MMPA | Marine Mammal Protection Act of 1972 |
| MSA | Magnuson-Stevens Fishery Conservation and Management Act |
| NEPA | National Environmental Policy Act of 1969 |
| NMFS | National Marine Fisheries Service |
| NMSA | National Marine Sanctuary Act |
| NOAA | National Oceanic and Atmospheric Administration |
| OY | Optimum Yield |
| RFA | Regulatory Flexibility Act |
| RIR | Regulatory Impact Review |
| SAFE Report | Stock Assessment and Fishery Evaluation Report |
| SAMFC | South Atlantic Fishery Management Council |
| SEDAR | Southeast Data Assessment and Review |
| SEFSC | Southeast Fisheries Science Center |
| SERO | Southeast Regional Office |
| SFA | Sustainable Fisheries Act |
| SSC | Scientific and Statistical Committee |
| TAC | Total allowable catch |
| USCG | U.S. Coast Guard |

**Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment, Regulatory Flexibility Act Analysis, Regulatory Impact Review, and Fishery Impact Statement**

| | |
|---|---|
| **Proposed actions:** | Define and revert inactive wreckfish shares. Redistribute reverted shares to remaining shareholders. Establish a cap on the number of shares a single entity may own. Establish an appeals process for redistribution of shares. |
| **Lead agency**: | FMP Amendment - South Atlantic Fishery Management Council<br>EA - NOAA Fisheries Service |
| **For further information contact:** | Robert K. Mahood<br>4055 Faber Place Dr, Suite 201<br>North Charleston, SC 29405<br>843-571-4366<br>843-769-4520 (fax)<br>866-SAFMC-10<br>Robert.Mahood@safmc.net<br><br>Roy E. Crabtree, Ph.D.<br>NOAA Fisheries Service, Southeast Region<br>263 13th Avenue South<br>St. Petersburg, FL 33701<br>727-824-5301<br>727-824-5320 (fax)<br>Roy.Crabtree@noaa.gov |
| **Scoping meetings held:** | January 26-27, 2009, and February 3-5, 2009 |
| **Public hearings held**: | November 14-17, 2011, and December 6, 2011 |

## ABSTRACT

Amendment 20A to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region consists of regulatory actions that focus on modifications to the wreckfish individual transferable quota (ITQ) program. The wreckfish stock is not undergoing overfishing and the overfished status is unknown. The Comprehensive Annual Catch Limit (ACL) Amendment proposes an ACL for wreckfish of 250,000 pounds whole weight (ww). The South Atlantic Council subsequently revised this value because of a revised allowable catch (ABC) recommendation they received from their Scientific and Statistical Committee. The revised ACL of 235,000 pounds (ww) was proposed to the public via an amended proposed rule. If the Comprehensive ACL Amendment is approved, 95% of the ACL would be allocated to the commercial sector. The purpose of Amendment 20A is to identify and revert inactive wreckfish shares for redistribution among remaining shareholders and establish a share cap and an appeals process. The primary actions are necessary to achieve the optimum yield from the commercial wreckfish sector in accordance with National Standard 1 of the Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), which result in a more efficient use of the species as supported by National Standard 5. Establishment of a share cap is necessary to comply with requirements for limited access privilege programs under Section 303A of the Magnuson-Stevens Act, and establishment of an appeals process, with a percentage of shares as a set-aside, will allow for shareholders to dispute share reversion or redistribution, if necessary. The intended effects of Amendment 20A is to promote the management provisions of the Snapper Grouper FMP and to allow commercial fishermen with wreckfish shares to maximize harvest potential within the constraints of the ACL, if approved.

The Environmental Assessment analyzes the effects of implementing the proposed actions listed above.

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ACTION 1: Define and revert inactive wreckfish shares.

**Preferred Alternative 3:** Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings between April 16, 2006, and January 14, 2011, and revert inactive shares for redistribution among active shareholders.

ACTION 2: Redistribute reverted shares to remaining shareholders.

**Preferred Alternative 3:** Redistribute reverted shares to remaining shareholders based on landings history.

**Preferred Option b**: total wreckfish landings from April 16, 2006, through January 14, 2011.

ACTION 3: Establish a share cap.

**Preferred Alternative 4:** Establish a share cap as 49% of the total shares.

ACTION 4: Establish an appeals process.

**Preferred Alternative 2:** A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The Regional Administrator will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Preferred Sub-alternative 2b:** 5% of wreckfish shares will be set aside for appeals.

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# 1 Introduction

## 1.1 Background

Management of the federal snapper grouper fishery located off the South Atlantic in the 3-200 nautical mile (nm) U.S. Exclusive Economic Zone (EEZ) is conducted under the Fishery Management Plan (FMP) for the Snapper Grouper fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 1983) (**Figure 1-1**). The FMP and its amendments are developed under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), other applicable federal laws, and executive orders (E.O.s) and affect the management of 73 species (**Table 1-1**). The purpose of the FMP, as amended, is to manage the snapper grouper fishery for optimum yield (OY) and to allocate harvest among user groups while preventing overfishing and conserving marine resources.

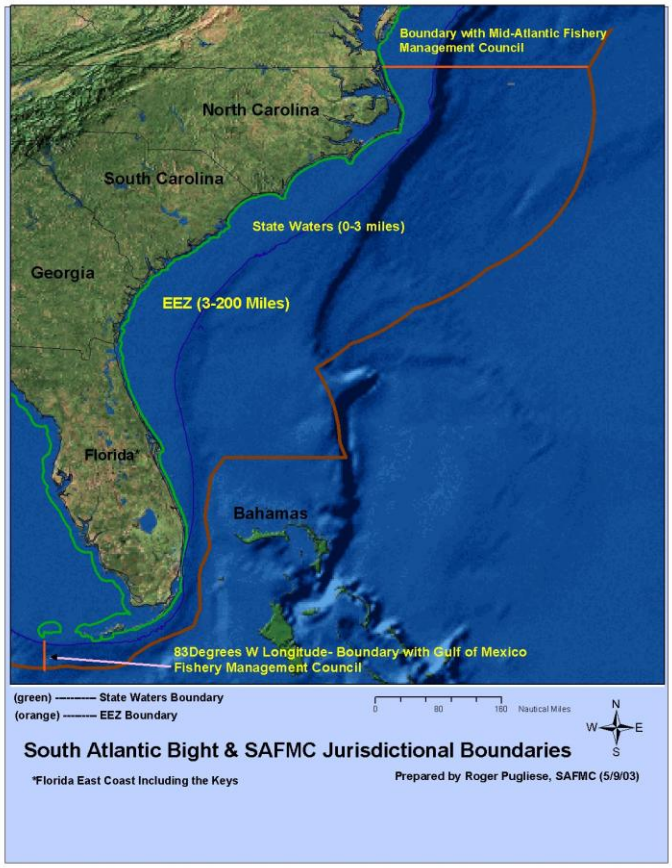


**Figure 1-1.** Jurisdictional boundaries of the South Atlantic Fishery Management Council.

**Table 1-1**. The South Atlantic Snapper Grouper complex.

Almaco jack, *Seriola rivoliana*
Atlantic spadefish, *Chaetodipterus faber*
Banded rudderfish, *Seriola zonata*
Bank sea bass, *Centropristis ocyurus*
Bar jack, *Carangoides ruber*
Black grouper, *Mycteroperca bonaci*
Black margate, *Anisotremus surinamensis*
Black sea bass, *Centropristis striata*
Black snapper, *Apsilus dentatus*
Blackfin snapper, *Lutjanus buccanella*
Blue runner, *Caranx crysos*
Blueline tilefish, *Caulolatilus microps*
Bluestriped grunt, *Haemulon sciurus*
Coney, *Cephalopholis fulva*
Cottonwick, *Haemulon melanurum*
Crevalle jack, *Caranx hippos*
Cubera snapper, *Lutjanus cyanopterus*
Dog snapper, *Lutjanus jocu*
French grunt, *Haemulon flavolineatum*
Gag, *Mycteroperca microlepis*
Golden tilefish, *Lopholatilus chamaeleonticeps*
Goliath grouper, *Epinephelus itajara*
Grass porgy, *Calamus arctifrons*
Gray (mangrove) snapper, *Lutjanus griseus*
Gray triggerfish, *Balistes capriscus*
Graysby, *Cephalopholis cruentata*
Greater amberjack, *Seriola dumerili*
Hogfish, *Lachnolaimus maximus*
Jolthead porgy, *Calamus bajonado*
Knobbed porgy, *Calamus nodosus*
Lane snapper, *Lutjanus synagris*
Lesser amberjack, *Seriola fasciata*
Longspine porgy, *Stenotomus caprinus*
Mahogany snapper, *Lutjanus mahogoni*
Margate, *Haemulon album*
Misty grouper, *Epinephelus mystacinus*
Mutton snapper, *Lutjanus analis*
Nassau grouper, *Epinephelus striatus*
Ocean triggerfish, *Canthidermis sufflamen*
Porkfish, *Anisotremus virginicus*
Puddingwife, *Halichoeres radiatus*
Queen snapper, *Etelis oculatus*
Queen triggerfish, *Balistes vetula*
Red grouper, *Epinephelus morio*
Red hind, *Epinephelus guttatus*
Red porgy, *Pagrus pagrus*
Red snapper, *Lutjanus campechanus*
Rock hind, *Epinephelus adscensionis*
Rock Sea Bass, *Centropristis philadelphica*
Sailors choice, *Haemulon parra*
Sand tilefish, *Malacanthus plumieri*
Saucereye porgy, *Calamus calamus*
Scamp, *Mycteroperca phenax*
Schoolmaster, *Lutjanus apodus*
Scup, *Stenotomus chrysops*
Sheepshead, *Archosargus probatocephalus*
Silk snapper, *Lutjanus vivanus*
Smallmouth grunt, *Haemulon chrysargyreum*
Snowy grouper, *Epinephelus niveatus*
Spanish grunt, *Haemulon macrostomum*
Speckled hind, *Epinephelus drummondhayi*
Tiger grouper, *Mycteroperca tigris*
Tomtate, *Haemulon aurolineatum*
Yellow jack, *Carangoides bartholomaei*
Yellowedge grouper, *Epinephelus flavolimbatus*
Yellowfin grouper, *Mycteroperca venenosa*
Yellowmouth grouper, *Mycteroperca interstitialis*
Yellowtail snapper, *Ocyurus chrysurus*
Vermilion snapper, *Rhomboplites aurorubens*
Warsaw grouper, *Epinephelus nigritus*
White grunt, *Haemulon plumierii*
Whitebone porgy, *Calamus leucosteus*
Wreckfish, *Polyprion americanus*

When the wreckfish individual transferable quota (ITQ) program was implemented in 1992, the total allowable catch was set at 2 million pounds whole weight (ww). The wreckfish portion of the snapper grouper fishery has changed significantly over the last two decades. For many years, there were 25 shareholders but less than a handful of active participants (i.e., shareholders with commercial wreckfish landings). From fishing years 2001/2002 through 2008/2009, landings averaged around 172,000 pounds (ww), but increased to more than 216,000 and 257,000 pounds (ww) in the past two fishing years (2009/2010 and 2010/2011), respectively. Commercial landings in 2010/2011 were the highest since the 1996/1997 fishing year. The number of permitted fishermen landing wreckfish has also increased slightly in the last two fishing seasons, though the number of shareholders has decreased to 20. While the effort of active shareholders account for all of the landings, their ITQ shares represent about 70% of the total shares.

Based on the recommendation for the allowable biological catch (ABC) from the Scientific and Statistical Committee (SSC), the proposed 2012 annual catch limit (ACL) was 250,000 pounds (ww) under the Comprehensive ACL Amendment (SAFMC 2011). The South Atlantic Fishery Management Council (South Atlantic Council) approved the Comprehensive ACL Amendment for final review in September 2011. In November 2011, NOAA Fisheries Service Southeast Regional Office (SERO) staff presented a depletion-corrected average catch analysis (DCAC) of the wreckfish population to the SSC (**Appendix G**). A subcommittee of the SSC was formed during the meeting to review the analysis with SERO staff and determine the appropriateness of the current runs as well as evaluate the need for additional runs. As a result, the subcommittee produced a report which included three additional runs (**Appendix H**), and concluded that two alternative analyses were equally valid, and had complementary strengths and weaknesses. Following the subcommittee's conclusions, the SSC recommended an ABC value for wreckfish of 235,000 pounds (ww) by averaging the two values.

The South Atlantic Council reviewed the recommended ABC value in December 2011 and passed a motion to concur with the process of adjusting the wreckfish ACL to reflect the ABC value of 235,000 pounds (ww). If approved, the 2012 commercial ACL would be 223,250 pounds (ww) because the recreational sector would be allocated 5% of the wreckfish ACL under actions proposed in the Comprehensive ACL Amendment. With this significant reduction in the commercial sector's allocation, the annual allocation each shareholder would receive under the proposed ACL would also be reduced by approximately 89%. Thus, active shareholders, captains, crew, and dealers who depend on a certain level of wreckfish production to maintain their operations would be particularly affected by the proposed reduction in the amount of wreckfish the sector may harvest.

## 1.2 Purpose and Need

The purpose of Amendment 20A is to identify and revert inactive wreckfish shares for redistribution among remaining shareholders and establish a share cap and appeals process. The primary actions are necessary to achieve the optimum yield from the commercial wreckfish sector in accordance with National Standard 1 of the Magnuson-Stevens Act, which results in a more efficient use of the species as supported by National Standard 5. Establishment of a share cap is necessary to comply with requirements for limited access privilege programs under Section 303A of the Magnuson-Stevens Act, and establishment of

an appeals process, with a percentage of shares as a set-aside, will allow shareholders to dispute share reversion or redistribution, if necessary. The intended effects of Amendment 20A is to promote the management provisions of the Snapper Grouper FMP and to allow commercial fishermen with wreckfish shares to maximize harvest potential within the constraints of the ACL (223,250 pounds (ww)), if approved.

## 1.3 Management Objectives

Objectives of the Snapper Grouper FMP, as modified by Amendment 8 to the Snapper Grouper FMP (SAFMC 1996) and Amendment 17A to the Snapper Grouper FMP (SAFMC 2010) are shown below:

- Prevent overfishing.
- Collect necessary data.
- Promote orderly utilization of the resource.
- Provide for a flexible management system.
- Minimize habitat damage.
- Promote public compliance and enforcement.
- Mechanism to vest participants.
- Promote stability and facilitate long-run planning.
- Create market-driven harvest pace and increase product continuity.
- Minimize gear and area conflicts among fishermen.
- Decrease incentives for overcapitalization.
- Prevent continual dissipation of returns from fishing through open access.
- Evaluate and minimize localized depletion.
- End overfishing of snapper grouper stocks undergoing overfishing.
- Rebuild stocks declared overfished.

## 1.4 History of Management

The wreckfish fishery is managed as part of the South Atlantic snapper grouper fishery. The Snapper Grouper FMP was implemented in 1983 and wreckfish was added to the fishery management unit (FMU) in 1990 under an emergency rule, and then in Amendment 3 (SAFMC 1990) under a comprehensive management program for wreckfish. In 1992, Amendment 5 to the Snapper Grouper FMP (SAFMC 1991) implemented the ITQ program for the commercial wreckfish sector of the snapper grouper fishery. If approved, the Comprehensive ACL Amendment (SAFMC 2011) would implement a commercial wreckfish ACL of 223,250 pounds (ww) and a recreational wreckfish ACL of 11,750 pounds (ww).

Under the Magnuson-Stevens Act, the South Atlantic Council is required to specify overfishing limits (OFLs), ACLs, and accountability measures (AMs). As part of this process, the Scientific and Statistical Committee (SSC) recommends an allowable biological catch (ABC) for a stock to the South Atlantic Council, which is used to specify the ACL. The South Atlantic Council's SSC met in April 2010 to discuss ABC Control Rules for unassessed species, including wreckfish. After extensive discussion of wreckfish issues, the SSC established that ABC was unknown and that the South Atlantic Council should consider an ACL that did not exceed 200,000 pounds. The SSC discussed setting an ABC for wreckfish during their August 2010 meeting. The SSC agreed the 2001 assessment

(Vaughan et al. 2001) was too old to be used and did not apply to current landings and conditions. The SSC concluded that a control rule based on catch-only data should be used even though a stock assessment exists for wreckfish (see Vaughan et al. 2001).

The SSC reasoned that, in the absence of a current assessment, using a catch-only scenario at "moderate" historical catch would place the stock in jeopardy of undergoing overfishing if catches were to increase. Therefore, in September 2010 the SSC recommended setting the ABC at the average historical catch (1997-recent) of 250,000 pounds (ww). Due to confidentially of data, a more precise level could not be set. This level of harvest would cap the fishery at its current level and would be consistent with the "moderate" level of historical catch in Methot's table for catch-only scenarios. See the Comprehensive ACL Amendment (SAFMC 2011) for a detailed description of the process used to set the wreckfish ACL of 250,000 pounds (ww).

As described in **Section 1.1**, based on a new analysis, the SSC recommended an ABC of 235,000 pounds (ww) in November 2011. The South Atlantic Council concurred with the SSC recommendation and amended the proposed ACL based on the revised ABC value for the wreckfish ABC in December 2011. See the amended proposed rule for a detailed description of the process used to set the 235,000 pounds (ww) wreckfish ACL, and the Comprehensive ACL Amendment (SAFMC 2011) for a description of the ABC control rule.

**Table 1-2** includes a history of management that affected the wreckfish portion of the snapper grouper fishery. For a complete history of management for the entire snapper grouper fishery, see the Comprehensive ACL Amendment (SAFMC 2011).

**Table 1-2**. History of management for the wreckfish fishery of the South Atlantic Region.

| Document | Date Effective | Proposed Rule Final Rule | Major Actions for Wreckfish |
|---|---|---|---|
| Snapper Grouper FMP | 8/31/83 | PR: 48 FR 26843<br>FR: 48 FR 39463 | - Provisions to prevent growth overfishing in thirteen species in the snapper grouper complex.<br>- Established a procedure for preventing overfishing in other species.<br>- Harvest and gear limitations. |
| Notice of Control Date | 9/24/90 | 55 FR 39039 | - Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed. |
| Emergency Rule | 8/3/90 | 55 FR 32257 | - Added wreckfish to the FMU.<br>- Wreckfish fishing year beginning 4/16/90.<br>- Wreckfish commercial quota of 2 million pounds.<br>- Wreckfish commercial trip limit of 10,000 pounds per trip. |

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| Fishery Closure Notice | 8/8/90 | 55 FR 32635 | - Wreckfish fishery closed because the commercial quota of 2 million pounds was reached. |
| Emergency Rule Extension | 11/1/90 | 55 FR 40181 | - Extended the measures implemented via emergency rule on 8/3/90. |
| Amendment 3 | 1/31/91 | PR: 55 FR 39023<br>FR: 56 FR 2443 | - Added wreckfish to the FMU.<br>- Defined optimum yield and overfishing.<br>- Required permit to fish for, land or sell wreckfish.<br>- Required catch and effort reports from selected, permitted vessels.<br>- Established control date of 03/28/90.<br>- Established a fishing year for wreckfish starting April 16 of each calendar year.<br>- Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure.<br>- Established 10,000 pound trip limit.<br>- Established a spawning season closure for wreckfish from January 15 to April 15.<br>- Provided for annual adjustments of wreckfish management measures. |
| Amendment 4 | 1/1/92 | PR: 56 FR 29922<br>FR: 56 FR 56016 | - Defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991).)<br>- Required permits (commercial & for-hire) and specified data collection regulations.<br>- Established an assessment group and annual adjustment procedure (framework).) |
| Amendment 5 | 4/6/92 | PR: 56 FR 57302<br>FR: 57 FR 7886 | - Established limited entry system for Wreckfish with ITQs.<br>- Required dealer to have permit; rescinded 10,000 lb. trip limit.<br>- Implemented off-loading requirements.<br>- Established procedure for initial distribution of percentage shares of TAC. |

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| Amendment 8 | 8/17/98 | PR: 63 FR 1813<br>FR: 63 FR 38298 | - Established program to limit initial eligibility for snapper grouper fishery.<br>- Granted transferable snapper grouper permit with unlimited landings if vessel landed ≥ 1,000 pounds of snapper grouper species in any of the years.<br>- Granted non-transferable permit with 225 lb. trip limit to all other vessels that had at least one landing of snapper grouper in any of the years.<br>- Modified problems, objectives, OY, and overfishing definitions. |
| Emergency Action | 9/3/99 | 64 FR 48326 | -Reopened the Amendment 8 permit application process. |
| Amendment 10 | 7/14/00 | PR: 64 FR 37082 and 64 FR 59152<br>FR: 65 FR 37292 | - Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPCs) for species in the Snapper Grouper FMU. |
| Amendment 11 | 12/02/99 | PR: 64 FR 27952<br>FR: 64 FR 59126 | - MSY proxy.<br>- Overfished/overfishing evaluations.<br>- Approved definitions for overfished and overfishing.<br>(MSST = [(1-M) or 0.5 whichever is greater]*$B_{MSY}$; MFMT = $F_{MSY}$) |
| Amendment 12 | 9/22/00 | PR: 65 FR 35877<br>FR: 65 FR 51248 | - Modified management options and list of possible framework actions. |
| Amendment 13A | 4/26/04 | PR: 68 FR 66069<br>FR: 69 FR 15731 | - Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper species within the Oculina Habitat Area of Particular Concern (HAPC). |
| Amendment 14 | 2/12/09 | PR: 73 FR 32281<br>FR: 74 FR 1621 | - Established eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species. |

| | | | |
|---|---|---|---|
| Amendment 15B | 2/15/10 | PR: 74 FR 30569<br>FR: 74 FR 58902 | -Reduced the effects of incidental hooking on sea turtles and smalltooth sawfish.<br>- Adjusted commercial renewal periods and transferability requirements.<br>- Implemented plan to monitor and assess bycatch.<br>- Prohibited the sale of bag-limit caught snapper grouper species |
| Amendment 19 (included in Comprehensive Ecosystem-based Amendment 1) | 7/22/10 | PR: 75 FR 14548<br>FR: 75 FR 35330<br>75 FR 35330 | -Provided presentation of spatial information for Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPC) designations under the Snapper Grouper FMP. |
| Amendment 23 (included in Comprehensive Ecosystem-based Amendment 2) | TBD | PR: 76 FR 69230<br>FR: TBD | - Designates the Deepwater MPAs as EFH-HAPCs<br>- Limits harvest of snapper grouper species in SC Special Management Zones to the bag limit<br>- Modifies sea turtle release gear |
| Amendment 25 (included in Comprehensive ACL Amendment) | TBD | PR: 76 FR 74757<br>FR: TBD | . Sets sector allocations as 95% commercial, 5% recreational for wreckfish<br>- Specifies the wreckfish OY and ACL at 250,000 pounds (ww).<br>-. Designates an AM trigger and a post-season AM for wreckfish<br>- Implements a recreational bag limit of one wreckfish per vessel per day<br>- Specifies the recreational wreckfish season as July-August<br>- Will also propose the wreckfish OY and ACL at 235,000 pounds (ww) via an amended proposed rule. |

## 2 Actions and Alternatives

This section outlines the proposed actions and alternatives considered by the South Atlantic Fishery Management Council (South Atlantic Council). A complete analysis of these alternatives can be found in **Section 4**.

**Appendix A** contains one alternative the South Atlantic Council considered but eliminated from analysis during development of this amendment.

**Definitions**

*Shares* – Shares are a percentage of the commercial quota. With limited exceptions, an individual's percent share of the quota does not change unless they buy or sell shares.

*Annual Pounds*– An individual's annual allocation is the amount of pounds (gutted weight) an individual is ensured the opportunity to possess, land, or sell in a fishing year.

*Active Shares* – Shares owned by shareholders who have reported wreckfish landings within the qualifying period specified by the South Atlantic Council.

*Inactive Shares* – Shares owned by shareholders who have not reported wreckfish landings within the qualifying period specified by the South Atlantic Council.

*Reverted Shares* – Shares that are revoked for redistribution.

*Share Cap* – Maximum percentage of shares that one entity may individually or collectively hold.

*Excess Shares* – Shares in excess of the share cap. For example, if the share cap is 49% and an entity holds 55% of the shares, then the amount of excess shares would be 6%.

## 2.1 Action 1: Define and revert inactive wreckfish shares.

**Alternative 1**: No Action. Do not define or revert inactive shares for redistribution.

**Alternative 2**: Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings between April 16, 2009, and January 14, 2011, and revert inactive shares for redistribution among active shareholders.

**Alternative 3 (Preferred):** Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings between April 16, 2006, and January 14, 2011, and revert inactive shares for redistribution among active shareholders.

### 2.1.1 Comparison of alternatives

Under **Alternative 1 (No Action)**, inactive shares would remain with their current shareholders and thus, may or may not be utilized for harvesting wreckfish. Although there are 20 individuals holding wreckfish shares, there have been only a few participants actively harvesting wreckfish over the past ten years. The purpose of this action is to define "inactive shares" that will be reverted for redistribution among individuals with "active shares." This is intended to allow shareholders who have actively participated in the fishery to maintain operations if the ACL is approved. The proposed action will revert shares that qualify as inactive without compensation to shareholders.

**Alternative 1 (No Action)** will not define inactive shares so that they can be redistributed among remaining shareholders, which likely would result in some active participants not being able to maintain operations under the proposed ACL. **Alternative 2** defines inactive shares as those shares held by individuals who have not reported wreckfish landings at any time during the last two fishing years (from April 16, 2009, through January 14, 2011), while **Alternative 3 (Preferred)** uses the last five fishing years as the qualifying period (from April 16, 2006, through January 14, 2011).

**Alternative 1 (No Action)** could result in the lowest overall commercial harvest of wreckfish and will likely result in the lowest fishing mortality for the wreckfish stock when compared to **Alternatives 2** and **3 (Preferred)**. Out of 20 wreckfish shareholders, currently there are either 14 inactive shareholders (**Alternative 2**), or 13 inactive shareholders (**Alternative 3 (Preferred)**) holding shares that would be redistributed among a group of 6 or 7 remaining active wreckfish shareholders (**Table 2-1**).

**Table 2-1**. Expected outcomes of alternatives for **Action 1.**

| | **Number of Shareholders with Inactive Shares** | **Percentage of Shares Reverted** |
|---|---|---|
| Alternative 1 | 0 | 0% |
| Alternative 2 | 14 | 41.44% |
| **Alternative 3 (Preferred)** | 13 | 28.18% |

Data source: SERO using SEFSC wreckfish logbook

Fishing practices for the harvest of wreckfish would not be modified under this action in ways not considered in previous evaluations of effects to protected species; therefore, no increased risk to sea turtles, other protected species, essential fish habitat, or habitat areas of particular concern is expected from this action.

Under **Alternative 2** or **Alternative 3 (Preferred)** between 62,912 and 92,515 pounds (ww) of landings are expected to be foregone as a result, depending on the time period chosen for determining whether a shareholder is active or inactive. Given an average price of $2.96/pound (ww)[1] in the 2010/2011 fishing year, the expected loss in annual gross revenue to the commercial sector is estimated to be between $186,220 and $273,844 under **Alternative 1 (No Action)**, or between $26,603 on average for the 7 shareholders active in two most recent fishing years (i.e., 2009/2010 and 2010/2011) and $45,641 on average for the 6 shareholders active in the five most recent fishing years (i.e., 2006/2007 through 2010/2011). These losses in gross revenue are expected to lead to a loss in profits as well.

Under **Alternative 2**, the 14 shareholders who are inactive in the wreckfish component of the snapper grouper fishery would not incur any losses in wreckfish landings or gross revenue. Under **Alternative 3 (Preferred)**, the total loss of quota share to the 13 inactive shareholders is estimated to be valued at approximately $180,582, or $13,891 per shareholder. It should be noted that "value" in the context used in the previous paragraph, and as subsequently used for **Alternative 3 (Preferred)** in the discussion below and throughout this section and appendices is based on the market price of shares and, therefore, is not equivalent to estimates of change in annual gross revenue. The seven active shareholders would not experience any direct economic effects under **Alternative 3 (Preferred)**, but would be expected to economically benefit indirectly since the intent of this alternative is to redistribute the inactive shares to the active shareholders. The active shareholders would not only benefit from the increased value of their assets, but would also benefit due to the expected increase in their wreckfish landings, gross revenue, and profits, relative to **Alternative 1 (No Action)**. In turn, the eight vessels used by these shareholders to harvest their annual allocations would also benefit because of the expected increase in their wreckfish landings and gross revenue.[2] Similarly, the five active dealers who bought wreckfish in 2010 would also be expected to experience indirect economic benefits, as their sales of wreckfish would be expected to increase relative to what they would be under **Alternative 1 (No Action)**.

**Alternative 1 (No Action)** would be expected to result in the most negative social effects. If the inactive shares are not redistributed to active shareholders, it is assumed that the amount of wreckfish being fished and delivered would also be reduced by the same percentage as the reduction from the total allowable catch (TAC) due to the proposed commercial ACL.

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[1] All prices, values, and revenues are in 2009 dollars.

[2] Although most shareholders use one vessel to harvest their allocation, one shareholder has used two vessels in recent years.

Conversely, **Alternative 1 (No Action)** would be expected to result in some positive social effects in that inactive shareholders would be allowed to keep their shares and have the choice to fish, sell, or lease their shares in the future. **Alternative 2** and **Alternative 3 (Preferred)** are the most socially beneficial because these alternatives revert inactive shares to active shareholders and could allow most shareholders to continue participation at a level comparable to the current harvest under the TAC of 2 million pounds. **Alternatives 2** and **3 (Preferred)** could also cause some negative social effects by removing the ability of those shareholders deemed inactive to utilize their shares in the future.

**Alternative 1 (No Action)** would not result in any direct administrative effects**. Alternative 2** is likely to result in greater short-term administrative effects than **Alternative 3 (Preferred)**; however, none of the options under consideration are expected to significantly affect the administrative environment. In the long-term, there would be fewer shareholders in the fishery, and therefore, the administrative burden would be less than under the status quo situation. Overall, the process of determining the number of shares to be reverted, and reverting inactive shares would require a minimal to moderate short-term increase in administrative effort when compared to the status quo **Alternative 1 (No Action)**.

## 2.2 Action 2: Redistribute reverted shares to remaining shareholders.

**Alternative 1**: No Action. Do not redistribute reverted shares.

**Alternative 2**: Redistribute reverted shares to remaining shareholders based on 50% equal allocation + 50% landings history.

**Option a**: total wreckfish landings from April 16, 2009, through January 14, 2011.
**Option b**: total wreckfish landings from April 16, 2006, through January 14, 2011.

**Alternative 3 (Preferred):** Redistribute reverted shares to remaining shareholders based on landings history.

**Option a**: total wreckfish landings from April 16, 2009, through January 14, 2011.
**Option b (Preferred)**: total wreckfish landings from April 16, 2006, through January 14, 2011.

**Alternative 4**: Redistribute reverted shares based on proportion of remaining shares held by each remaining shareholder after inactive shares are reverted.

Note: Landings in pounds (ww) will be determined based on wreckfish logbook records submitted to the Southeast Fisheries Science Center (SEFSC).

### 2.2.1 Comparison of alternatives

Redistribution of shares is necessary for active wreckfish harvesters to maintain operations under the proposed ACL. The alternatives in this action are similar to initial allocation scenarios, including the initial allocation formula used for the wreckfish ITQ program in 1992. Reverted shares would only be redistributed among shareholders who did not have inactive shares (as they are defined in Action 1).

**Alternative 1 (No Action)** would not redistribute the shares that were reverted from Action 1, and wreckfish fishermen would not be able to maintain the current size of their operations under the proposed ACL. **Alternative 2** considers a formula under which half of the reverted shares would be equally allocated among remaining shareholders and the other half would be allocated based on landings history. This type of allocation was used in the initial allocation of wreckfish ITQs in 1992. Under this alternative, the South Atlantic Council considered allocating reverted shares based on landings in the past two years (**Alternative 2a**) and landings in the past five fishing years (**Alternative 2b**).

**Alternative 3 (Preferred)** allocates reverted shares based on landings history only during the past two years (**Alternative 3a**) and in the past five fishing years (**Alternative 3b (Preferred)). Alternative 4** would redistribute reverted shares based on the proportion of shares that an active shareholder held. The process for this redistribution method would start with the selected method of identifying and reverting inactive shares. Of the shares of remaining active shareholders, each shareholder's proportion would be calculated. The shareholder would then receive the same percentage from the pot of reverted shares. For

example, if after inactive shares were reverted, a remaining active shareholder held 25% of the 'active' share pot, that shareholder would receive 25% of the reverted shares. This alternative would benefit active shareholders who currently hold more shares.

**Alternative 1 (No Action)** would likely result in an unnecessary reduction in fishing opportunities caused by a decrease in annual pounds associated with share holdings due to a significantly reduced commercial quota proposed through the Comprehensive ACL Amendment (SAFMC 2011). Under the status quo alternative, it is likely that only between 130,735 and 160,338 pounds (ww) of wreckfish would be landed during the 2012/2013 fishing year assuming the currently inactive shares would remain unfished. All other alternatives would theoretically result in some level of increased fishing effort among the current active shareholders, and would thus result in increased harvest limited only by the commercial ACL of 223,250 pounds (ww) proposed in the amended Comprehensive ACL Amendment (SAFMC 2011) and the poundage associated with the total shares held by each entity.

**Alternative 2** is the most complex of the alternatives considered. **Alternative 2a** would benefit individuals who recently entered the wreckfish portion of the snapper grouper fishery and do not have extensive landings histories, whereas **Alternative 2b** would include a broader time series of landings histories and would also include those active shareholder who have recently begun to target wreckfish (**Table 2-2**). Therefore, adverse biological effects that could result from this action would be expected to be negligible because the ITQ would constrain landings to the commercial ACL.

Regardless of how reverted shares are allocated among the active shareholders, the total number of redistributed shares would not change, limiting harvest to the total percentage of shares issued to each shareholder. The biological effects of **Alternative 3 (Preferred)** would be similar to those under **Alternative 2** (**Table 2-2**) for the same reasons given above. No significant biological effects are expected to result from redistributing reverted shares to active shareholders based on landings histories. Assuming the largest, active shareholders are the most likely to fish all shares they own because they are the most active participants, **Alternative 4** may have the potential to have slightly higher negative biological implications for the species when compared to **Alternatives 2** and **3 (Preferred)** (**Table 2-2**).

With respect to the economic benefits accruing to active shareholders, all active shareholders will receive some economic benefit under all alternatives under **Action 2**, regardless of whether "active" is defined under Action 1, Alternative 2 or Alternative 3 (Preferred), with the exception of one shareholder under **Alternative 2a** assuming Action 1, Alternative 3 (Preferred). In the long-term, these economic benefits are in the form of an increase in the value of each shareholder's shares.

The most equal distributions of *long-term* economic benefits occur under **Alternative 4** and **Alternative 2b**, while the most unequal distributions of long-term economic benefits occur under **Alternative 3a**, and **Alternative 3b (Preferred)** to a lesser extent, on a per shareholder basis. The distribution of long-term economic benefits under **Alternative 2a** is between these two extremes. The largest long-term economic benefits to a single shareholder

occur under **Alternative 3a** regardless of whether active is defined under Action 1, Alternative 2 or Alternative 3 (Preferred). The most equal distributions of *short-term* economic benefits occur under **Alternative 4** and **Alternative 2b**, while the most unequal distributions of short-term economic benefits occur under **Alternative 3a**, and **Alternative 3b (Preferred)** to a lesser extent, on a per shareholder basis. The distribution of short-term economic benefits under **Alternative 2a** is between these two extremes. The largest short-term economic benefits to a single shareholder occur under **Alternative 3a** regardless of whether active is defined under Action 1, Alternative 2 or Alternative 3 (Preferred). With respect to indirect economic effects on wreckfish dealers, the primary economic effect will be to maintain the total level of landings and sales of wreckfish.

**Alternative 1 (No Action)** would not redistribute reverted shares to active wreckfish participants and would be expected to result in the same negative social effects as those described for Action 1, Alternative 1 (No Action). All other alternatives and options would be expected to result in positive social effects as they would redistribute the reverted shares to active shareholders with the difference between the remaining alternatives and options being in the redistribution method. **Alternative 2** (along with its options) has a high likelihood of being perceived as a fair redistribution method and thus being more socially acceptable because of its mixed method which would revert shares to remaining shareholders based on 50% equal allocation plus 50% landings history. **Options 3a** and **3b (Preferred)** have a high likelihood of being perceived as fair redistribution methods by shareholders with the longest and largest landings because they are based on past participation. **Alternative 4** would be expected to provide protection and social benefits for shareholders who have recently invested in the wreckfish portion of the snapper grouper fishery through the purchase of additional shares.

**Alternative 1 (No Action)** would result in the lowest administrative burden of all the alternatives considered since it would require no increase in staff time or cost to redistribute reverted shares. **Alternative 2** would result in the greatest administrative burden in the form of staff time and cost to calculate the number of shares each currently active shareholder would receive and then distribute the shares accordingly. The administrative effects of **Alternative 3 (Preferred)** would be slightly less than **Alternative 2** since only one calculation would be required to determine how many shares each shareholder would receive. **Alternative 4** would result in an increase in cost and staff time burdens less than that of **Alternative 3 (Preferred)**. Instead of basing redistribution on landings, NOAA Fisheries Service staff would be responsible for issuing the correct number of reverted shares based on the proportion of shares already held by each currently active shareholder.

**Table 2-2.** Summary of redistributed shares gained by shareholders under each alternative for **Action 2**, and the total percentage of shares that would result after redistribution

| **Reverted Share Distribution Scenarios Under Action 1 Alternative 2** | | | | | |
|---|---|---|---|---|---|
| Share-holder | **Alt. 2, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 2, Option b.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option b (Pref).** (% of shares redistributed/total shares after redistribution) | **Alt. 4.** (% of shares redistributed/total shares after redistribution) |
| A | 3.51/7.02 | 0.09/3.60 | 0.12/3.63 | 3.50/7.01 | 2.49/6.00 |
| B | 7.47/13.64 | 11.49/17.66 | 8.04/14.22 | 9.20/15.37 | 4.37/1054 |
| C | 5.43/26.06 | 5.38/26.01 | 3.95/24.58 | 6.14/26.77 | 14.60/35.23 |
| D | 4.13/14.32 | 3.25/13.44 | 1.35/11.55 | 5.08/15.27 | 7.21/17.40 |
| E | 17.34/26.42 | 21.09/30.17 | 27.78/36.86 | 14.00/23.07 | 6.42/15.50 |
| F | 3.55/12.53 | 0.14/9.13 | 0.19/9.17 | 3.53/12.51 | 6.36/15.34 |
| G | N/A | N/A | N/A | N/A | N/A |
| **Reverted Share Distribution Scenarios Under Action 1 Alternative 3 (Preferred)** | | | | | |
| Share-holder | **Alt. 2, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 2, Option b.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option b (Pref).** (% of shares redistributed/total shares after redistribution) | **Alt. 4.** (% of shares redistributed/total shares after redistribution) |
| A | 2.05/5.56 | 2.03/5.54 | 0.08/3.59 | 0.04/3.55 | 1.38/4.89 |
| B | 4.75/10.92 | 4.55/10.72 | 5.47/11.64 | 5.07/11.24 | 2.42/8.60 |
| C | 3.36/23.99 | 3.20/23.83 | 2.69/23.32 | 2.37/23.00 | 8.10/28.72 |
| D | 2.47/12.67 | 2.73/12.92 | 0.92/11.11 | 1.43/11.62 | 4.00/14.19 |
| E | 11.46/20.53 | 6.66/15.74 | 18.90/27.97 | 9.30/18.38 | 3.56/12.62 |
| F | 2.08/11.06 | 2.04/11.03 | 0.13/9.11 | 0.06/9.05 | 3.53/12.51 |
| G | 2.01/15.27 | 6.97/20.22 | 0.00/13.25 | 9.91/23.16 | 5.20/18.46 |

Data source: SERO using SEFSC wreckfish logbook

## 2.3 Action 3: Establish a share cap.

**Alternative 1**: No Action. Do not establish a share cap.

**Alternative 2**: Establish a share cap as 15% of the total shares.

**Alternative 3**: Establish a share cap as 25% of the total shares.

**Alternative 4 (Preferred):** Establish a share cap as 49% of the total shares.

**Alternative 5**: Establish a share cap as 65% of the total shares.

**Alternative 6**: Establish a share cap as the percentage of total shares held by the largest shareholder after redistribution.

Note: It is the South Atlantic Council's intent that NOAA Fisheries Service administratively prohibit transfers of wreckfish shares for the necessary amount of time, not to exceed 45 days, until the reverted shares are redistributed.

### 2.3.1 Comparison of alternatives

The South Atlantic Council is required to define excessive shares for the ITQ program to establish a cap on the number of shares that one entity may own. This action is necessary to prohibit one individual from holding so many shares that he/she would control the market for wreckfish, in addition to equity concerns for the fishermen. A share cap can also be defined based on management goals for the fishery. The wreckfish ITQ program does not currently have a cap on shares, as this was not a Magnuson-Stevens Act requirement until the Act was reauthorized in 2007 and the wreckfish ITQ program was implemented in 1992 under Amendment 5 (SAFMC 1991). It should be noted that Amendment 5 established a 10% cap on the shares that could be received in initial allocation, but not a cap for the number of shares that an entity could hold by purchasing additional shares. In addition, the South Atlantic Council concluded that, at the time, existing anti-trust laws were sufficient.

**Alternative 1 (No Action)** would not establish a share cap, which would not only allow one entity (i.e., individual, corporation, etc.) to hold any amount of wreckfish shares, but also would not be in compliance with the reauthorized Magnuson-Stevens Act. **Alternative 2** would allow one entity to own 15% of shares, which under the proposed commercial ACL would allocate no more than 33,488 annual pounds to each active shareholder in a fishing year. **Alternative 3** would establish a share cap at 25%, and each fisherman would receive no more than 55,813 annual pounds each year. **Alternative 4 (Preferred)** sets the cap at 49%, which would never allow one entity to own half or more of wreckfish shares. Because the number of participants in the wreckfish fishery is small, some of the alternatives present share caps in which one individual may own more than half of the wreckfish shares. One entity may hold 65% of shares under **Alternative 5. Alternative 6** would set the cap at the maximum percentage of shares that one fisherman holds after redistribution, which would depend on the number of shares available for redistribution through Action 1, and the redistribution formula selected in Action 2.

Under **Alternative 1 (No Action)** six individuals would be allowed to own as many shares as they could obtain, either via purchases through the market or as a result of the alternative selected under Action 2. In theory, a single individual could end up controlling at least a majority of the quota shares and possibly 100% of the quota shares. **Alternative 2**, which would establish a share cap of 15%, is no longer a viable or reasonable alternative.[3] Under **Alternative 4 (Preferred)**, **Alternative 5**, and **Alternative 6**, no individuals would exceed the share cap and thus no individual would possess excess shares that could be subject to further redistribution, regardless of whether an active shareholder is defined under Action 1.[4] Thus, given current conditions, the issue of excess shares is only germane under **Alternative 3**. Harvest would be limited to the proposed ACL in the Comprehensive ACL Amendment (SAFMC 2011), if approved, and therefore biological effects of redistribution under **Alternatives 2**, **3**, and **4 (Preferred)**, would not be significant to target or non-target species. Biological effects under **Alternative 6** may be slightly higher than under **Alternatives 2-4 (Preferred)**, but may be lower than **Alternative 5** since no individual currently holds 65% of the shares.

Although **Alternative 1 (No Action)** would be expected to provide the most social benefits to shareholders holding a large number of shares, it is not practical because of its non-compliance with the mandates for limited access privilege programs. **Alternatives 2** and **3** would reduce the possible participation of the largest shareholders by giving each entity an equal share and would act in opposition to the underlying social and economic purpose of this amendment. The share cap under **Alternative 4 (Preferred)** would currently not impact any single individual (at their current share level with any of the various alternatives and options). However, if the largest entity were to acquire more shares prior to the freeze on transfers, this could change. **Alternative 5** would establish the largest share cap, and if this share cap were met by an entity, they would have the majority of the wreckfish shares, possibly causing negative social effects including effects to wreckfish dealers who currently depend on wreckfish landings, but are located in a different delivery area from the large shareholder entity; however at current levels no one entity would hold a majority of the shares and this would only be expected to occur if there were a significant transfer of shares. **Alternative 6** could allow for a possible situation similar to that of **Alternative 5** where one entity could have the majority of the shares if a significant transfer of shares were to occur prior to a freeze on transfers.

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[3] At the beginning of the 2011/12 fishing year, seven individuals were associated with the active shareholders under both Alternative 2 and Alternative 3 (Preferred) for Action 1 and thus **Alternative 2** under **Action 3** was a viable and reasonable alternative. However, one of the active shareholders recently sold his shares, which reduced the number of individuals associated with active shareholders to six.

[4] In instances where more than one individual was associated with a single active shareholder (e.g., more than one individual owned the corporation holding the share certificate), landings were apportioned between those individuals according to the percentage of the corporation they own.

It is reasonable to assume that the lower the share cap is set the more administratively burdensome the action would be due to the increased probability of there being excess shares. Therefore, **Alternative 2** is likely to incur the greatest cost and time burden followed by **Alternatives 3**, **4 (Preferred)**, **5,** and **6**. Depending on the South Atlantic Council's choice of preferred, dealing with excess shares and associated outreach efforts could constitute a moderate short-term impact on the administrative environment. **Alternatives 1 (No Action)** and **Alternative 6** are likely to result in the same negligible level of cost and time burden since both would require little to no effort to implement. However, as stated previously, a cap on shares is a Reauthorized Magnuson-Stevens Act requirement and; therefore, if no share cap is established (**Alternative 1 (No Action)**), NOAA Fisheries Service could be subject to significant administrative burdens associated with litigation.

## 2.4 Action 4: Establish an appeals process.

**Alternative 1**: No Action. Do not specify provisions for an appeals process associated with the ITQ program.

**Alternative 2 (Preferred):** A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The Regional Administrator will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 2a:** 3% of wreckfish shares will be set aside for appeals.
**Sub-alternative 2b (Preferred):** 5% of wreckfish shares will be set aside for appeals.
**Sub-alternative 2c**: 10% of wreckfish shares will be set aside for appeals.

**Alternative 3**: A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to the Regional Administrator on appeals. Hardship arguments will not be considered. The special board and the Regional Administrator will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 3a**: 3% of wreckfish shares will be set aside for appeals.
**Sub-alternative 3b**: 5% of wreckfish shares will be set aside for appeals.
**Sub-alternative 3c**: 10% of wreckfish shares will be set aside for appeals.

### 2.4.1 Comparison of alternatives

This action establishes an appeals process to address issues that arise when shares are defined as inactive and reverted in Action 1, and redistributed in Action 2. **Alternative 1 (No Action)** would not establish any kind of process for fishermen to ask for reconsideration of share reversion or redistribution formulas. **Alternative 2 (Preferred)** would establish the process under which the Regional Administrator would hear and consider all appeals requests (excluding hardship arguments), while **Alternative 3** would allow a board to hear and consider requests, but the Regional Administrator would render the final decision based on the board's recommendations. **Sub-alternatives a-c** under **Alternatives 2 (Preferred)** and **3** would establish a percentage (3%, 5%, or 10%) of the shares as a set-aside to address any

appeals. With respect to **Sub-alternatives a-c** under **Alternative 2 (Preferred)** and **Alternative 3**, the amount of quota to be set aside for appeals would be 6,697.5 pounds (ww), 11,162.5 pounds (ww), and 22,325 pounds (ww). For these sub-alternatives, the South Atlantic Council chose to follow recommendations from NOAA Fisheries Service staff that were based on outcomes of the appeals process for the Gulf of Mexico Red Snapper IFQ program. NOAA Fisheries Service staff recommended that 3% was adequate, but no more than 10% needed to be set aside for appeals.

**Alternative 1 (No Action)** would result in no adverse biological effects since it would not increase the number of shareholders allowed to receive reverted shares under Action 1, and thus fish those shares. **Alternative 2 (Preferred**) would give shareholders an opportunity to appeal their inactive share status or the number of reverted shares that were issued to active shareholders through the redistribution process. If either type of appeal were granted by the Regional Administrator, no adverse biological impact would be expected since the overall harvest of the proposed commercial ACL and the number of reverted shares are both limiting factors. The only difference between **Alternatives 2 (Preferred)** and **3** is the means by which appeals are considered; i.e., via Regional Administrator determination, or via special board recommendations presented to the Regional Administrator.

The wreckfish shareholders' appeals process is largely an administrative action that would have few if any biological implications. **Sub-alternatives 2a-2c** and **3a-3c** may result is some short-term lower fishing mortality during the 2012/2013 wreckfish fishing year, since 3%, 5% (**Preferred**), or 10% respectively, of the wreckfish shares would not be fished during the designated 90-days unless those shares are distributed to successful appellants. After the 2012/2013 season, the long-term biological effects of all the sub-alternatives would be the same.

The only difference in the expected economic effects between **Alternative 2 (Preferred)** and **Alternative 3** would be with respect to the timeliness and administrative costs associated with rendering decisions on these appeals. In general, it is expected that appeals would be resolved in a more timely and less costly manner if fewer people are involved in the decision making process. Thus, adverse economic effects are expected to be less under **Alternative 2 (Preferred)** relative to **Alternative 3**.

The absence of an appeals process, as would occur under **Alternative 1 (No Action)**, would be expected to increase the likelihood that one or more appropriate qualifying individuals would have either been deemed inactive and would not receive reverted shares or would not have received the proper amount of reverted shares through some sort of error, resulting in less social benefits. **Alternative 2 (Preferred)** and **Alternative 3** allow for an appeals process and would be expected to result in greater social benefits than **Alternative 1 (No Action).**

# 3 Affected Environment

## 3.1 Habitat

### 3.1.1 Habitat for Snapper Grouper Species (including wreckfish)

Information on the habitat utilized by species in the Snapper Grouper Complex (which includes wreckfish) is included in Volume II of the Fishery Ecosystem Plan (SAFMC 2009) and incorporated here by reference. The FEP can be found at: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx

#### 3.1.1.1 Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S. C. 1802(10)). Specific categories of EFH identified in the South Atlantic, which are utilized by federally managed fish and invertebrate species, include both estuarine/inshore and marine/offshore areas. Specifically, estuarine/inshore EFH includes: estuarine emergent and mangrove wetlands, submerged aquatic vegetation, oyster reefs and shell banks, intertidal flats, palustrine emergent and forested systems, aquatic beds, and estuarine water column. Additionally, marine/offshore EFH includes: live/hard bottom habitats, coral and coral reefs, artificial and manmade reefs, *Sargassum* species, and marine water column. See **Appendix I** for more information about EFH and Ecosystem Based Management in the South Atlantic.

EFH utilized by snapper grouper species in this region includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 183 meters [600 feet (but to at least 2,000 feet for wreckfish)] where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical fish complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for survival of larvae and growth up to and including settlement. In addition, the Gulf Stream is also EFH because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine-dependent and near-shore snapper grouper species, EFH includes areas inshore of the 30-meter (100-foot) contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom habitats.

EFH utilized by wreckfish (*Polyprion americanus*) off the coast of South Carolina and Georgia, is an area of extensive hard bottom habitat known as the Charleston Bump, on the northern Blake Plateau (Sedberry et al. 2001). This topographic feature is located in the Gulf Stream at depths of 400–800 m and roughly 160 km offshore. The rough topography of the Charleston Bump includes over 100 m of near-vertical steep rocky relief with carbonate outcroppings, overhangs, and phosphorite–manganese flat hard bottom (Popenoe and Manheim 2001; Sedberry et al. 2001). The high topographic relief of the bottom deflects the

Gulf Stream offshore and creates eddies, gyres, and upwellings in the Gulf Stream flow (Sedberry et al. 2001), which advect nutrients from the bottom into the euphotic zones, creating areas of high productivity (Lee et al. 1991).

#### 3.1.1.2 Essential Fish Habitat-Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; near shore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*, Hoyt Hills for wreckfish; the Oculina Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and South Atlantic Fishery Management Council (South Atlantic Council)-designated Artificial Reef Special Management Zones (SMZs).

Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though FMP regulations, the South Atlantic Council, in cooperation with NOAA Fisheries Service, actively comments on non-fishing projects or policies that may impact essential fish habitat. The South Atlantic Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. With guidance from the Advisory Panel, the South Atlantic Council has developed and approved habitat policies on: energy exploration, development, transportation and hydropower re-licensing; beach dredging and filling and large-scale coastal engineering; protection and enhancement of submerged aquatic vegetation; and alterations to riverine, estuarine and near shore flows, offshore aquaculture, invasive estuarine species, and invasive marine species (available at www.safmc.net).

## 3.2 Biological/Ecological Environment

### 3.2.1 Species Most Impacted by this Amendment

#### 3.2.1.1 Wreckfish, *Polyprion americanus*

The wreckfish, *Polyprion americanus*, is a large grouper-like fish that has a global anti-tropical distribution, but it was rarely captured in the western North Atlantic until the late 1980s, when a bottom hook-and-line fishery that targets wreckfish developed on the Blake Plateau (Vaughan et al. 2001). Wreckfish occur in the Eastern and Western Atlantic Ocean, on the Mid-Atlantic Ridge, on Atlantic islands and seamounts, and in the Mediterranean Sea, southern Indian Ocean, and southwestern Pacific Ocean (Heemstra 1986; Sedberry 1995; Sedberry et al. 1994, 2001). In the western Atlantic, they occur from Grand Banks (44°50' N) off Newfoundland (Scott and Scott 1988) to the Valdes Peninsula (43°30' S) in Argentina (Menni et al. 1981). Genetic evidence suggests that there are three stocks: one that encompasses the entire North Atlantic and Mediterranean, one from Brazil, and the third from Australia/New Zealand in the South Pacific (Ball et al. 2000; Sedberry et al. 1996). Active adult migration is also possible as the frequent occurrence of European fish hooks in western North Atlantic wreckfish suggests migration across great distances (Sedberry et al. 2001).

Wreckfish have supported substantial fisheries in the eastern North Atlantic, Mediterranean, Bermuda, and the western South Atlantic, but concentrations of wreckfish adequate to support a fishery off the southeastern United States were not discovered until 1987. The fishery off the southeastern United States occurs over a complex bottom feature that has over 100 m of topographic relief, known as the Charleston Bump, that is located 130-160 km southeast of Charleston, South Carolina, at 31°30'N and 79°00'W on the Blake Plateau (Sedberry et al. 2001). Fishing occurs at water depths of 450-600 m. Primary fishing grounds comprise an area of approximately 175-260 $km^2$, characterized by a rocky ridge and trough feature with a slope greater than 15° (Sedberry et al. 1994, 1999, 2001).

Adults are demersal and attain lengths of 200 cm TL (79 in; Heemstra 1986) and 100 kg (221 pounds; Roberts 1986). Wreckfish landed in the southeastern United States average 15 kg (33 pounds) and 100 cm TL (39 inches TL) (Sedberry et al. 1994). Goldman and Sedberry (2011) found that wreckfish predominantly consumed teleost fish and squid. Juvenile wreckfish (< 60 cm TL) are pelagic, and often associate with floating debris, which accounts for their common name. The absence of small pelagic and demersal wreckfish on the Blake Plateau has led to speculation that young wreckfish drift for an extended period, up to four years, in surface currents until reaching the eastern Atlantic, or perhaps that they make a complete circuit of the North Atlantic (Sedberry et al. 2001).

Vaughan et al. (2001) reported a maximum age of 35 years, however, off Brazil ages as great as 76 years have been reported for wreckfish (Peres and Haimovici 2004). In a recent Marine Resources Monitoring, Assessment, and Prediction (MARMAP) report, mature gonads were present in 60% of females at 751-800 mm, 57% at 801-850 mm, and 100% at larger sizes. The smallest mature female was 692 mm, and immature females were 576-831 mm. The estimate of length at 50% maturity was 790 mm (Gomperz model; 95% CI = 733-820). Mature gonads were present in 40% of males at 651-800 mm and 100% at larger sizes.

The smallest mature male was 661 mm, and immature males were 518-883 mm. L50 was not estimated because transition to maturity was abrupt.

Wreckfish spawn from December through May, with a peak during February and March. The highest percentages of ripe males occurred during December through May, which corresponded with the female spawning season; however, males in spawning condition were collected throughout the year. The male spawning peak was also during February and March.

#### 3.2.1.2 Other Affected Species

Descriptions of other South Atlantic Council-managed species may be found in Volume II of the Fishery Ecosystem Plan (SAFMC 2009) or at the following web address: http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx

In the wreckfish commercial fishery, barrelfish (*Hyperoglyphe perciformes*) and red bream (*Beryx decadactylus*) are caught as bycatch (Goldman and Sedberry 2011). Other species collected by Goldman and Sedberry (2011) on vertical lines with baited hooks from 400 to 800 m depth, on and around Charleston Bump were: splendid alfonsino (*Beryx splendens*), conger eel (*Conger oceanicus*), gulper shark (*Centrophorus granulosus*), roughskin dogfish (*Cirrhigaleus asper*), and shortspine dogfish (*Squalus mitsukurii*).

### 3.2.2 Protected species

There are 31 different species of marine mammals that may occur in the exclusive economic zone (EEZ) of the South Atlantic region. All 31 species are protected under the Marine Mammal Protection Act of 1972 (MMPA) and six are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). Other species protected under the ESA occurring in the South Atlantic include five species of sea turtle (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]). Designated critical habitat for the *Acropora* corals and the North Atlantic right whale also occurs within the South Atlantic region. Because of the depth at which the fishery operates and the gears used, not all of the protected species known to occur in the South Atlantic may interact with the wreckfish fishery. The species potentially affected by the fishery are discussed below.

#### 3.2.2.1 ESA-Listed turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (i.e., Lutz and Musick 1997, Lutz et al. 2002).

Green sea turtle hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with *Sargassum* rafts (Carr 1987, Walker 1994). Pelagic stage green sea turtles are thought to be carnivorous. Stomach samples of these animals found ctenophores and pelagic snails (Frick 1976, Hughes 1974). At approximately 20 to 25 cm carapace

length, juveniles migrate from pelagic habitats to benthic foraging areas (Bjorndal 1997). As juveniles move into benthic foraging areas a diet shift towards herbivory occurs. They consume primarily seagrasses and algae, but are also know to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Mortimer 1981, 1982; Paredes 1969). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 110 m (360 ft) (Frick 1976), but they most frequently make dives of less than 20 m (65 ft.) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

The hawksbill's pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (Van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or from discarded bait (Shaver 1991). Given their predilection for shallower water, Kemp's ridleys most routinely make dives of 50 m or less (Byles 1988; Soma 1985). Their maximum diving range is unknown. Depending on the life stage a Kemp's ridleys may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Byles 1988; Mendonça and Pritchard 1986; Soma 1985). Kemp's ridleys may also spend as much as 96% of their time underwater (Byles 1988; Soma 1985).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean, although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 1000 m (Eckert et al. 1989)

but more frequently dive to depths of 50 m to 84 m (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Eckert et al. 1986, 1989; Keinath and Musick 1993; Standora et al. 1984). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Bolten and Balazs 1995; Carr 1987; Hughes 1974; Walker 1994). The pelagic stage of these sea turtles are known to eat a wide range of things including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the South Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764 ft.) (Limpus and Nichols 1988; Thayer et al. 1984). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Lanyon et al. 1989; Limpus and Nichols 1988, 1994; Thayer et al. 1984) and they may spend anywhere from 80 to 94% of their time submerged (Lanyon et al. 1989; Limpus and Nichols 1994).

#### 3.2.2.2 South Atlantic Fisheries Interactions with ESA

Sea turtles are vulnerable to capture in the vertical line gear used in the wreckfish fishery. The effects of the wreckfish fishery on sea turtles were evaluated in the previous biological opinion on the entire South Atlantic snapper grouper fishery (NMFS 2006). The biological opinion concluded the entire South Atlantic snapper grouper fishery (including the wreckfish sector) was likely to adversely affect sea turtles, but not jeopardize their continued existence. **Table 3-1** illustrates the number of interactions estimated for the South Atlantic snapper grouper fishery and the type of interaction anticipated (i.e., lethal or non-lethal). Entanglement in the hook-and-line gear is the primary route of effect on sea turtles from the snapper grouper fishery as a whole. There are no observer data on sea turtle takes and information collected through Cooperative Research Program projects has not shown any sea turtle takes.

**Table 3-1**. Annual anticipated takes of ESA-listed marine turtles for the Snapper Grouper FMP.

| Fishery | Sea Turtle Species | | | | |
|---|---|---|---|---|---|
| | **Loggerhead** | **Leatherback** | **Kemp's Ridley** | **Green** | **Hawksbill** |
| South Atlantic Snapper Grouper | 68-No more than 23 lethal | 9-No more than 5 lethal | 7-No more than 3 lethal | 13-No more than 5 lethal | 2-No more than 1 lethal |

#### 3.2.2.3 Designated Critical Habitat for ESA-Listed Species in the South Atlantic

In the South Atlantic, the critical habitat designated for the North Atlantic right whale may be impacted by the wreckfish fishery. Critical habitat for the North Atlantic right whale has been designated off coastal Florida and Georgia, and a small portion of which overlaps the South Atlantic Council's jurisdiction. The unit is defined as extending from the mouth of the Altamaha River, Georgia, to Jacksonville, Florida, out 15 nautical miles and from Jacksonville, Florida, to Sebastian Inlet, Florida, out five nautical miles. The area was designated because of its importance as a calving area. The physical or biological feature of the critical habitat essential to the conservation of North Atlantic right whales are related to water depth, water temperature, and bathymetry. In general the vertical line gear used in the commercial wreckfish fishery is not likely to adversely affect North Atlantic right whale, and even if there is overlap with the calving season, there are no anticipated impacts because of the gear type in use.

## 3.3 Administrative Environment

### 3.3.1 The Fishery Management Process and Applicable Laws

#### 3.3.1.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the U.S. EEZ, an area extending 200 nautical miles from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for federal fishery management decision-making is divided between the U.S. Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for collecting and providing the data necessary for the South Atlantic Council to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NOAA Fisheries Service.

The South Atlantic Council is responsible for conservation and management of fishery resources in federal waters of the U.S. South Atlantic. These waters extend from 3 to 200 miles offshore from the seaward boundary of the States of North Carolina, South Carolina, Georgia, and east Florida to Key West. The South Atlantic Council has thirteen voting members: One from NOAA Fisheries Service; one each from the state fishery agencies of North Carolina, South Carolina, Georgia, and Florida; and eight public members appointed by the Secretary. On the South Atlantic Council there are two public members from each of the four South Atlantic States. Non-voting members include representatives of the U.S. Fish and Wildlife Service, U.S. Coast Guard, State Department, and Atlantic States Marine Fisheries Commission (ASMFC). The South Atlantic Council has adopted procedures whereby non-voting members serving on the South Atlantic Council Committees have full voting rights at the Committee level but not at the full Council level. South Atlantic Council members serve three-year terms, and are recommended by state governors and appointed by the Secretary from lists of nominees submitted by the governors. Appointed members may serve a maximum of three consecutive terms.

Public interests also are involved in the fishery management process through participation on Advisory Panels and through council meetings, which, with few exceptions for discussing personnel matters, are open to the public. The South Atlantic Council uses a Scientific and Statistical Committee (SSC) to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedures Act (APA), in the form of "notice and comment" rulemaking.

#### 3.3.1.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries Division of the North Carolina Department of Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic Council. The purpose of state representation at the South Atlantic Council level is to ensure state participation in Federal fishery management decision-making and to promote the development of compatible regulations in state and Federal waters.

The South Atlantic states are also involved through the ASMFC in management of marine fisheries. The Commission was created to coordinate state regulations and develop management plans for interstate fisheries. It has significant authority, through the Atlantic Striped Bass Conservation Act and the Atlantic Coastal Fisheries Cooperative Management Act, to compel adoption of consistent state regulations to conserve coastal species. The ASFMC also is represented at the South Atlantic Council level, but does not have voting authority.

NOAA Fisheries Service State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

### 3.3.2 Enforcement

Both the NOAA Fisheries Service Office for Law Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce NOAA Fisheries Service regulations. NOAA/OLE agents, who specialize in living marine resource enforcement, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at-sea patrol services for the enforcement of fisheries regulations.

Neither NOAA/OLE nor the USCG can provide a continuous law enforcement presence in all areas due to the limited resources of NOAA/OLE and the priority tasking of the USCG. To supplement at-sea and dockside inspections of fishing vessels, NOAA entered into Joint Enforcement Agreements with Florida, Georgia, and South Carolina, which granted authority to state officers to enforce the laws for which NOAA/OLE has jurisdiction. In recent years, the level of involvement by the states has increased through Joint Enforcement Agreements, whereby states conduct patrols that focus on federal priorities and, in some circumstances, prosecute resultant violators through the state when a state violation has occurred.

NOAA General Counsel issued a revised Southeast Region Magnuson-Stevens Act Penalty Schedule in June 2003, which addresses all Magnuson-Stevens Act violations in the Southeast Region. In general, this Penalty Schedule increases the amount of civil administrative penalties that a violator may be subject to up to the current statutory maximum of $120,000 per violation. NOAA General Counsel requested public comment through December 20, 2010, on a new draft policy.

## 3.4 Economic Environment

### 3.4.1 Description of Regulations, Harvest Methods, and Gear

Wreckfish were discovered by fishermen in commercial concentrations on the Blake Plateau in deep water located about 120 nautical miles east of Savannah, Georgia in the mid-1980s. The fish are caught at depths from 1,500-2,000 feet (450-600 m) over rocky ridge systems, with an average weight of wreckfish caught during the 1980s and 1990s of over 13 kg (30 pounds) (Vaughan et al. 2001). Longliners retrieving pieces of parted longline gear first caught wreckfish in the mid-1980s, but hydraulic reels with baited hooks were developed later to exploit this fishery. The fishery expanded rapidly from two vessels landing fewer than 30,000 pounds in 1987 to six vessels with landings of over 450,000 pounds (ww) in 1988, and about 25 vessels landing over 3.7 million pounds (ww) in 1989.

In 1990, over two million pounds (ww) of wreckfish were landed by 40 vessels. In response to the rapid growth of the fishery, the South Atlantic Council added wreckfish to the Snapper Grouper FMU via Amendment 3 (SAFMC 1990) to the Snapper Grouper FMP. Amendment 3 also established a permit system, as well as a total allowable catch (TAC), a control date, and a spawning season closure. In September 1991, the South Atlantic Council established the individual transferable quota (ITQ) program for the wreckfish fishery through Snapper Grouper Amendment 5 (SAFMC 1991). The ITQ program was established to manage the commercial wreckfish fishery for long-term economic viability, among other objectives.

<u>Structure of the Wreckfish ITQ Program</u>

Snapper Grouper Amendment 5 (SAFMC 1991) outlined the structure of the wreckfish ITQ program adopted by the South Atlantic Council in September 1991. The summaries below are, in some cases, taken directly from Amendment 5.

*Initial Eligibility*

Eligibility for participation required that applicants include those who could document wreckfish landings during the period beginning January 1, 1989, and ending September 24, 1990 (the effective control date). The applicants also needed to be able to document having landed at least 5,000 pounds (gutted weight) of wreckfish in aggregate between January 1, 1987, and September 24, 1990.

*Distribution of Initial Allocation*

Initial allocations were made based on dividing one-half of the available shares (100 were made available, each representing 1% of the total allowable catch (TAC)) equally among eligible participants. The remaining shares were divided based on each participant's percentage of total wreckfish landings between January 1, 1987, and August 8, 1990. The formula for the weighted portion of the initial allocation for an individual was: participant's total documented wreckfish catch 1987-1990 divided by total wreckfish catch 1987-1990 by all participants, as determined by fish house receipts and dealer records with affidavits submitted, not official landings data. Shares were allocated as percentages of the 2 million pound TAC. Initial allocation was made to vessel owners even if the portion of an individual's share was based on catch history from separate vessels owned by an individual during the 1987-1990 period. Amendment 5 stipulated that no percentage share could be greater than 10% of the available shares at the time of the initial allocation, but no rule was put in place by the South Atlantic Council to limit ownership of shares after initial allocation.

*Transferability*
Sale of percentage wreckfish shares is allowed to anyone. However, sale or lease of individual quota is allowed between shareholders only. Therefore, if an individual wanted to fish for wreckfish and did not own shares, he/she would first have to purchase shares and then purchase individual quota (if the purchase was made mid-season and was not accompanied by quota), or wait for annual allocation of individual quota based on shares owned.

Tracking sales of individual quota is done by requiring the buyer and seller to sign and date coupons that are sold. The system to track transactions of percent shares involves a NOAA Fisheries Service single point transfer agent similar to the way stock and bond transactions are recorded.

*Tracking and Monitoring*
The system to track and monitor individual quotas to ensure that the TAC and individual quotas are not exceeded is a dual-entry record keeping system. The main features of the dual-entry system are as follows:

1) Individual quotas are issued via coupons in small denominations of wreckfish pounds (100 and 500 pound denominations) equaling the total pounds of a fishermen's individual quota for that year. (Note: the lack of divisibility of the coupons has presented problems for fishermen in the past who wanted to deliver more than 100 pound increments allowed but less than 500 pound increments allowed. This resulted in the loss of pounds to the fishermen. This can be corrected by issuing coupons down to 1 pound.).

2) Coupons are serial numbered, and coded for each fisherman, and a portion of the serial number is the permit number (associated with a particular vessel) of the fisherman receiving the individual quota allocation.

3) Coupons are separable at the center, one part is submitted to the Southeast Fisheries Science Center within seven days of the time of trip settlement along with the logbook sheet for the trip; the other half goes to the fish house or dealer that purchases the wreckfish.

4) Fishermen must have adequate coupon units on board for the wreckfish in their possession, and the proper number of coupons must be "canceled" by being signed and dated, in ink, prior to landing.

5) Fishermen must obtain a permit for the vessel used to harvest wreckfish, and submit logbook sheets and canceled coupons to record their catch. Anyone in possession of wreckfish who does not have a permit, logbook, and adequate coupons for the wreckfish in their possession is in violation.

6) Fishermen must return any unused coupons to NOAA Fisheries Service at the end of the fishing year, but compliance is not consistent.

7) Fish houses are responsible for signing and dating their portions of the coupons accompanying wreckfish they purchase. Fish houses must have canceled and dated coupons equaling the pounds of wreckfish at their fish house at a given time. Fish houses are also responsible for printing their federal wreckfish permit dealer permit number on their side of coupons accompanying wreckfish they purchase.

8) Fish houses must submit monthly settlement sheets or the equivalent, to report the total number of pounds of wreckfish purchased that month, as well as submitting their portion (the side marked for dealers) of wreckfish coupons totaling the quantity of wreckfish purchased that month.

*Dealer Permits*
Dealers must obtain a federal wreckfish dealer permit in order to receive wreckfish. Requirements for a dealer permit include that the applicant possess a state dealer's license, and that the applicant must have a physical facility at a fixed location in the state wherein the dealer has a state dealer's license.

*Fishing Permits*
Fishermen are required to possess a federal snapper grouper permit and a wreckfish vessel permit in conjunction with coupons and a current logbook. To obtain a wreckfish permit, an applicant must possess a certificate of percentage share, which is issued at the initial allocation of shares or obtained from the transfer agent after purchasing percentage share or portion thereof.

*Offloading Requirements*
To offload wreckfish at any location other than that of a federally permitted wreckfish dealer, the vessel operator must notify the NOAA Fisheries Service enforcement office 24 hours prior to offloading. All offloading of wreckfish is to occur between 8 am and 5 pm regardless of whether offloading occurs at a federally permitted dealer location.

*The Market for Wreckfish Shares and Coupons*
Shareholders who entered the fishery after ITQ implementation or increased their initial allocation through purchasing shares from others had to purchase shares in order to be able to fish for a specific poundage of wreckfish annually in perpetuity. An informal survey of shareholders in 2009 showed that some individuals had purchased shares with the intent of selling them when prices were higher, and some purchased shares because they felt it was a good investment and that if they did not fish all of their coupons, then they could sell them. Several shareholders were interested in selling their shares or coupons if offered an "appropriate" price. However, no shareholder knew what the appropriate price might be.

All shareholders contacted were aware they could sell their shares and coupons to a buyer, however, a lack of buyers prevent them from doing so. Several shareholders were waiting for the stock to rebound so that they could sell, lease, or fish their wreckfish shares/coupons. Three shareholders felt that implementation of the ITQ created a great deal of animosity due to the initial allocation. They theorized that other shareholders were holding on to the quota out of bitterness and to help rebuild the stock. Other shareholders stated that they would sell or lease if there were buyers willing to pay a fair price. Most shareholders contacted preferred to hold onto their shares and sell their coupons instead.

### 3.4.2 Landings, Ex-Vessel Value, Price, and Effort

Historical Landings

Wreckfish landings are available from 1988-1990 (by calendar year) from NOAA Fisheries Service general canvas files and by fishing year from 1991/1992 thru 2010/2011 from fishermen logbooks. Landings for 2001/2002 through 2008/2009 are confidential because there were fewer than three vessels that fished wreckfish during those years and/or fewer than three dealers purchased wreckfish in those years (**Table 3-2**).

In general, across the years when wreckfish landings can be reported, the landings decreased from a high of 3.7 million pounds in 1989 to about 216,000 pounds in 2009/201. One of the goals of the ITQ program was to eliminate the derby fishery of the early 1990s. In the years after the ITQ went into place, the average price per pound slowly increased from $1.19 in 1991/1992, the last year before the ITQ program was implemented, to a high of $3.01 per pound in 2010/2011 (**Table 3-2**).

**Table 3-2**. Landings in pounds (whole weight), 1988-2001. (Landings after 2001 are confidential given the small number of participating vessels or dealers. However, price per pound can be determined without undermining confidentiality for all years.)

| Year | Wreckfish Landings (pounds ww) | Value (actual) | Price Per Pound |
|---|---|---|---|
| 1988 | 455,969 | $670,216 | $1.63 |
| 1989 | 3,704,966 | $4,644,877 | $1.39 |
| 1990 | 2,111,776 | $2,562,632 | $1.35 |
| 1991/1992 | 1,926,086 | $2,071663 | $1.19 |
| 1992/1993 | 1,270,556 | $1,962,310 | $1.71 |
| 1993/1994 | 1,144,734 | $1,939,354 | $1.88 |
| 1994/1995 | 1,203,268 | $2,073,158 | $1.91 |
| 1995/1996 | 644,988 | $1,126,196 | $1.95 |
| 1996/1997 | 396,869 | $762,965 | $2.13 |
| 1997/1998 | 249,714 | $498,348 | $2.22 |
| 1998/1999 | 210,801 | $429,407 | $2.26 |
| 1999/2000 | 210,500 | $427,178 | $2.25 |
| 2000/2001 | 168,093 | $351,262 | $2.32 |
| 2001/2002 | Confidential | Confidential | $2.23 |
| 2002/2003 | Confidential | Confidential | $2.04 |
| 2003/2004 | Confidential | Confidential | $2.05 |
| 2004/2005 | Confidential | Confidential | $2.14 |
| 2005/2006 | Confidential | Confidential | $2.33 |
| 2006/2007 | Confidential | Confidential | $2.16 |
| 2007/2008 | Confidential | Confidential | $2.75 |
| 2008/2009 | Confidential | Confidential | $2.48 |
| 2009/2010 | 216,449 | $567,263 | $2.91 |
| 2010/2011 | 257,320 | $697,711 | $3.01 |

Data Source: NOAA Fisheries Service Logbook data, 10/18/2011.

Historical Vessel Participation

Vessel participation has fluctuated greatly over time. **Table 3-3** shows the number of vessels participating annually. There was some contraction in the fishery after the ITQ program went into place in 1992. The number of permitted vessels, participating vessels and dealers purchasing wreckfish, on average, all declined in the years following 1992. However, 2009/201 and 2010/2011 both saw an increase in permitted vessels, as well as participating vessels and dealers.

**Table 3-3**. Number of vessels and dealers participating in the wreckfish fishery, 1991-2011.

| Year | Vessels Permitted | Vessels | Dealers Participating |
|---|---|---|---|
| 1991/1992 | 91 | 38 | 22 |
| 1992/1993 | 39 | 20 | 14 |
| 1993/1994 | 27 | 19 | 8 |
| 1994/1995 | 25 | 17 | 8 |
| 1995/1996 | 17 | 13 | 7 |
| 1996/1997 | 18 | 9 | 4 |
| 1997/1998 | 14 | 7 | 3 |
| 1998/1999 | 12 | 3 | 3 |
| 1999/2000 | 12 | 3 | 3 |
| 2000/2001 | 8 | 3 | 3 |
| 2001/2002 | 6 | 2 | 2 |
| 2002/2003 | 8 | 3 | 2 |
| 2003/2004 | 9 | 2 | 1 |
| 2004/2005 | 10 | 3 | 2 |
| 2005/2006 | 10 | 4 | 2 |
| 2006/2007 | 9 | 4 | 2 |
| 2007/2008 | 9 | 4 | 2 |
| 2008/2009 | 10 | 3 | 2 |
| 2009/2010 | 15 | 5 | 4 |
| 2010/2011 | 14 | 7 | 6 |

Data Source: NOAA Fisheries Service Southeast Regional Office, 8/17/2011

Number of Shareholders

**Table 3-4** shows the number of shareholders over time. **Table 3-5** shows the number of shareholders in the wreckfish fishery by the percentage of shares held. When the ITQ program went into effect, the initial 49 shareholders decreased to 37 in the first year. By 1994/1995, the number of shareholders had decreased to 26, and from 1994/1995 through 2010/2011, the number of shareholders remained at 25 or 26 until recently when some shareholders sold all their shares. As of November 17, 2011, there were 20 shareholders.

**Table 3-4.** Number of wreckfish ITQ shareholders, 1991-2011.

| Year | Shareholders |
|---|---|
| 1991/1992 | 49 |
| 1992/1993 | 37 |
| 1993/1994 | 35 |
| 1994/1995 | 26 |
| 1995/1996 | 25 |
| 1996/1997 | 25 |

| Year | Shareholders |
|---|---|
| 1997/1998 | 25 |
| 1998/1999 | 25 |
| 1999/2000 | 25 |
| 2000/2001 | 25 |
| 2001/2002 | 25 |
| 2002/2003 | 25 |
| 2003/2004 | 25 |
| 2004/2005 | 25 |
| 2005/2006 | 25 |
| 2006/2007 | 25 |
| 2007/2008 | 25 |
| 2008/2009 | 25 |
| 2009/2010 | 25 |
| 2010/2011 | 26 |

Data Source: NOAA Fisheries Service Southeast Regional Office, 8/17/2011

**Table 3-5** indicates the percent of shares held by individual shareholders. One concern with the ITQ program was consolidation of shares. As the table shows, there is one participant who has held more than 15% of the shares in the fishery in the past several years. Over time, there has been little additional consolidation of shares among shareholders in the fishery.

**Table 3-5**. Number of shareholders and number of shares held, 1991-2010.

| Share | Initial Allocation | July 1992 | 1993 | 1994 | 1995-2008 | 2009-2010 |
|---|---|---|---|---|---|---|
| Less than 1% | 0 | 0 | 1 | 2 | 3 | 3 |
| 1-1.9% | 31 | 22 | 20 | 12 | 10 | 10 |
| 2-2.9% | 9 | 5 | 5 | 1 | 1 | 2 |
| 3-3.9% | 6 | 4 | 4 | 2 | 2 | 2 |
| 4-5.9% | 2 | 1 | 1 | 3 | 2 | 2 |
| 6-7.9% | 1 | 3 | 3 | 3 | 3 | 2 |
| 8-9.9% | 0 | 1 | 1 | 0 | 1 | 1 |
| 10-14.9% | 0 | 1 | 1 | 2 | 2 | 2 |
| Over 15% | 0 | 0 | 0 | 1 | 1 | 1 |
| **Total** | 49 | 37 | 36 | 26 | 25 | 25 |

Data Source: NOAA Fisheries Service Southeast Regional Office, 8/17/2011

Trip Characteristics

**Table 3-6** consolidates some data from **Tables 3-2**, **3-3**, and **3-4** showing in summary form the number of trips taken each season, and the number of active dealers, vessels, and shareholders. Additionally, where the landings are not confidential, average gross revenue is shown for dealers, vessels and shareholders, along with the maximum amount made by the highest earning dealer, vessel, and shareholder for each of the fishing years. Comparing the results, typically there are one or two dealers, fishermen, or shareholders who earned the most revenue from participating in the wreckfish fishery each year. This is not surprising given the relatively low numbers each year, especially beginning in the 1997/1998 season.

**Table 3-6.** Trips, active dealers, vessels, and shareholders in the wreckfish fishery from the 1992-93 to the 2010-11 fishing years. Data shown are nominal, unadjusted values.

| Fishing Year | Trips | Dealers | | | Vessels | | | Shareholders | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Active Dealers | Average per Dealer | Maximum Dealer | Active Vessels | Average per Vessel | Maximum Vessel | Active Share-holders | Average Per Share-holder | Maximum Shareholder |
| 1992/ 1993 | 222 | 14 | $140,743 | $934,505 | 20 | $98,520 | $514,921 | 19 | $103,705 | $514,921 |
| 1993/ 1994 | 210 | 8 | $242,763 | $926,104 | 19 | $102,216 | $544,839 | 16 | $121,382 | $544,839 |
| 1994/ 1995 | 202 | 8 | $259,217 | $1,023,813 | 17 | $121,984 | $497,720 | 15 | $138,249 | $497,720 |
| 1995/ 1996 | 140 | 7 | $164,182 | $606,134 | 13 | $88,406 | $394,770 | 13 | $88,406 | $394,770 |
| 1996/ 1997 | 95 | 4 | $190,741 | $345,320 | 9 | $84,774 | $306,584 | 11 | $69,360 | $306,584 |
| 1997/ 1998 | 56 | 3 | $166,116 | $318,751 | 7 | $71,193 | $308,552 | 10 | $49,835 | $308,552 |
| 1999/ 2000 | 36 | 3 | $142,393 | $301,675 | 3 | $142,393 | $301,675 | 3 | $142,393 | $301,675 |
| 2000/ 2001 | 28 | 3 | $117,087 | $252,613 | 3 | $117,087 | $252,613 | 3 | $117,087 | $252,613 |
| 2001/ 2002 | 31 | * | * | * | * | * | * | * | * | * |
| 2002/ 2003 | 26 | * | * | * | * | * | * | * | * | * |
| 2003/ 2004 | 28 | * | * | * | * | * | * | * | * | * |
| 2004/ 2005 | 25 | * | * | * | * | * | * | * | * | * |
| 2005/ 2006 | 48 | * | * | * | * | * | * | * | * | * |
| 2006/ 2007 | 36 | * | * | * | * | * | * | * | * | * |
| 2007/ 2008 | 26 | * | * | * | * | * | * | * | * | * |
| 2008/ 2009 | 22 | * | * | * | * | * | * | * | * | * |
| 2009/ 2010 | 49 | 4 | $142,696 | $513,546 | 5 | $114,157 | $405,482 | 5 | $114,157 | $405,482 |
| 2010/ 2011 | 41 | 5 | $139,542 | $570,795 | 7 | $99,673 | $435,492 | 5 | $139,542 | $435,492 |

* Denotes data are confidential. Data Source: NOAA Fisheries Service Logbook data, 8/10/2011.

The commercial economic impacts associated with the harvesting of wreckfish by U.S. commercial fishermen and the activities of the seafood and retail industries that depend on fish and seafood products can be estimated. These impacts are expressed in terms of employment (full-time equivalent jobs), personal income, and output (sales by U.S. businesses). Using 2009/2010 values, the harvesting sector accounted for 6 jobs, $214,000 in

income, and $557,000 in output. When harvester data are combined with all aspects of the seafood industry (retail, restaurants, etc.) related to wreckfish harvest, the values increase to 49 jobs, $1,457,000 in income, and $3,419,000 in output.

### 3.4.3 Imports

Wreckfish specifically is not imported, but wreckfish is comparable and marketed as general "grouper" or as a substitute for other grouper species. NOAA Fisheries Service purchases fisheries trade data from the Foreign Trade Division of the U.S. Census Bureau, and data are available for download at http://www.st.nmfs.noaa.gov/st1/trade/index.html. The list of product codes relevant to this data request includes fresh and frozen groupers.

Imports of fresh groupers increased from 5.6 million pounds (product weight) in 1991 to a peak of 12.9 million pounds in 1998 (**Figure 3-1**), which were worth $6.1 million (current dollars) and $18.6 million, respectively. Imports have remained relatively steady since 1999 with an upward trend, with an annual average of 8 million pounds worth $18.1 million. Imports generally originated in Mexico, and in Panama to a much lesser extent, and entered the U.S. in Miami. Prior to 2006, imports of fresh groupers were above average in March and April and below average in October and November. However, imports in March have declined significantly since 2006.

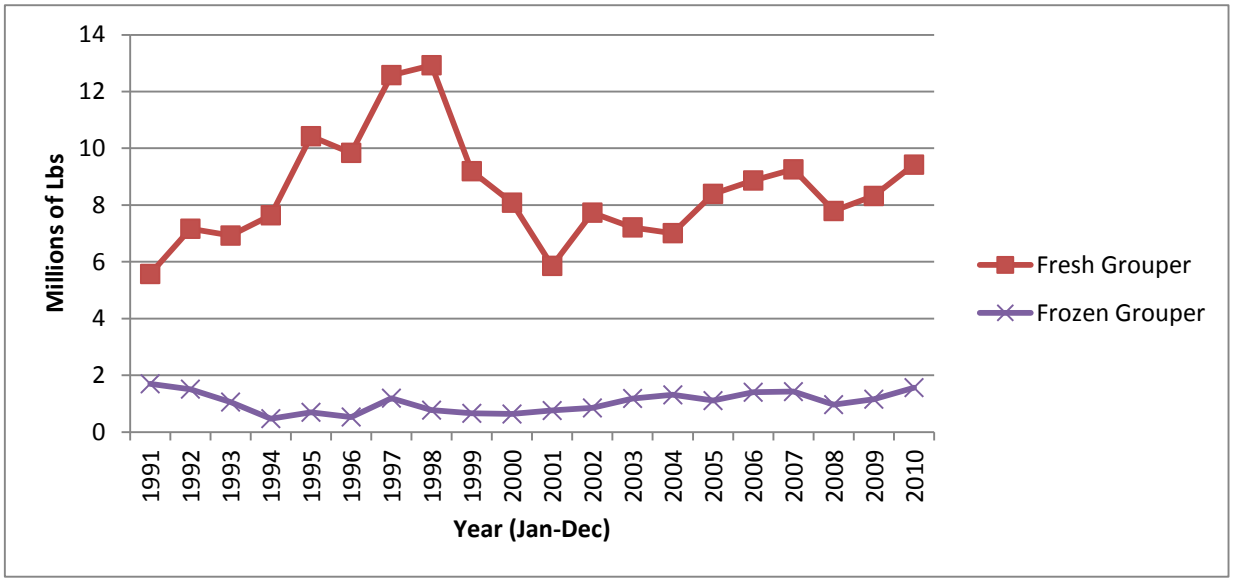


**Figure 3-1.** Grouper imports in pounds (product weight)

Imports of frozen grouper were relatively minor, and averaged 1.0 million pounds since 2006 (**Figure 3-1**), which were worth $1.6 million. Imports generally originated in Mexico or Asia, and entered the U.S. in Miami, Tampa or San Juan. Based on data for imports, on average from 2006-2009, imports of frozen groupers were above average from December through April and below average from June through August.

## 3.5 Social and Cultural Environment

Background

To understand the social and cultural environment of the wreckfish fishery, it is important to understand the history of the fishery. Past and present fishery participants contributed to the following descriptions of the wreckfish fishery and the wreckfish ITQ program.

*Late 1980s and Early 1990s*

In the late 1980s, a few fishermen began to target wreckfish about 50 miles offshore. The species, also called stone bass, inhabited areas about a mile under the surface of the water. According to shareholders contacted in an informal 2009 survey, because the species had never been targeted before in South Atlantic waters, the species was relatively easy to catch and harvests were large. Prior to participation in the wreckfish portion of the snapper grouper fishery, shareholders fished for shrimp, snapper grouper, sharks, swordfish, and/or tuna. These fishermen typically had larger vessels and so it was possible for these vessels to participate in the wreckfish fishery which requires a large vessel given its distance from land. During this time, shrimp yields were relatively low and the ex-vessel price for shrimp was low as well. Several boats re-rigged to switch from shrimping to fishing for wreckfish. Other people bought new boats specifically made for fishing for wreckfish. By 1991, more than 100 vessels were fishing for wreckfish in derby-like conditions. The derby may have been caused by an influx of shrimp boats, and/or interest from other fishermen to participate in a fishery with high yields from a 'virgin' stock, which would likely require less effort to harvest than other stocks that had already been heavily fished. In general, the ITQ eliminated the derby fishery. However, some wreckfish fishermen have commented that this would have happened anyway given how difficult the fishery is to prosecute.

During the derby, ex-vessel prices were lower than previously and it was sometimes difficult to move the wreckfish harvest due to the large size of total landings; there were market gluts. Average nominal prices received ranged from $1.19 to $1.88 per pound in the late 1980s and early 1990s (see **Table 3-2**). Shareholders noted that on a typical trip, 15,000-18,000 pounds of wreckfish were harvested.

Prior to implementation of the ITQ, several fishermen noticed that wreckfish were filled with roe in winter and early spring. A spawning season closure from January 15-April 15 was proposed and implemented by the South Atlantic Council. But in April of the year of the first spawning season closure, fishermen found the markets that had developed for wreckfish were no longer available due to the interruption caused by the three-month spawning season closure. Average ex-vessel prices decreased and harvests were harder to sell. Ex-vessel price, the ITQ eligibility requirements, initial allocation, the difficulty of harvesting wreckfish, and a rebound in the shrimp fishery[5] contributed to a decline in the number of vessels participating in the fishery in the early 1990s after implementation of the ITQ.

[5] At about the same time that the ITQ was implemented, the shrimp fishery improved and several vessels stopped fishing for wreckfish.

The general feeling among shareholders is that the wreckfish fishery is a very difficult fishery to prosecute and that many vessels left because there were easier and more profitable fisheries open to them. Some of the factors that make the wreckfish fishery difficult are:

- the location of the fishing grounds near the Gulf Stream;
- the distance of the fishing grounds offshore and the expense associated with the fuel required to travel to the fishing grounds and harvest; and
- the inability to locate fish with a fish finder because wreckfish do not have air bladders.

While some vessels remained in the fishery, in 2002 there was yet another drop in landings that appears to be at least partially due to the untimely deaths of three highliners along with additional shareholders who passed away at a later date. Since that time, the number of active participants has varied between two and four vessels each year, with a few additional participants in the past two years.

Wreckfish Shareholders

Currently the wreckfish fishery is made up of ITQ shareholders with varying degrees of participation since the start of the ITQ program. The fishery consolidated initially in the first few years and from the 1995/1996 season up to the present fishing year, there were 25 shareholders. Initial allocation of the shares designated 49 shareholders, of which over half were associated to vessels with home ports in Florida, and 11 of those in Duval County around Jacksonville and Mayport, Florida (**Table 3-7**). Seven permit holders with shares had home ports in South Carolina (mostly around Charleston), four in Georgia, and five were in North Carolina.

**Table 3-7**. Total number of shareholder accounts in each state during the first season of the ITQ program (1992-93), after consolidation in the first few years (1995-1996), and the most recent fishing year (2010-2011).

| | **1992/1993** | **1995/1996** | **2010/2011** |
|---|---|---|---|
| Florida | 26 | 18 | 17 |
| Georgia | 4 | 1 | 1 |
| South Carolina | 7 | 4 | 4 |
| North Carolina | 5 | 2 | 3 |
| Outside the South Atl/Unknown | 7 | 0 | 0 |
| **TOTAL** | 49 | 25 | 25 |

Data Source: NOAA Fisheries Service Southeast Regional Office, 8/10/2011

After the 1995/1996 fishing year, consolidation of the fleet—a result of share transfers—mostly stopped, and the distribution stabilized. One difference is that in the 1995/1996 fishing year, Volusia County (including Port Orange and New Smyrna) in Florida surpassed Duval County (Jacksonville and Mayport) having the most shareholders (8 in Volusia, 7 in Duval).

The wreckfish fishery now supports a niche market that employs one fisherman almost year round, one fisherman for most of the year, and two shareholders who participate every few years. Inactive shareholders are discussed later in this section.

*Shareholders Actively Fishing for Wreckfish*

A few fishermen have consistently reported wreckfish landings. Two of these fishermen are based in Charleston, South Carolina, including the largest operation. The wreckfish is purchased by a local fish house, sold to restaurants or consumers, and shipped to dealers around the U.S. In Charleston, wreckfish is not uncommon at local fine dining establishments during the fishing year. More recently there have been wreckfish sales to dealers in the Florida Keys, and additional transfers of shares to individuals in the Florida Keys. Because of the small number of participants, most years of landings data are confidential. For more information, see **Section 3.4**.

*Shareholders Not Fishing for Wreckfish*

Over time the number of shareholders actively participating in the fishery declined as fishermen targeted other species, retired, or passed away. At the end of the 2010/2011 fishing year, there were 19 shareholders who had not reported any wreckfish landings in the previous ten years. Most of these shareholders reside in Florida (14 out of 19), in Volusia and Duval Counties. Georgia and South Carolina have one shareholder, and North Carolina has three. Of these current 19 shareholders without landings, 12 are original allocations from the start of the ITQ program in 1992.

Current shareholders not fishing for wreckfish also fish for king mackerel, tuna, dolphin, swordfish, shark, shrimp, black sea bass, lobsters, and oysters. In an informal survey of shareholders in 2009, some shareholders reported that they were preparing to participate in the wreckfish fishery in the next fishing year in order to make up for revenue they expected to receive from fisheries they would be unable to participate in due to changes in regulations. Some mentioned that they would make more trips for wreckfish if they had a newer and larger vessel, if their physical health was better, and if their balance was better as it was when they were younger. Several shareholders were retired or planned to retire soon.

Dealers

There are 53 wreckfish dealer permits in the South Atlantic, and 25 of these are located in Florida (mostly Monroe County (Florida Keys) and Miami-Dade County). There is one dealer with a wreckfish dealer permit in Georgia (McIntosh County); five in South Carolina (Charleston, Georgetown and Horry Counties); and 8 in North Carolina (Beaufort, Dare and Carteret Counties). Additionally, 14 of the wreckfish dealer permits are registered in other states, including Ney York, New Jersey, Virginia, Maryland, Louisiana, and Texas. South Atlantic wreckfish are sold in Canada, Boston, New York, and Orlando, among other places. It is a substitute for grouper but has a market of its own as well. It is sold as "wreckfish" or "wreckfish grouper".

In general, only two or three wreckfish dealers have purchased wreckfish in the past ten years, and these are in the Charleston area, Volusia County (Florida), and in the Florida Keys.

Active wreckfish fishermen note that the wreckfish market is a narrow and specialized market. Active wreckfish fishermen have had to cancel some trips in the past few years because it has been uncertain whether the wreckfish poundage brought to the dock can be moved. The fishermen have also stated that it is also sometimes uncertain whether they will get paid right away due to a cash shortage on the part of the fish house.

Another shareholder stated that recently, the market has been flooded with red grouper, which is a substitute for wreckfish, which has lowered prices. There is hope that the market for wreckfish might improve if red grouper harvest decreased and/or marketing improved.

Affected Communities

Detailed information about potential effects on communities associated with the snapper grouper fishery can be found in Jepson et al. (2005) and the Comprehensive ACL Amendment (SAFMC 2011). In general, the areas most associated with wreckfish are Charleston, South Carolina; Port Orange, Florida; and Key Largo, Florida. However, shareholders also live in the Jacksonville, Florida area, among other towns and communities along with South Atlantic coast.

## 3.6 Environmental Justice Considerations

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as environmental justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, processors, employees, employees of associated support industries, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries in several communities along the South Atlantic coast and not just those profiled, it is possible that other counties or communities have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2000 was used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in **Table 3-8**.

While some communities that may be affected by this proposed amendment have minority or economic profiles that exceed the EJ thresholds and therefore may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue due to this proposed amendment, nor are these measures expected to result in increased risk of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

**Table 3-8**. Environmental Justice Thresholds (2000 U.S. Census data).

| State | Community | Minority Rate | Minority Threshold* | Poverty Rate | Poverty Threshold* |
|---|---|---|---|---|---|
| **Florida** | | **34.60** | **41.52** | **12.50** | **15.00** |
| | Cape Canaveral | 8.10 | | 11.60 | |
| | Daytona Beach | 39.7 | | 23.6 | |
| | Fernandina Beach | 20.0 | | 10.2 | |
| | Jacksonville Beach | 11.0 | | 7.2 | |
| | St. Augustine | 20.7 | | 15.8 | |
| **Georgia** | | **37.40** | **44.88** | **13.00** | **15.60** |
| | Townsend** | 39.10 | | 14.60 | |
| **South Carolina** | | **33.90** | **40.68** | **14.10** | **16.92** |
| | Little River | 9.10 | | 7.50 | |
| **North Carolina** | | **29.80** | **35.76** | **12.30** | **14.76** |
| | Atlantic City | 2.60 | | 7.30 | |
| | Beaufort | 25.40 | | 16.60 | |
| | Hatteras Village | 6.60 | | 10.00 | |
| | Morehead City | 19.20 | | 14.60 | |
| | Sneads Ferry | 9.70 | | 13.50 | |
| | Wanchese | 3.30 | | 8.10 | |

*Calculated as 1.2 times the state rate.

**Values are for entire McIntosh County.

Among the communities examined, based on available demographic information, there are no EJ concerns. As noted above, however, there may be additional communities beyond those profiled that could be affected by the actions in this proposed amendment. Because these communities have not been profiled, the absence of additional potential EJ concerns cannot be assumed and the total number of communities that exceed the thresholds is unknown.

The actions in this proposed amendment are expected to incur social and economic benefits to users and communities by reverting inactive wreckfish shares, and redistributing them to fishermen who actively harvest wreckfish. Although some shareholders will lose shares without compensation, these shares have not contributed to the shareholders' income in several years, and they are not dependent on these shares.

Finally, the general participatory process used in the development of fishery management measures (e.g., scoping meetings, public hearings, and open South Atlantic Council meetings) is expected to have provided sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development process of this amendment and have their concerns factored into the decision process.

# 4 Environmental Effects

## 4.1 Action 1. Define and revert inactive wreckfish shares.

**Alternative 1**: No Action. Do not define or revert inactive shares for redistribution.

**Alternative 2**: Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings between April 16, 2009, and January 14, 2011, and revert inactive shares for redistribution among active shareholders.

**Alternative 3 (Preferred):** Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings between April 16, 2006, and January 14, 2011, and revert inactive shares for redistribution among active shareholders.

### 4.1.1 Biological Effects

The following biological effects analysis assumes that the proposed commercial annual catch limit (ACL) for wreckfish included in the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011), will be approved by the Secretary of Commerce. Defining and reverting inactive wreckfish shares, independent of the other actions in this amendment, would not result in direct biological effects, such as increasing or decreasing the amount of harvest, compared to the status quo. However, if the reverted shares are redistributed to other shareholders (Action 2) who are assumed to be more likely to actively fish the shares, some indirect biological effects would result. Therefore, the biological effects analysis for this action takes into account the likely scenario in which the South Atlantic Council would choose to redistribute reverted shares to active commercial participants in the wreckfish portion of the snapper grouper fishery. Otherwise, simply defining inactive shares and reverting those shares are largely administrative actions.

Under **Alternative 1 (No Action)**, inactive shares would remain with their current shareholders and thus, may or may not be utilized for harvesting wreckfish. The ACL for the commercial sector for wreckfish in the Comprehensive ACL Amendment amended proposed rule is 223,250 pounds whole weight (ww), compared to the previous 2 million pound (ww) commercial quota. This new harvest limit would result in a significant (89%) reduction in the amount of pounds associated with each share, including inactive shares. As a result, if inactive shares are not reverted it is likely that harvest would only reach approximately 130,735[6]-160,338[7] pounds (ww), after applying the proposed ACL. If the historical wreckfish fishing practices among active and inactive shareholders were to persist,

[6] Obtained by multiplying 0.5856 x 223,250, where the former is the percentage of shares held by current active shareholders under **Alternative 2** in **Action 1**.
[7] Obtained by multiplying 0.7182 x 223,250 where the former is the percentage of shares held by the current active shareholders under **Alternative 3** in **Action 1**.

**Alternative 1 (No Action)** could result in biological benefits in the form of reduced fishing mortality when compared to **Alternatives 2** and **3 (Preferred)**.

According to the 2010 Status of Fisheries (NMFS 2010) wreckfish are not undergoing overfishing and their overfished status is unknown. Landings by the seven active shareholders during the 2010/2011 fishing year were 257,320 pounds (ww) (**Table 3-2**), well under the 2 million pound (ww) quota. Currently, wreckfish have not been declared overfished or undergoing overfishing, and it is not necessary to restrict harvest in the commercial sector below the proposed commercial ACL of 223,250 pounds (ww). The Comprehensive ACL Amendment (SAFMC 2011) also proposes to set optimum yield (OY) equal to the ACL, which for both sectors combined is 235,000 pounds (ww). **Section 1.4** contains a detailed description of the South Atlantic Council process to specify the proposed ACL.

Out of 20 wreckfish shareholders, currently there are either 14 inactive shareholders (**Alternative 2**), or 13 inactive shareholders (**Alternative 3 (Preferred)**) holding shares that would be redistributed among a group of 6 or 7 remaining active wreckfish shareholders. **Table 4-1** illustrates the number of shares that would be reverted based on individual transferable quota (ITQ) shareholders who have no reported wreckfish landings during the 2009/2010 and 2010/2011 fishing years (**Alternative 2**) or had no landings during the 2006/2007, 2007/2008, 2008/2009, 2009/2010, and 2010/2011 fishing years (**Alternative 3 (Preferred)**).

**Table 4-1**. Inactive shares held by ITQ shareholders with no landings during the time periods specified under each alternative.

| | Number of Active Shareholders | Percentage of Shares Held by Active Shareholders | Number of Inactive Shareholders | Percentage of Shares Held by Inactive Shareholders |
|---|---|---|---|---|
| **Alternative 2** | 6 | 58.56% | 14 | 41.44% |
| **Alternative 3 (Preferred)** | 7 | 71.82% | 13 | 28.18% |

Data source: NOAA Fisheries Service Southeast Regional Office

**Alternative 2** would result in a total of 41.44% of the existing wreckfish shares being reverted and made available for redistribution under Action 2. **Alternative 3 (Preferred)** would result in 28.18% of existing shares being reverted. Compared to the status quo, **Alternatives 2** and **3 (Preferred)** are likely to result in the greatest level of fishing harvest in the commercial sector assuming all redistributed shares under each alternative would result in 100% of the shares being fished. Inactive shares taken from current wreckfish permit holders under **Alternatives 2** and **3 (Preferred)** would remove the opportunity to fish for wreckfish for those individuals unless they were to obtain shares via transfer in the future. Although opportunities to fish for wreckfish would no longer be available for inactive shareholders as defined under this action, those fishing opportunities would be transferred to active shareholders under Action 2. Because the shares that were previously unfished would be transferred to those who are more likely to fish them, a small indirect biological impact could

be expected from this action in the form of increased fishing mortality. However, ACLs and accountability measures, which are proposed in the Comprehensive ACL Amendment and its amended proposed rule, would prevent the commercial harvest from exceeding the 223,250 pound (ww) proposed commercial ACL.

Defining inactive shares, and reverting them for redistribution, would have no immediate biological impact on target or non-target species, or essential fish habitat; however, it would result in indirect biological effects by freeing up currently unused shares to be fished in the future. If the South Atlantic Council chooses to redistribute shares (Action 2) that are not currently being fished, the probability of bycatch associated with commercial wreckfish fishing could increase. However, there is very little bycatch in the wreckfish portion of the snapper grouper fishery and, the mortality rate of any released fish is likely to be 100% because wreckfish are typically harvested in waters deeper than 984 ft (300 m) (Machias et al. 2003; SAFMC 1991). Fish caught in deep water have a higher mortality rate than fish caught in shallower depths. Bycatch when targeting wreckfish with hook and line gear typically consists of deepwater finfish species such as barrelfish (*Hyperoglyphe perciformis*) and red bream (*Beryx decadactylus*) (Goldman and Sedberry 2011; NMFS 2001).

The action to define inactive wreckfish shares and revert those shares for redistribution would not directly increase or decrease the current level of fishing mortality, which would ultimately be limited by the previously discussed proposed in-season accountability measures to maintain commercial harvest at or below 223,250 pounds (ww), nor would it modify the gear types used in the wreckfish portion of the snapper grouper fishery. Additionally, fishing practices for the harvest of wreckfish would not be modified under this action in ways not considered in previous evaluations of effects to protected species; therefore, no increased risk to sea turtles, other protected species, essential fish habitat, or habitat areas of particular concern is expected from this action.

### 4.1.2 Economic Effects

Under **Alternative 1 (No Action),** no quota shares would be defined as inactive and reverted for redistribution. Thus, the distribution of shares between the current[8] 20 shareholders would be expected to continue in the future. Statistics regarding that distribution are presented in **Table 4-2**. These estimates indicate that the current minimum quota share held by a shareholder is 0.06%, the maximum quota share is 20.63%, the mean quota share is 5%, and the median quota share is 3.4%. Because the median is significantly less than the mean and the standard deviation is relatively large compared to the mean, these statistics indicate a highly skewed distribution of quota shares. Specifically, 13 shareholders own less than 5%, four shareholders own between 5% and 10%, two shareholders own between 10% and 15%, and one shareholder owns more than 20% of the quota shares.

[8] As of November 17, 2011.

Assuming that shareholders who have recently been active continue to be active in the commercial wreckfish component of the snapper grouper fishery, and those who have been inactive continue to be inactive, this distribution would be expected to result in commercial landings between 130,735 and 160,338 pounds (ww), depending on the time period chosen for determining whether a shareholder is active or inactive. In turn, between 62,912 and 92,515 pounds (ww) of landings are expected to be foregone as a result, again depending on the time period chosen for determining whether a shareholder is active or inactive. Given an average price of $2.96/pound (ww)[9] in the 2010/2011 fishing year, the expected loss in annual gross revenue to the commercial sector is estimated to be between $186,220 and $273,844 under **Alternative 1 (No Action)**, or between $26,603 on average for the 7 shareholders active in two most recent fishing years (i.e., 2009/2010 and 2010/2011) and $45,641 on average for the 6 shareholders active in the five most recent fishing years (i.e., 2006/2007 through 2010/2011). Consistent with previous information, these estimates reflect a loss of potential gross revenue in the commercial sector between 28.18% and 41.44% relative to a distribution of quota shares that would allow the entire commercial quota of 223,250 pounds (ww) to be harvested by active shareholders. These losses in gross revenue are expected to lead to a loss in profits as well. However, cost data for the active wreckfish vessels is not presently available and thus the potential loss in profits to the commercial sector and the active shareholders' vessels cannot be estimated.

On the other hand, by not defining some quota shares as inactive and redistributing those quota shares to active shareholders, all shareholders will be allowed to retain their current quota shares. Based on currently available transfer price data between the 2009/2010 and 2011/2012 fishing years,[10] the market value of a 1% share of quota is estimated to be $6,407 on average,[11] or approximately $0.32/pound. This estimate must be used with some caution as it is based on only 10 share transfer transactions. Further, this estimate is based on buyers and sellers assuming the historical 2 million pounds (ww) commercial quota in their negotiations, and the associated allocation of pounds that would come with the shares under that quota. Assuming the quota was reduced to 223,250 pounds (ww), or by 89%, the allocation associated with those quota shares would be proportionally reduced. In turn, the expected stream of future income associated with that reduced allocation is expected to decrease significantly as well, leading to a reduction in the market value of those quota shares.

Based on the information in **Table 4-2** and the information above, the total market value of all quota shares is estimated to be approximately $640,700. On a per shareholder basis, the minimum market value of a shareholder's current quota shares is $384 while the maximum market value of a shareholder's current quota shares is approximately $132,176. The mean

[9] All prices, values, and revenues are in 2009 dollars.
[10] Based on share transfer price data compiled on August 24, 2011. No share transfers occurred between 1999 and 2008 and share transfer prices before 1999 are likely not reflective of current market conditions.
[11] The average in this case is a mean value.

market value of a shareholder's current quota shares is approximately $32,035 while the median market value is approximately $21,784. Given the skewed distribution of quota shares, the median value is likely more representative of the "average" value.

**Table 4-2**. All shareholder statistics for **Alternative 1 (No Action)** under **Action 1.**

| | |
|---|---|
| Number of Shareholders | 20 |
| Minimum Share per Shareholder | 0.06% |
| Maximum Share per Shareholder | 20.63% |
| Total Shares | 100.0% |
| Median Share per Shareholder | 3.40% |
| Mean Share per Shareholder | 5.00% |
| Standard Deviation | 5.28% |

Data source: NOAA Fisheries Service Southeast Regional Office

Under **Alternative 2**, some quota shares would be defined as inactive and reverted for redistribution to shareholders determined to be active. Statistics regarding the six shareholders and 14 shareholders determined to be active and inactive, respectively, under **Alternative 2** are presented in **Table 4-3** and **Table 4-4**, respectively. These estimates indicate that the current minimum quota share held by an active shareholder is 3.51%, the maximum quota share is 20.63%, the mean quota share is 9.76%, and the median quota share is 9.03%. For inactive shareholders, the current minimum quota share held by an inactive shareholder is 0.06%, the maximum quota share is 13.25%, the mean quota share is 2.96%, and the median quota share is 1.89%. Thus, while there are fewer active than inactive shareholders, the active shareholders are much more vested in the commercial wreckfish component of the snapper grouper fishery, as illustrated by the fact that the minimum, maximum, and average share held by active shareholders are considerably greater than the estimates for inactive shareholders.

**Table 4-3**. Active shareholder statistics for **Alternative 2** under **Action 1.**

| | |
|---|---|
| Number of Shareholders | 6 |
| Minimum Share per Shareholder | 3.51% |
| Maximum Share per Shareholder | 20.63% |
| Total Shares | 58.56% |
| Median Share per Shareholder | 9.03% |
| Mean Share per Shareholder | 9.76% |
| Standard Deviation | 5.85% |

Data source: NOAA Fisheries Service Southeast Regional Office

**Table 4-4**. Inactive shareholder statistics for **Alternative 2** under **Action 1.**

| | |
|---|---|
| Number of Inactive Shareholders | 14 |
| Minimum Share Reverted per Shareholder | 0.06% |
| Maximum Share Reverted per Shareholder | 13.25% |
| Total Shares Reverted | 41.44% |
| Median Share Reverted per Shareholder | 1.89% |
| Mean Share Reverted per Shareholder | 2.96% |
| Standard Deviation | 3.56% |

Data source: NOAA Fisheries Service Southeast Regional Office

The 14 shareholders who are inactive in the commercial wreckfish component of the snapper grouper fishery would not incur any losses in wreckfish landings or gross revenue. Most of these shareholders (12) have not been active in any commercial fisheries and thus appear not to be involved in commercial fishing at all. However, two of these inactive shareholders did have commercial landings and gross revenue from other fisheries in 2009 and 2010. The extent to which these shareholders were involved in other fisheries differs greatly, as one was only minimally involved and the other significantly involved in other commercial fisheries.[12] The loss of wreckfish shares under **Alternative 2** is not expected to affect the current operations of these two shareholders' vessels, though it would take away the option of fishing for wreckfish in the future. Technically, the loss of shares would also prevent these shareholders from leasing their coupons. However, as no coupons have been leased by inactive nor actives shareholders since 1995, this loss is not considered to be "real" economically and is therefore discounted.

Based on the average market value of a 1% share, the total loss of quota share to these 14 shareholders is estimated to be valued at approximately $265,506, or about $18,965 per shareholder. If the median quota share per shareholder is used, then the "average" loss per shareholder would be approximately $12,110. These losses represent a loss in asset value or wealth as opposed to profits or income. Because information on these shareholders' wealth is not available, it is not possible to determine the economic significance of these losses to them.

It should be noted that "value" in the context used in the previous paragraph, and as subsequently used for **Alternative 3 (Preferred)** in the discussion below and throughout this section and appendices is based on the market price of shares and, therefore, is not equivalent to estimates of change in annual gross revenue. For example, as previously discussed, the expected loss in annual gross revenue to the commercial sector is estimated to range from $186,220 to $273,844. In the previous paragraph, the expected change in value as a result of **Alternative 2** is $265,506 whereas, as discussed below, the comparable figure for **Alternative 3 (Preferred)** is $180,582. Despite the similarity in the estimates ($186,220-$273,844 versus $180,582-$265,506), they represent different economic concepts, i.e., the value of shares versus the amount of annual revenues, and should not be confused.

The six active shareholders would not experience any direct economic effects under **Alternative 2,** but would be expected to experience indirect economic benefits since the intent of this alternative is to redistribute the inactive shares to the active shareholders. The active shareholders would not only benefit from the increased value of their assets, but would also benefit because of the expected increase in their wreckfish landings, gross revenue, and profits, relative to **Alternative 1 (No Action)**. In turn, the seven vessels used by these shareholders to harvest their annual allocations would also benefit as a result of the expected

[12] In order to protect confidential data, estimates of their annual gross revenue are not provided.

increase in their wreckfish landings and gross revenue.[13] Similarly, the five active dealers who bought wreckfish in 2010 would also be expected to receive indirect economic benefits, as their sales of wreckfish would be expected to increase relative to what they would be under **Alternative 1 (No Action)**.

Under **Alternative 3 (Preferred)**, some quota shares would be defined as inactive and reverted for redistribution to shareholders determined to be active. Statistics regarding the 7 shareholders determined to be active and 13 determined to be inactive under **Alternative 3 (Preferred)** are presented in **Table 4-5** and **Table 4-6**, respectively. These estimates indicate that the current minimum quota share held by an active shareholder is 3.51%, the maximum quota share is 20.63%, the mean quota share is 10.26%, and the median quota share is 9.07%. For inactive shareholders, current minimum quota share held by an inactive shareholder is 0.06%, the maximum quota share is 7.31%, the mean quota share is 2.17%, and the median quota share is 1.79%. As under **Alternative 2**, while there are fewer active than inactive shareholders, the active shareholders are much more vested in the commercial wreckfish component of the snapper grouper fishery, as illustrated by the fact that the minimum, maximum and average share held by active shareholders are considerably greater than the estimates for inactive shareholders.

**Table 4-5**. Active shareholder statistics for **Alternative 3 (Preferred)** under **Action 1.**

| | |
|---|---|
| Number of Shareholders | 7 |
| Minimum Share per Shareholder | 3.51% |
| Maximum Share per Shareholder | 20.63% |
| Total Shares | 71.82% |
| Median Share per Shareholder | 9.07% |
| Mean Share per Shareholder | 10.26% |
| Standard Deviation | 5.50% |

Data source: NOAA Fisheries Service Southeast Regional Office

**Table 4-6**. Inactive shareholder statistics for **Alternative 3 (Preferred)** under **Action 1.**

| | |
|---|---|
| Number of Inactive Shareholders | 13 |
| Minimum Share Reverted per Shareholder | 0.06% |
| Maximum Share Reverted per Shareholder | 7.31% |
| Total Shares Reverted | 28.18% |
| Median Share Reverted per Shareholder | 1.79% |
| Mean Share Reverted per Shareholder | 2.17% |
| Standard Deviation | 2.06% |

Data source: NOAA Fisheries Service Southeast Regional Office

[13] Although most shareholders use one vessel to harvest their allocation, one shareholder has used two vessels in recent years.

The 13 shareholders who are inactive would not incur any losses in wreckfish landings or gross revenue. Most of these shareholders (11) have not been active in any commercial fisheries and thus appear not to be involved in commercial fishing at all. However, two of these inactive shareholders did have commercial landings and gross revenue from other fisheries between 2006 and 2010. The extent to which these shareholders were involved in other fisheries differs greatly, as one was only minimally involved and the other significantly involved in other commercial fisheries.[14] The loss of wreckfish shares under **Alternative 3 (Preferred)** is not expected to affect the current operations of these two shareholders' vessels, though it would take away the option of fishing for wreckfish in the future. Technically, the loss of shares would also prevent these shareholders from leasing their coupons. However, as no coupons have been leased by any shareholder since 1995, this loss is not considered to be "real" economically and is therefore discounted.

Based on the average market value of a 1% share, the total loss of quota share to these 13 shareholders is estimated to be valued at approximately $180,582, or about $13,890 per shareholder. If the median quota share per shareholder is used, then the "average" loss per shareholder would be approximately $11,494. These losses represent a loss in asset value or wealth as opposed to profits or income. Because information on these shareholders' wealth is not available, it is not possible to determine the economic significance of these losses to them. However, the losses to inactive shareholders are less in total and on average under **Alternative 3 (Preferred)** than under **Alternative 2**.

The seven active shareholders would not experience any direct economic effects under **Alternative 3 (Preferred),** but would be expected to economically benefit indirectly since the intent of this alternative is to redistribute the inactive shares to the active shareholders. The active shareholders would not only benefit from the increased value of their assets, but would also benefit due to the expected increase in their wreckfish landings, gross revenue, and profits, relative to **Alternative 1 (No Action)**. In turn, the eight vessels used by these shareholders to harvest their annual allocations would also benefit because of the expected increase in their wreckfish landings and gross revenue.[15] Similarly, the five active dealers who bought wreckfish in 2010 would also be expected to experience indirect economic benefits, as their sales of wreckfish would be expected to increase relative to what they would be under **Alternative 1 (No Action)**.

In the aggregate, the magnitude of these indirect economic benefits to active shareholders and their vessels would be equivalent under **Alternative 2** and **Alternative 3 (Preferred)**. However, the distributional effects are likely to differ regardless of how shares from inactive shareholders are redistributed to active shareholders. Specifically, under **Alternative 2**, active shareholders from South Carolina control approximately 26% of the total shares held by all active shareholders, while they control about 40% of the total shares held by all active

[14] In order to protect confidential data, estimates of their annual gross revenue are not provided.
[15] Although most shareholders use one vessel to harvest their allocation, one shareholder has used two vessels in recent years.

shareholders under **Alternative 3 (Preferred)**. Conversely, active shareholders from Florida control approximately 74% of the total shares held by all active shareholders under **Alternative 2**, while they control about 60% of the total shares held by all active shareholders under **Alternative 3 (Preferred)**. Thus, these indirect economic benefits to active shareholders and their vessels in Florida would likely be greater under **Alternative 2**, while such benefits would likely be greater to active shareholders and their vessels in South Carolina would be greater under **Alternative 3 (Preferred)**.

With respect to indirect economic effects on wreckfish dealers, the primary effects would also be distributional in nature. In order to avoid disclosing confidential information, the nature of these distributional effects is only discussed in geographical terms. Specifically, the primary effect of the various alternatives would be to shift landings and sales of wreckfish between dealers in Florida and dealers in South Carolina. In recent years, approximately 80% of landings and sales of wreckfish have occurred in South Carolina with the other 20% occurring in Florida. In general, active shareholders sell to dealers in the state from which they operate. Thus, the geographic distribution of active shareholders generally predicts the geographic distribution of the landings and sales of wreckfish. Given that approximately 26% of the shares held by active shareholders operate from South Carolina while the other 74% is held by active shareholders operating from Florida under **Alternative 2**, a significant shift in the distribution of landings and sales of wreckfish from South Carolina to Florida dealers could occur. Conversely, given that approximately 40% of the shares will be held by active shareholders that operate from South Carolina while the other 60% will be held by active shareholders operating from Florida, the potential shift in the distribution of landings and sales of wreckfish from South Carolina to Florida dealers would be noticeably less under **Alternative 3 (Preferred)**.

### 4.1.3 Social Effects

Effects from fishing regulations on the social environment are difficult to analyze due to complex human-environment interactions and a lack of quantitative data about those interactions. Generally, social effects can be categorized according to changes in: human behavior (what people do), social relationships (how people interact with one another), and human-environment interactions (how people interact with other components of their environment, including enforcement agents and fishery managers). It is generally accepted that a positive correlation exists between economic effects and social effects. Thus, in **Section 4.1.2**, alternatives predicting positive or negative economic effects are expected to have correlating positive or negative social effects.

The amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011) proposes to significantly reduce the commercial sector's amount of possible harvest of wreckfish. Amendment 20A is therefore driven by the need to adjust the distribution of wreckfish shares in order to remove latent effort from the commercial sector and allow the commercial sector's ACL to be harvested and thereby achieve OY. This would be expected to allow for the continued participation of active shareholders, captains, crew, and wreckfish dealers. However, since the initial drafting of Amendment 20A, there have been a number of transfers of inactive shares (as well as active) to active shareholders which have resulted in a change in distribution of the shares.

**Alternative 1 (No Action)** would be expected to result in the most negative social effects. The commercial sector of the wreckfish portion of the snapper grouper fishery currently includes 20 shareholders and has included fewer than 9 active shareholders in recent years (fishing years 2006/2007-2010/2011). The annual pounds of wreckfish quota received by these active shareholders would be reduced with the amended proposed 2012 ACL by 89%. If the inactive shares are not redistributed to active shareholders it is assumed that the amount of wreckfish being fished and delivered would also be reduced by the same percentage. This loss in pounds of landings and revenue has been detailed in **Section 4.1.2**. This extreme reduction in catch and landings would be expected to negatively impact active shareholders, captains, crew members, and dealers who depend on wreckfish production. As expressed in public testimony at the August 2011 South Atlantic Council meeting, this loss in active shareholders' catch would cause a difficulty in making a living from one's wreckfish involvement.

During the years 2006/2007 to 2010/2011, a total of 7 dealers have been involved in wreckfish production; however, a large portion of these landings have been delivered in a few communities. The communities with the largest portion of wreckfish landings, Wadmalaw Island, South Carolina, and Port Orange, Florida, would likely be the most affected by a reduction in landings if **Alternative 1 (No Action)** is selected. Ripple effects such as the closure of a dealer resulting from a loss in income from wreckfish could possibly occur and impact other fishermen who depend on that particular dealer for the delivery of their product.

In addition, **Alternative 1 (No Action)** is potentially inconsistent with Magnuson-Stevens Act National Standard 8, which require that conservation and management measures take into account the importance of fishery resources to fishing communities in order to provide for the sustained participation of those communities and, to the extent practicable, minimize adverse economic impacts on such communities.

Conversely, **Alternative 1 (No Action)** would be expected to result in some positive social effects in that inactive shareholders would retain their shares and would have the choice to fish, sell, or lease their shares in the future. Based on an informal survey of wreckfish shareholders in 2009, shareholders were aware that they could sell shares and coupons but did not have buyers, and some were waiting for the stock to rebound to sell, lease, or fish the wreckfish shares and coupons. Some inactive shareholders may still be relying on their shares for future use and **Alternative 1 (No Action)** would continue to allow this option.

**Alternative 2** and **Alternative 3 (Preferred)** are the most socially beneficial because these alternatives revert inactive shares to active shareholders and could allow most shareholders to continue participation at a level comparable to the current harvest under the TAC of 2 million pounds. These two alternatives would be expected to benefit active shareholders and wreckfish dealers, and only differ in terms of one shareholder's shares being reverted because of the landings years considered (**Alternative 2** includes 14 inactive shareholders and 6 active shareholders; whereas **Alternative 3 (Preferred)** includes 13 inactive shareholders and 7 active). **Table 4-1** in **Section 4.1.1** details this difference showing that

**Alternative 2** would redistribute 41.44%; whereas, **Alternative 3 (Preferred)** would redistribute 28.18% to active shareholders. If the larger percentage of shares in **Alternative 2** were to be redistributed to the remaining shareholders, this would be expected to benefit the rest of the remaining participants to a larger degree in that a larger portion of the shares would be distributed to these remaining participants.

Although the shareholder that would be considered inactive under **Alternative 2,** but not under **Alternative 3 (Preferred),** has not fished his quota in the recent years, it could be assumed that this shareholder would likely fish the quota in the future because of the reduction in the amended proposed ACL. However this shareholder could also decide to not fish the quota. The difference in the two socially beneficial **Alternatives 2** and **3 (Preferred**) is based on one shareholder. It would be in this shareholder's best interest and would be expected to provide the most benefits for the individual if the individual was included as an active shareholder and **Alternative 3 (Preferred)** is selected; however, the benefits to the remaining shareholders would be expected to be greater if **Alternative 2** is selected.

As discussed in **Section 4.1.2**, the distribution of shares and distribution of landings to dealers (because shareholders generally sell their catch to dealers in the area/state in which they reside) would likely change based on whether **Alternative 2** or **Alternative 3 (Preferred)** is selected. The difference between the two alternatives is that **Alternative 2** would revert 13.26% more of shares (from one individual who likely delivered and is assumed would continue to deliver to a dealer in their same area) than **Alternative 3 (Preferred)**. If this one shareholder is excluded from active status under **Alternative 2**, fewer pounds of landings would likely be delivered to the dealer in that area. Although, after redistribution some of the reverted shares would be redistributed to that area by whatever method is selected in Action 2. As detailed in **Section 4.1.2**, benefits to active shareholders and their vessels in South Carolina would likely be greater under **Alternative 3 (Preferred)** and benefits to active shareholders and their vessels in Florida would likely be greater under **Alternative 2**.

**Alternatives 2** and **3 (Preferred)** would also be expected to cause some negative social effects by removing the ability of those shareholders deemed inactive to utilize their shares in the future. Inactive shareholders whose shares are reverted would not have the option to fish, sell, or lease their shares in the future, and thus would have fewer options if fishing for their primary species were to change and they were in need of a fall-back plan.

### 4.1.4 Administrative Effects

**Alternative 1 (No Action)** would not result in any direct administrative effects because it would not require any action on behalf of the South Atlantic Council in deciding how to allocate reverted shares or by NOAA Fisheries Service Southeast Regional Office (SERO) in conducting the transfer of reverted shares from inactive shareholders for redistribution. However, in the long term, allowing the inactive shares to remain unused could lead to unnecessary under-capitalization of the commercial wreckfish component of the snapper grouper fishery. Action 1 is largely administrative in nature and would require NOAA Fisheries Service to revert inactive shares for redistribution via a method chosen under

Action 2. Initially, the set of shareholders would be bound by the time series under either **Alternative 2** or **Alternative 3 (Preferred).** Those who hold inactive shares under **Alternative 2** or **Alternative 3 (Preferred)** have been notified of their inactive shareholder status and the South Atlantic Council's proposed decision to revert those shares for redistribution.

Currently, regulations include a freeze on share transfers between February 15 and April 15 of every year. In order to establish a stable set of shares and shareholders, it may be necessary to implement an additional freeze on share and/or coupon transfers on a specific date for a period of time not to exceed 45 days. During this freeze on share transfers, NOAA Fisheries Service would establish the final percentage of shares to be redistributed and would redistribute those shares according to the method chosen under Action 2 of this amendment. In the short-term, the greater the number of reverted shares, the greater the administrative burden. Therefore, **Alternative 2** is likely to result in greater short-term administrative effects than **Alternative 3 (Preferred)**; however, none of the options under consideration are expected to significantly affect the administrative environment. In the long term, there would be fewer shareholders in the fishery, and therefore, the administrative burden would be less than under the status quo situation. Overall, the process of determining the number of shares to be reverted, and reverting inactive shares would require a minimal to moderate short-term increase in administrative effort when compared to the status quo **Alternative 1 (No Action)**.

### 4.1.5 Council Conclusions

The Snapper Grouper Advisory Panel (AP) recommended that the South Atlantic Council invalidate the wreckfish ITQ program and treat the fishery as an open access fishery within the snapper grouper program. The AP did not have a specific recommendation for this action.

The Social and Economic Panel (SEP) of the Scientific and Statistical Committee (SSC) reviewed the action. The SEP strongly opposes reverting inactive shares and recommended that if shares are going to be reverted, then the SEP suggests auctioning off the shares and giving the money back to the original shareholders. The SSC concurred with the SEP's recommendations.

The Law Enforcement Advisory Panel reviewed the action but had no specific recommendations.

The South Atlantic Council selected **Alternative 3** as the preferred alternative. **Alternative 3 (Preferred)** defines inactive shares as those shares held by individuals who have not reported wreckfish landings at any time from April 16, 2006, through January 14, 2011. Shares of thirteen wreckfish shareholders would be designated as inactive and reverted for redistribution to seven remaining shareholders. The estimated percentage of shares that would be defined as inactive would be 28.18%.

Although there have been only two or three active participants in the wreckfish commercial fishery for several years, in more recent years there have been additional participants who

have purchased wreckfish shares and reported wreckfish landings. With implementation of the 2012 ACL, if approved, the active participants would not be allocated enough annual pounds to maintain operation size or would have to purchase or lease additional shares. Under **Alternative 3 (Preferred)**, active participants would be allocated inactive shares and continue fishing, and latent effort could be minimized. **Alternative 3 (Preferred)** would allow for more of the recent participants to retain shares and to be eligible to receive shares from redistribution. The South Atlantic Council had also considered other time periods of ten years during development of the amendment, but analysis showed that many shareholders who had not reported landings within the past five years had also not reported landings in the past ten years. The South Atlantic Council felt that if an individual had not reported wreckfish landings in the past five fishing years, then **Alternative 3 (Preferred)** would not put anyone out of the fishery who had been a recent active participant.

The South Atlantic Council concluded **Alternative 3 (Preferred)** best meets the purpose and need to implement measures expected to achieve optimum yield (OY) while minimizing, to the extent possible, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper Fishery Management Plan, as amended, while complying with the requirements of the Magnuson-Stevens Act (including National Standard 1) and other applicable law.

### 4.2 Action 2. Redistribute reverted shares to remaining shareholders.

**Alternative 1**: No Action. Do not redistribute reverted shares.

**Alternative 2**: Redistribute reverted shares to remaining shareholders based on 50% equal allocation + 50% landings history.

**Option a**: total wreckfish landings from April 16, 2009, through January 14, 2011.
**Option b**: total wreckfish landings from April 16, 2006, through January 14, 2011.

**Alternative 3 (Preferred)**: Redistribute reverted shares to remaining shareholders based on landings history.

**Option a**: total wreckfish landings from April 16, 2009, through January 14, 2011.
**Option b (Preferred)**: total wreckfish landings from April 16, 2006, through January 14, 2011.

**Alternative 4**: Redistribute reverted shares based on proportion of remaining shares held by each remaining shareholder after inactive shares are reverted.

Note: Landings in pounds (ww) will be determined based on wreckfish logbook records submitted to the Southeast Fisheries Science Center (SEFSC).

#### 4.2.1 Biological Effects

The following biological effects analysis assumes that the commercial wreckfish ACL contained in the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011) will be approved by the Secretary of Commerce. **Alternative 1 (No Action)** would not redistribute reverted inactive shares to active wreckfish shareholders and those shares would not be used for the purposes of harvesting the wreckfish commercial ACL. **Alternative 1 (No Action)** would likely result in an unnecessary reduction in fishing opportunities caused by a decrease in annual pounds associated with each share due to a significantly reduced commercial quota that would be implemented through the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011). Currently, there is no biological reason to restrict harvest to a level below the proposed commercial ACL of 223,250 pounds (ww), as the 2010 Status of Fisheries (NMFS 2010) states that wreckfish are not undergoing overfishing and their overfished status is unknown. Under **Alternative 1 (No Action)**, it is likely that only between 130,735 and 160,338 pounds (ww) of wreckfish would be landed during the 2012/2013 fishing year assuming the currently inactive shares remain unfished. All other alternatives would theoretically result in some level of increased fishing harvest among the current active shareholders, and would thus result in increased harvest limited only by the proposed commercial ACL of 223,250 pounds (ww) and the poundage associated with the total shares held by each entity. Because the proposed commercial ACL in the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011), if approved, is scheduled to be implemented prior to implementation of Amendment 20A, the commercial sector would be limited to harvest at or below the commercial ACL regardless of how many inactive shares are redistributed to any one active shareholder. Additionally, the share cap chosen under Action 3 may limit the number of reverted shares that are actually

redistributed to any one entity. For example, if one individual already held 40% of wreckfish shares and the South Atlantic Council chose a share cap of 49%, regardless of which redistribution option the South Atlantic Council chooses, that individual would only be allowed to receive the number of shares equal to or less than 9% of the total reverted shares.

Because the amended proposed rule for the Comprehensive ACL Amendment, if approved, would restrict harvest to the new commercial ACL, the determination as to how reverted shares would be redistributed among current active shareholders has more socioeconomic and administrative implications than direct biological effects. However, because the inactive shares were not fished within recent years, and because it is assumed that under this action they would be actively fished, some minor biological effects may result in the form of increased fishing mortality. At the most, fishing mortality could be 62,912[16]-92,515 pounds (ww) more than what harvest would be if the South Atlantic Council were to take no action in this amendment before the 2012/2013 fishing year. However, harvest would still be limited to the proposed commercial ACL of 223,250 pounds (ww) if approved, which is considerably lower than the 257,320 pounds (ww) harvested during the 2010/2011 fishing year (**Table 3-2**); thus, no direct biological impacts beyond the status quo are expected as a result of this action.

**Alternative 2** is the most complex of the alternatives considered. Shares that would be reverted to SERO for redistribution under Action 1 of this amendment would be calculated based on 50% of what each active shareholder's allocation would be if all inactive shares were distributed equally among active shareholders, plus 50% of each active shares holder's landings history (individual landings under the chosen time series would be totaled and compared to the total landings for the entire time series for the wreckfish component of the snapper grouper fishery to determine what percentage the individual's total landings are), under **Alternative 2**, **Option a** and **Alternative 2**, **Option b**.

Overall, the difference in the percentage of shares redistributed to each entity under **Options a** and **b** of **Alternative 2** is negligible (**Table 4-7**); therefore, there is likely to be no difference in the level of fishing mortality between the two **Alternative 2** options. Additionally, the total percentage of shares to be redistributed is 41.44% based on Alternative 2 in Action 1 or 28.18% based on Alternative 3 in Action 1. Regardless of how those shares are allocated among the active participants in the wreckfish component of the snapper grouper fishery, the total number of redistributed shares would not change, limiting effort to the total percentage of shares issued to each shareholder.

Because landings data are confidential for wreckfish, only the number of reverted shares that would be distributed can be shown. Fifty percent of reverted shares (20.72% based on Alternative 2 under Action 1, and 14.09% based on Alternative 3 (Preferred) in Action 1)

[16] These numbers were calculated by subtracting the expected landings under Action 1 Alternative 1 (No Action) from the proposed commercial ACL, 223,250-160,338 pounds (ww) = 62,912 pounds (ww), and 223,250-130,735 pounds (ww) = 92,515 pounds ww.

divided by the 6 or 7 active shareholders would either be 3.45% or 2.96%, if Alternative 2 under Action 1 is chosen as the preferred; or 2.35% or 2.01% if Alternative 3 (Preferred) in Action 1 is chosen as the preferred, respectively. Each person would receive the rest of the reverted shares based on 50% of their landings histories depending upon the option chosen for **Alternative 2** (**Table 4-7**).

**Table 4-7.** Percentage of reverted shares redistributed to each active shareholder in addition to the shares they already hold under each **Alternative 2** option.

| **Reverted Shares Based on Action 1, Alternative 2** | | |
|---|---|---|
| **Active Shareholder Designated Under Action 1. Alternative 2** | **% of Reverted Shares Redistributed Under Action 2. Alternative 2. Option a.** | **% of Reverted Shares Redistributed Under Action 2. Alternative 2. Option b.** |
| A | 3.51 | 0.09 |
| B | 7.47 | 11.49 |
| C | 5.43 | 5.38 |
| D | 4.13 | 3.25 |
| E | 17.34 | 21.09 |
| F | 3.55 | 0.14 |
| **Reverted Shares Based on Action 1, Alternative 3 (Preferred)** | | |
| **Active Shareholder Designated Under Action 1. Alternative 3 (Pref)** | **% of Reverted Shares Redistributed Under Action 2. Alternative 2. Option a.** | **% of Reverted Shares Redistributed Under Action 2. Alternative 2. Option b.** |
| A | 2.05 | 2.03 |
| B | 4.75 | 4.55 |
| C | 3.36 | 3.20 |
| D | 2.47 | 2.73 |
| E | 11.46 | 6.66 |
| F | 2.08 | 2.04 |
| G | 2.01 | 6.97 |

Data source: NOAA Fisheries Service Southeast Regional Office

Regardless of how reverted shares are distributed under **Alternative 2** of this action, the commercial wreckfish sector as a whole would be limited to harvest levels at or below the 223,250 pound (ww) commercial ACL in the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011), which is 34,070 pounds (ww) less than the commercial sector's harvest of wreckfish during the 2010/2011 fishing season. Therefore, adverse biological effects on essential fish habitat such as gear interactions with bottom habitat, overharvest of target species, and bycatch of non-target species, that could result from this action would be expected to be negligible. If the proposed commercial ACL were exceeded repeatedly, the South Atlantic Council and NOAA Fisheries Service would be required to reassess the system of ACLs and accountability measures (AMs) for the wreckfish component of the snapper grouper fishery, and make adjustments as needed.

**Alternative 3 (Preferred)** would redistribute reverted shares based on landings histories only. Those currently active shareholders with larger landings histories would account for a larger percentage of the total landings for wreckfish during the chosen time series and thus, would receive the greatest number of reverted shares (**Table 4-8**). As stated previously, the number of inactive shares distributed to each active shareholder would have to result in a total share holding less than or equal to the share cap chosen by the South Atlantic Council under Action 3 of this amendment. Therefore, each shareholder would be limited to holding shares at or below the share cap level. The biological effects of **Alternative 3 (Preferred)** would be similar to those under **Alternative 2** for the same reasons given above. No significant biological effects, such as substantial increases in fishing mortality above the status quo, are expected to result from redistributing reverted shares to active shareholders based on landings histories.

**Table 4-8.** Percentage of reverted shares redistributed to each active shareholder in addition to the shares they already hold under each **Alternative 3 (Preferred)** option.

| **Reverted Shares Based on Action 1. Alternative 2** | | |
|---|---|---|
| **Active Shareholder Designated Under Action 1. Alternative 2.** | **% of Reverted Shares Redistributed Under Action 2. Alternative 3. Option a.** | **% of Reverted Shares Redistributed Under Action 2. Alternative 3. Option b (Preferred)** |
| A | 0.12 | 3.50 |
| B | 8.04 | 9.20 |
| C | 3.95 | 6.14 |
| D | 1.35 | 5.08 |
| E | 27.78 | 14.00 |
| F | 0.19 | 3.53 |
| **Reverted Shares Based on Action 1 Alternative 3 (Preferred)** | | |
| **Active Shareholder Designated Under Action 1. Alternative 3 (Pref)** | **% of Reverted Shares Redistributed Under Action 2. Alternative 3. Option a.** | **% of Reverted Shares Redistributed Under Action 2. Alternative 3. Option b (Preferred)** |
| A | 0.08 | 0.04 |
| B | 5.47 | 5.07 |
| C | 2.69 | 2.37 |
| D | 0.92 | 1.43 |
| E | 18.90 | 9.30 |
| F | 0.13 | 0.06 |
| G | 0.00 | 9.91 |

Data source: NOAA Fisheries Service Southeast Regional Office

**Alternative 4** would redistribute shares proportionally among all active shareholders. In other words, those active shareholders who hold the most shares currently would receive the greatest number of reverted shares until the share cap is reached. Under **Alternative 4**, if Alternative 2 under Action 1 is chosen as the preferred alternative, shareholder C would receive 14.60 % of the reverted shares, and 8.10 % of the reverted shares if Alternative 3 (Preferred) under Action 1 is maintained as the preferred alternative (**Table 4-9**). In either

case, shareholder C would receive the largest percentage of reverted shares, while shareholder A would receive the lowest percentage of reverted shares based on this proportionate redistribution method (**Table 4-9**). However, if this redistribution method results in reverted shares being given to any one active shareholder in excess of the share cap chosen by the South Atlantic Council under **Action 3** of this amendment, that active shareholder would not receive excess shares that would result in the entity exceeding the share cap.

Distributing the reverted shares proportionately among shareholders would result in the biggest shareholders receiving the largest portion of reverted shares (**Table 4-9**). Assuming the largest active shareholders are the most likely to fish all shares they own because they are the most active participants, **Alternative 4** may have the potential to have slightly higher biological implications for the species, in the form of increased fishing mortality up to the proposed ACL, when compared to **Alternatives 2** and **3 (Preferred).** However, because overall harvest would be limited by the proposed system of ACLs and AMs included in the Comprehensive ACL Amendment (SAFMC 2011) and its amended proposed rule, if approved, significant increases in fishing mortality of wreckfish or bycatch in the wreckfish component of the snapper grouper fishery over the status quo would not be expected.

**Table 4-9.** Percent of reverted shares redistributed to each active shareholder in addition to the shares they currently hold under **Alternative 4.**

| **Reverted Shares Based on Action 1. Alternative 2.** | |
|---|---|
| **Active Shareholder Designated Under Action 1, Alternative 2** | **% of Reverted Shares Redistributed Under Action 2, Alternative 4** |
| A | 2.49 |
| B | 4.37 |
| C | 14.60 |
| D | 7.21 |
| E | 6.42 |
| F | 6.36 |
| **Reverted Shares Based on Action 1. Alternative 3 (Preferred).** | |
| **Active Shareholder Designated Under Action 1, Alternative 3 (Preferred)** | **% of Reverted Shares Redistributed Under Action 2, Alternative 4** |
| A | 1.38 |
| B | 2.42 |
| C | 8.10 |
| D | 4.00 |
| E | 3.56 |
| F | 3.53 |
| G | 5.20 |

Data source: NOAA Fisheries Service Southeast Regional Office

A summary of redistributed shares gained by shareholders under each alternative for **Action 2** and the total percentage of shares that would result after redistribution is shown in **Table 4-10**.

It is important to note that wreckfish are very widely distributed and are considered data deficient. Only the United States and New Zealand currently regulate fisheries for wreckfish through management measures such as gear prohibitions and seasonal closures. Furthermore, the exact source of pelagic juveniles and true extent of other unknown stocks and stock sizes in U.S. waters is unknown, which makes estimating the current wreckfish population extremely difficult (Sedberry et al. 1999). Fishing pressure on those juvenile populations in European waters is apparent since European fish hooks are often found in wreckfish caught in U.S. waters (Sedberry et al. 1999). Other types of fishing pressure on the source stock of juveniles such as pelagic tuna drift-net fishing in the north Atlantic may also impact the adult population of wreckfish harvested in the Mid-Atlantic and Southeast Regions of the U.S. (Sedberry et al. 1999). Given this information, the action to redistribute unused shares is not likely to significantly add to or detract from the current management and biological uncertainties and thus is not likely to jeopardize the sustainability of the South Atlantic wreckfish population.

Effects on Endangered Species Act (ESA)-listed species under this action are expected to be minimal. **Alternative 1 (No Action)** is the most biologically beneficial of all the alternatives considered relative to potential gear interactions with protected species since fishing effort would be limited to the number of actively fished shares and poundage limits associated with them. If the South Atlantic Council were to choose **Alternative 1 (No Action)** as the preferred alternative, under the proposed commercial ACL of 223,250pounds (ww), it is expected that commercial harvest would be between 130,735 and 160,388 pounds (ww) after applying the proposed ACL in the Comprehensive ACL Amendment amended proposed rule, which is significantly less than what was harvested during the 2010/2011 fishing year. For this reason, **Alternative 1 (No Action)** is considered the most biologically beneficial alternative in terms of reducing the risk to protected species and coral habitat of particular concern; however, there is no biological reason to intentionally restrict harvest to a level lower than the proposed commercial ACL.

Redistributing inactive shares among the active shareholders may increase fishing harvest from an individual fisherman; however, the significant reduction in allowable catch from the 2010/2011 fishing year suggests that total harvest in the wreckfish sector is likely to decrease or remain relatively stable under the newly proposed commercial ACL. Due to this anticipated decrease in overall wreckfish fishing harvest an increased risk to sea turtles, or any other protected species from this action is not anticipated.

**Table 4-10.** Summary of redistributed shares gained by shareholders under each alternative for **Action 2**, and the total percentage of shares that would result after redistribution.

| **Reverted Share Distribution Scenarios Under Action 1 Alternative 2** | | | | | |
|---|---|---|---|---|---|
| Share-holder | **Alt. 2, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 2, Option b.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option b (Pref).** (% of shares redistributed/total shares after redistribution) | **Alt. 4.** (% of shares redistributed/total shares after redistribution) |
| A | 3.51/7.02 | 0.09/3.60 | 0.12/3.63 | 3.50/7.01 | 2.49/6.00 |
| B | 7.47/13.64 | 11.49/17.66 | 8.04/14.22 | 9.20/15.37 | 4.37/1054 |
| C | 5.43/26.06 | 5.38/26.01 | 3.95/24.58 | 6.14/26.77 | 14.60/35.23 |
| D | 4.13/14.32 | 3.25/13.44 | 1.35/11.55 | 5.08/15.27 | 7.21/17.40 |
| E | 17.34/26.42 | 21.09/30.17 | 27.78/36.86 | 14.00/23.07 | 6.42/15.50 |
| F | 3.55/12.53 | 0.14/9.13 | 0.19/9.17 | 3.53/12.51 | 6.36/15.34 |
| G | N/A | N/A | N/A | N/A | N/A |
| **Reverted Share Distribution Scenarios Under Action 1 Alternative 3 (Preferred)** | | | | | |
| Share-holder | **Alt. 2, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 2, Option b.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option a.** (% of shares redistributed/total shares after redistribution) | **Alt. 3, Option b (Pref).** (% of shares redistributed/total shares after redistribution) | **Alt. 4.** (% of shares redistributed/total shares after redistribution) |
| A | 2.05/5.56 | 2.03/5.54 | 0.08/3.59 | 0.04/3.55 | 1.38/4.89 |
| B | 4.75/10.92 | 4.55/10.72 | 5.47/11.64 | 5.07/11.24 | 2.42/8.60 |
| C | 3.36/23.99 | 3.20/23.83 | 2.69/23.32 | 2.37/23.00 | 8.10/28.72 |
| D | 2.47/12.67 | 2.73/12.92 | 0.92/11.11 | 1.43/11.62 | 4.00/14.19 |
| E | 11.46/20.53 | 6.66/15.74 | 18.90/27.97 | 9.30/18.38 | 3.56/12.62 |
| F | 2.08/11.06 | 2.04/11.03 | 0.13/9.11 | 0.06/9.05 | 3.53/12.51 |
| G | 2.01/15.27 | 6.97/20.22 | 0.00/13.25 | 9.91/23.16 | 5.20/18.46 |

Data source: NOAA Fisheries Service Southeast Regional Office

### 4.2.2 Economic Effects

Prior to analyzing the effects of the various alternatives under **Action 2** on the active shareholders, as defined under Alternative 2 and Alternative 3 (Preferred) for Action 1, some baseline information regarding these shareholders' commercial landings of and gross revenue from wreckfish and other species is presented in **Table 4-11** and **Table 4-12**. This information provides a reference point by which to evaluate the effects of the various alternatives under **Action 2**.

The information in these tables conveys several important insights. First, in general, considerable variation exists between active shareholders with respect to their level of participation in the commercial wreckfish component of the snapper grouper fishery, other commercial fisheries, and commercial fishing in general, regardless of whether "active" is defined under Alternative 2 and Alternative 3 (Preferred) for Action 1. Some active shareholders are not active in the commercial wreckfish component of the snapper grouper fishery or any other commercial fishery in certain years, and thus have no dependence on commercial landings of wreckfish or other species in those years. Other active shareholders have some dependence on wreckfish, but are generally more dependent on commercial landings from other species. One or two active shareholders are heavily involved and dependent on landings of wreckfish.

**Table 4-11**. Annual landings and gross revenue statistics for six active shareholders under Action 1, Alternative 2 for fishing years 2006/2007 through 2010/2011.[17]

| Statistic | Wreckfish Landings (pounds ww) | Wreckfish Gross Revenue | Non-wreckfish Gross Revenue | Gross Revenue | Percentage of Gross Revenue from Wreckfish |
|---|---|---|---|---|---|
| Median | 8,713 | $21,355 | $87,724 | $117,144 | 22.77 |
| Mean | 25,706 | $66,036 | $109,453 | $175,490 | 38.06 |
| Standard Deviation | 43,042 | $114,282 | $128,007 | $138,358 | 40.30 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

Further, these statistics indicate that the shareholders defined as being "active" under Alternative 3 (Preferred) for Action 1 are, on average, more heavily involved in and dependent on wreckfish landings relative to the active shareholders under Alternative 3 (Preferred) for Action 1. In turn, the active shareholders under Alternative 3 (Preferred) for Action 1 are less involved and dependent on commercial landings of other species. However, total gross revenue from all commercial fishing is approximately the same for

[17] Although Alternative 2 under Action 1 is based on landings in fishing years 2009/2010 through 2010/2011, data from fishing years 2006/2007 through 2010/2011 were used in order to properly compare the landings and gross revenue of active shareholders under Alternative 2 with those under Alternative 3 (Preferred).

active shareholders under Alternative 2 as for active shareholders under Alternative 3 (Preferred) for Action 1.

**Table 4-12**. Annual landings and gross revenue statistics for seven active shareholders under Action 1, Alternative 3 (Preferred) for fishing years 2006/07 through 2010/2011.

| Statistic | Wreckfish Landings (pounds ww) | Wreckfish Gross Revenue | Non-wreckfish Gross Revenue | Gross Revenue | Percentage of Gross Revenue from wreckfish |
|---|---|---|---|---|---|
| Median | 9,201 | $22,591 | $29,587 | $126,224 | 35.64 |
| Mean | 32,804 | $82,085 | $90,582 | $172,668 | 44.94 |
| Standard Deviation | 48,199 | $123,618 | $123,410 | $137,974 | 42.78 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Tables 4-7** through **4-9** provide information regarding the distribution of additional shares and "final" shares under the alternatives for **Action 2**, where "final" shares equal initial shares plus additional shares, to active shareholders as defined under Alternative 2 and Alternative 3 (Preferred) for Action 1. **Table 4-13** and **Table 4-14** provide some illustrative statistics regarding the distribution of reverted and final shares. These statistics illustrate the following findings.

First, the minimum additional (i.e., redistributed) and final shares for any active shareholder occur under **Alternative 3b (Preferred)** regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1 (**Table 4-14**). On the other hand, in general, the maximum additional and final shares for any active shareholder occurs under **Alternative 3a**, although the maximum final share assuming Alternative 3 (Preferred) for Action 1 actually occurs under **Alternative 4**. In addition, the median additional shares are largest under **Alternative 4** and smallest under **Alternative 3b (Preferred)** and particularly **Alternative 3a**. Also, the largest differences between the median and mean additional and final shares, and in turn the largest standard deviations, occur under **Alternative 3b (Preferred)** and particularly **Alternative 3a**. Conversely, the smallest differences between the median and mean values and the smallest standard deviations occur under **Alternative 4** and **Alternative 2b**.

These findings show that, while additional and final shares are distributed most equally under **Alternative 4** and final shares are distributed most equally under **Alternative 2b**, additional and final shares are distributed most unequally under **Alternative 3a**, and **Alternative 3b (Preferred)** to a lesser extent, on a per shareholder basis.[18] The distributions of additional and final shares under **Alternative 2a** are between these two extremes. These outcomes

[18] A shareholder and an individual are not necessarily the same as a single individual may be a partial or full owner of more than one share certificate. Thus, results at the individual level may differ.

directly reflect the difference between using landings histories as the sole criterion for redistributing reverted shares to active shareholders as opposed to using share distributions or a combination of landings histories and equal allocations. As can be seen in comparing the share distribution information in **Tables 4-2** and **4-3** with the landings distribution information in **Tables 4-13** and **4-14**, the distribution of landings is much less equally distributed than the distribution of shares among active shareholders, regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1.

With respect to the economic benefits accruing to active shareholders, all active shareholders would receive some economic benefit under all alternatives for **Action 2**, regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1, with the exception of one shareholder (shareholder G) under **Alternative 3a** assuming Alternative 3 (Preferred) for Action 1. Again, the main difference is that the distribution of those economic benefits differs significantly under the various alternatives for **Action 2**. As illustrated in **Tables 4-15** and **4-16**, in the long-term, these economic benefits are in the form of an increase in the value of each shareholder's shares, which would increase according to the amount of additional shares each shareholder receives under each alternative. As previously noted, the market value of a 1% share is estimated to be $6,407.

The differences in the distribution of long-term economic benefits directly depend on the differences in the amount of additional shares each shareholder receives under each alternative. Thus, the most equal distributions of long-term economic benefits occur under **Alternative 4** and **Alternative 2b**, while the most unequal distributions of long-term economic benefits occur under **Alternative 3a**, and **Alternative 3b (Preferred)** to a lesser extent, on a per shareholder basis. The distribution of long-term economic benefits under **Alternative 2a** is between these two extremes. The largest long-term economic benefits to a single shareholder occur under **Alternative 3a** regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1.

As illustrated in **Tables 4-17** and **4-18**, in the short-term, increases in economic benefits would take the form of an increase in annual gross revenue.[19] These increases would directly depend on the increase in each shareholder's annual allocation of wreckfish, which in turn results from the increase in wreckfish shares. It is assumed that active shareholders would harvest all of their annual allocation, which is reasonable given the significant reduction in the commercial quota due to proposed actions in the Comprehensive ACL Amendment. Thus, as with the distribution of additional shares and long-term economic benefits, the most equal distributions of short-term economic benefits occur under **Alternative 4** and **Alternative 2b**, while the most unequal distributions of short-term economic benefits occur under **Alternative 3a**, and **Alternative 3b (Preferred)** to a lesser extent, on a per shareholder basis. The distribution of short-term economic benefits under **Alternative 2a** is between these two extremes. The largest short-term economic benefits to a single

[19] Changes in gross revenue are based on an average price of $2.96/lb (ww) in the 2010/11 fishing year.

shareholder occur under **Alternative 3a** regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1.

It is worth noting that, on average, the additional long-term and short-term economic benefits accruing to active shareholders is the same for each alternative under **Action 2** and regardless of whether active is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1. This fact underscores the point that choosing an alternative under **Action 2** is based on equity considerations rather than economic efficiency.

With respect to indirect economic effects on wreckfish dealers, the primary economic effect would be to maintain the total level of landings and sales of wreckfish. Assuming the active shareholders harvest all of their annual allocations, then landings and sales of wreckfish would likely be close to their levels in the last two fishing years. Thus, wreckfish dealers would equally benefit under all alternatives for **Action 2**, with the exception of **Alternative 1 (No Action)**. **Alternative 1 (No Action)** would generate adverse, indirect economic effects on wreckfish dealers by not promoting the total harvest of the commercial quota.

Some indirect economic effects on wreckfish dealers would also be distributional in nature. In order to avoid disclosing confidential information, the nature of these distributional effects is discussed in geographical terms. Specifically, the primary distributional effect of the various alternatives under **Action 2** would be to shift landings and sales of wreckfish between dealers in Florida and dealers in South Carolina. As previously discussed, in recent years, approximately 80% of landings and sales of wreckfish have occurred in South Carolina with the other 20% occurring in Florida. Further, under Alternative 2 for Action 1, approximately 26% of the shares is held by active shareholders operating from South Carolina, while the other 74% is held by active shareholders operating from Florida. Conversely, under Alternative 3 (Preferred) for Action 1, approximately 40% of the shares is held by active shareholders operating from South Carolina, while the other 60% is held by active shareholders operating from Florida. Thus, a potentially significant shift in the distribution of landings and sales of wreckfish from South Carolina to Florida dealers could occur depending on whether and how shares are redistributed under **Action 2.**

Assuming either Alternative 2 or Alternative 3 (Preferred) for Action 1, approximately 40% of the shares would be held by active shareholders operate from South Carolina, while the other 60% would be held by active shareholders operating from Florida, under **Alternative 4** for **Action 2**. Thus, **Alternative 4** would not change the likely distribution of landings and sales of wreckfish between South Carolina and Florida dealers from what it would be without any redistribution of shares (i.e., **Alternative 1 (No Action)**). **Alternative 2a** and **Alternative 2b** would generate a 47%/53% distribution of shares between active shareholders in South Carolina and Florida. Further, **Alternative 3a** and **Alternative 3b (Preferred)** would generate a 53%/47% distribution of shares between active shareholders in South Carolina and Florida. Thus, while **Alternative 2a** and **Alternative 2b** would shift the distribution of landings and sales of wreckfish more closely to its recent distribution between South Carolina and Florida dealers, relative to the distribution under **Alternative 1 (No Action)**, either **Alternative 3a** and **Alternative 3b (Preferred)** would come the closest to maintaining that distribution.

**Table 4-13**. Shareholder statistics for all alternatives under Action 2 assuming Action 1, Alternative 2.

| Statistic | Additional Shares Alt 2a | Final Shares Alt 2a | Additional Shares Alt 2b | Final Shares Alt 2b | Additional Shares Alt 3a | Final Shares Alt 3a | Additional Shares Alt 3b (Pref) | Final Shares Alt 3b (Pref) | Additional Shares Alt 4 | Final Shares Alt 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minimum Share | 3.51 | 7.02 | 3.50 | 7.01 | 0.12 | 3.63 | 0.09 | 3.60 | 2.49 | 6.00 |
| Maximum Share | 17.34 | 26.42 | 14.00 | 26.77 | 27.78 | 36.86 | 21.09 | 30.17 | 14.60 | 35.23 |
| Total Shares | 41.44 | 100.00 | 41.44 | 100.00 | 41.44 | 100.00 | 41.44 | 100.00 | 41.44 | 100.01 |
| Median Share | 4.78 | 13.98 | 5.61 | 15.32 | 2.65 | 12.88 | 4.31 | 15.55 | 6.39 | 15.42 |
| Mean Share | 6.91 | 16.67 | 6.91 | 16.67 | 6.91 | 16.67 | 6.91 | 16.67 | 6.91 | 16.67 |
| Standard Deviation | 5.33 | 7.85 | 4.06 | 7.17 | 10.66 | 12.07 | 8.13 | 10.08 | 4.14 | 9.99 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Table 4-14**. Shareholder statistics for all alternatives under **Action 2** assuming Action 1, Alternative 3 (Preferred).

| Statistic | Additional Shares Alt 2a | Final Shares Alt 2a | Additional Shares Alt 2b | Final Shares Alt 2b | Additional Shares Alt 3a | Final Shares Alt 3a | Additional Shares Alt 3b (Pref) | Final Shares Alt 3b (Pref) | Additional Shares Alt 4 | Final Shares Alt 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minimum Share | 2.01 | 5.56 | 2.03 | 5.54 | 0.00 | 3.59 | 0.04 | 3.55 | 1.38 | 4.89 |
| Maximum Share | 11.46 | 23.99 | 6.97 | 23.83 | 18.90 | 27.97 | 9.91 | 23.16 | 8.10 | 28.72 |
| Total Shares | 28.18 | 100.00 | 28.18 | 100.00 | 28.18 | 100.00 | 28.18 | 100.00 | 28.18 | 100.00 |
| Median Share | 2.47 | 12.67 | 3.20 | 12.92 | 0.92 | 11.64 | 2.37 | 11.62 | 3.56 | 12.63 |
| Mean Share | 4.03 | 14.29 | 4.03 | 14.29 | 4.03 | 14.29 | 4.03 | 14.29 | 4.03 | 14.29 |
| Standard Deviation | 3.43 | 6.25 | 2.09 | 6.19 | 6.85 | 8.45 | 4.17 | 7.42 | 2.16 | 7.66 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Table 4-15**. Change in shareholders' value of shares for all alternatives under **Action 2** assuming Action 1, Alternative 2.

| Shareholder | Alt 2a | Alt 2b | Alt 3a | Alt 3b (Pref) | Alt 4 |
|---|---|---|---|---|---|
| A | $22,495 | $22,405 | $743 | $564 | $15,923 |
| B | $47,889 | $58,918 | $51,532 | $73,589 | $27,988 |
| C | $34,790 | $39,360 | $25,333 | $34,473 | $93,526 |
| D | $26,459 | $32,531 | $8,672 | $20,815 | $46,210 |
| E | $111,127 | $89,693 | $178,007 | $135,140 | $41,141 |
| F | $22,733 | $22,586 | $1,219 | $926 | $40,733 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Table 4-16**. Change in shareholders' value of shares for all alternatives under **Action 2** assuming Action 1, Alternative 3 (Preferred).

| Shareholder | Alt 2a | Alt 2b | Alt 3a | Alt 3b (Pref) | Alt 4 |
|---|---|---|---|---|---|
| A | $13,150 | $13,022 | $505 | $249 | $8,830 |
| B | $30,421 | $29,126 | $35,047 | $32,457 | $15,521 |
| C | $21,512 | $20,500 | $17,229 | $15,204 | $51,866 |
| D | $15,846 | $17,488 | $5,898 | $9,181 | $25,626 |
| G | $12,897 | $44,631 | $0 | $63,465 | $33,325 |
| E | $73,430 | $42,701 | $121,061 | $59,605 | $22,815 |
| F | $13,312 | $13,101 | $829 | $408 | $22,589 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Table 4-17**. Shareholders' annual wreckfish allocation and change in gross revenue for all alternatives under **Action 2** assuming Action 1, Alternative 2. Allocation estimates are in whole weight.

| Shareholder | Initial Allocation | Allocation Alt 2a | Allocation Alt 2b | Allocation Alt 3a | Allocation Alt 3b (Pref) | Allocation Alt 4 | Gross Rev. Alt 2a | Gross Rev. Alt 2b | Gross Rev. Alt 3a | Gross Rev. Alt 3b (Pref) | Gross Rev. Alt 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 8,341 | 15,679 | 15,648 | 8,099 | 8,037 | 13,389 | $23,201 | $23,109 | $766 | $581 | $16,423 |
| B | 14,661 | 30,468 | 34,311 | 31,737 | 39,423 | 23,534 | $49,393 | $60,768 | $53,151 | $75,899 | $28,867 |
| C | 48,992 | 58,174 | 59,767 | 54,879 | 58,064 | 78,641 | $35,882 | $40,596 | $26,129 | $35,555 | $96,463 |
| D | 24,206 | 31,973 | 34,089 | 25,775 | 30,007 | 38,855 | $27,290 | $33,553 | $8,944 | $21,469 | $47,661 |
| E | 21,551 | 58,980 | 51,511 | 82,284 | 67,347 | 34,593 | $114,617 | $92,510 | $183,597 | $139,384 | $42,433 |
| F | 21,337 | 27,978 | 27,927 | 20,482 | 20,379 | 34,250 | $23,447 | $23,295 | $1,258 | $955 | $42,012 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

**Table 4-18**. Shareholders' annual wreckfish allocation and change in gross revenue for all alternatives under **Action 2** assuming Action 1, Alternative 3 (Preferred). Allocation estimates are in whole weight.

| Shareholder | Initial Allocation | Allocation Alt 2a | Allocation Alt 2b | Allocation Alt 3a | Allocation Alt 3b (Pref) | Allocation Alt 4 | Gross Rev. Alt 2a | Gross Rev. Alt 2b | Gross Rev. Alt 3a | Gross Rev. Alt 3b (Pref) | Gross Rev. Alt 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 8,341 | 12,423 | 12,378 | 8,017 | 7,927 | 10,917 | $13,563 | $13,431 | $521 | $256 | $9,108 |
| B | 14,661 | 24,381 | 23,930 | 25,993 | 25,091 | 19,190 | $31,377 | $30,041 | $36,147 | $33,476 | $16,009 |
| C | 48,992 | 53,548 | 53,195 | 52,055 | 51,350 | 64,125 | $22,188 | $21,143 | $17,770 | $15,682 | $53,495 |
| D | 24,206 | 28,275 | 28,847 | 24,809 | 25,953 | 31,683 | $16,344 | $18,037 | $6,083 | $9,469 | $26,431 |
| G | 31,478 | 34,084 | 45,141 | 29,590 | 51,704 | 41,202 | $13,302 | $46,033 | $0 | $65,458 | $34,372 |
| E | 21,551 | 45,844 | 35,137 | 62,441 | 41,027 | 28,208 | $75,736 | $44,042 | $124,863 | $61,476 | $23,532 |
| F | 21,337 | 24,695 | 24,622 | 20,346 | 20,199 | 27,928 | $13,730 | $13,513 | $855 | $421 | $23,298 |

Source: SERO using SEFSC wreckfish logbook and ALS data.

### 4.2.3 Social Effects

**Alternative 1 (No Action)** would not redistribute reverted shares to active wreckfish participants and would be expected to result in the same negative social effects as those described for Action 1, Alternative 1 (No Action).

All other alternatives and options would be expected to result in positive social effects as they would redistribute the reverted shares to active shareholders with the difference between the remaining alternatives and options being in the redistribution method. These alternatives and options are reliant on the alternatives selected in Action 1 (Alternative 2 of Action 1 would include the redistribution of 41.44% of shares to 6 shareholders; whereas Alternative 3 (Preferred) of Action 1 would include the redistribution of 28.18% of shares to 7 shareholders).

**Tables 4-7** through **4-9** in **Section 4.2.1** detail the extent to which each individual shareholder would benefit under Alternatives 2 and 3 from Action 1 and **Alternatives 2-4** of this action. The percentage of reverted shares that would be redistributed to each active shareholder and their total shares after redistribution under the various alternatives and options are summarized in **Table 4-10**. The economic benefits received by these shareholders at the individual level are detailed in **Section 4.2.2** and the change in gross revenue of individual shareholders under Alternatives 2 and 3 in Action 1 and **Alternatives 2-4** of this action are included in **Tables 4-17** and **4-18.** The differences in the various alternatives and actions on individual shareholders are evident from the material provided in these tables and sections including the percentage of shares redistributed to each shareholder, total shares held after redistribution, and gross revenue received.

Because of confidentially issues, the communities in which these individual shareholders reside cannot be identified; therefore for this section a general description of which type of active shareholders would benefit is included.

**Alternative 2** has a high likelihood of being perceived as a fair redistribution method and thus being more socially acceptable because of its mixed method which would revert shares to remaining shareholders based on 50% equal allocation plus 50% landings history. **Alternative 2, Option a** would redistribute reverted shares to remaining shareholders based on 50% equal allocation plus 50% landings history from April 16, 2009 through January 14, 2011 and would be expected to benefit shareholders that are new to the wreckfish component of the snapper grouper fishery and do not have extensive landings histories; whereas **Alternative 2, Option b** would redistribute reverted shares to remaining shareholders based on 50% equal allocation plus 50% landings history from April 16, 2006 through January 14, 2011 and would be expected to benefit shareholders with a longer landing history, but would also include those active shareholders who have recently entered the fishery.

If Alternative 2 were chosen as the preferred alternative under Action 1 of this amendment, shareholders A, C, D, and F would benefit more under **Option a**, whereas shareholders B and E would benefit more under **Option b** (**Table 4-10**). If Alternative 3 (Preferred) is maintained as the preferred alternative under Action 1, shareholders A, B, C, E, and F would

benefit more under **Option a** than they would under **Option b**. Under **Option b**, shareholders D, and G, would benefit more.

As with **Alternative 2**, **Option a** under **Alternative 3 (Preferred)** would be expected to benefit shareholders that are new to the wreckfish portion of the snapper grouper fishery because this alternative would redistribute reverted shares to remaining shareholders based on landings history from April 16, 2009 through January 14, 2011. Conversely, **Option b (Preferred)** of **Alternative 3 (Preferred)** would be expected to benefit shareholders with a longer landing history because this alternative would redistribute reverted shares to remaining shareholders based on landings history from April 16, 2006 through January 14, 2011. Options under **Alternative 3 (Preferred)** have a high likelihood of being perceived as fair redistribution methods by shareholders with the longest and largest landings because they are based on past participation.

If Alternative 2 under Action 1 of this amendment were chosen as the preferred alternative, shareholder E would benefit the most under **Option a** of **Alternative 3 (Preferred)**. Under **Option b**, all other currently active shareholders would receive a greater percentage of the reverted shares than they would under **Option a**. If Alternative 3 (Preferred) under Action 1 is maintained as the preferred alternative, shareholders A, B, C, E, and F would each get a larger percentage of reverted shares than they would under Option b. Only shareholders D and G would receive a higher percentage of reverted shares than they would have under **Option a** of **Alternative 3 (Preferred)**. Under each scenario shareholder E would receive the largest percentage of reverted shares compared to all other currently active shareholders.

**Alternative 4** would redistribute reverted shares based on proportion of remaining shares held by each remaining shareholder after inactive shares are reverted. Thus, **Alternative 4** would be expected to benefit shareholders who have recently purchased additional or new shares. Although, this alternative would not necessarily reflect past landings patterns, **Alternative 4** would be expected to provide protection and social benefits for shareholders who have recently invested in wreckfish through the purchase of additional shares.

### 4.2.4 Administrative Effects

**Alternative 1 (No Action)** would result in the lowest administrative burden of all the **Action 2** alternatives considered since it would require no increase in staff time or cost to redistribute reverted shares. **Alternative 2** would result in the greatest administrative burden in the form of staff time and cost to calculate the number of shares each currently active shareholder would receive and then distribute the shares accordingly. **Alternative 2** would require the greatest level of computation including 50% of equal allocation among active shareholders, as well as 50% of landings history. Once the number of shares to be received by each active shareholder is established, SERO would issue letters of explanation along with the redistributed share totals and corresponding coupons to each active shareholder receiving reverted shares. The administrative effects of **Alternative 3 (Preferred)** would be slightly less than **Alternative 2** since only one calculation would be required to determine how many shares each shareholder would receive. Under **Alternative 3 (Preferred**), the landings for each shareholder during the selected time series would be totaled. That total would then be compared to the total landings for wreckfish during the same time. The proportion of the total landings that each active shareholder is responsible for would determine how many

reverted shares each shareholder would receive, up until the share cap established under **Action 3**. The same active shareholder notification process described under **Alternative 2** would follow once the number of redistributed shares is established.

**Alternative 4** would result in an increase in cost and staff time burdens less than the administrative costs under **Alternative 3 (Preferred)**. Instead of basing redistribution on landings, SERO staff would be responsible for issuing the correct number of reverted shares based on the proportion of shares already held by each currently active shareholder. The number of shares held by each currently active shareholder would be calculated as a percentage of the number of total active shares held by all active shareholders. Active shareholders with the largest percentage of shareholdings would receive the largest proportion of reverted shares. The shareholder notification process would be the same as specified under **Alternatives 2** and **3 (Preferred)** where a letter would be sent to the active shareholders informing them of how many shares have been redistributed to them along with the coupons themselves. Under all of the redistribution alternatives, NOAA Fisheries Service will freeze transfers of shares and/or coupons in order to establish a stable set of active shareholders and the exact percentage of reverted shares to be redistributed. It should be noted that current regulations already prohibit share transfers from February 15 to April 15 each year. Participants would be notified via *Federal Register* notices announcing the availability of the amendment for comment, the availability of the proposed rule for comment, and of the final rule, if approved by the Secretary of Commerce. At each of these public comment phases for the amendment and associated proposed rule, fishery bulletins would be distributed to wreckfish fishery permit holders outlining the details of the amendment actions, and any planned freeze on share and/or coupon transfers.

When redistributing shares, the share cap chosen under Action 3 would need to be taken into account. If redistribution of reverted shares results in any entity exceeding the share cap the South Atlantic Council and SERO could choose not to redistribute any shares that would exceed the share cap. SERO could then redistribute those excess shares according to the preferred redistribution method chosen under this action to active shareholders who have not yet reached the share cap after redistribution.

### 4.2.5 Council Conclusions

The Snapper Grouper AP recommended that the South Atlantic Council invalidate the wreckfish ITQ program and treat the fishery as an open access fishery within the snapper grouper program. The AP did not have a specific recommendation for this action.

The SEP of SSC reviewed the action. The SEP strongly opposed reverting shares because they are transferable, and inactive participants can sell shares to active participants or new entrants. The SEP supports Council actions that would facilitate transfers. Reverting shares and redistributing shares would lessen economic value of the shares. The SSC concurred with the SEP's recommendations.

The Law Enforcement AP reviewed the action but had no specific recommendations.

The South Atlantic Council selected **Alternative 3, Option b** as the preferred alternative. **Alternative 3 (Preferred)** would allocate reverted shares to the seven remaining

shareholders based on total wreckfish landings from April 16, 2006, through January 14, 2011 (**Option b (Preferred)**). Because the proposed 2012 ACL would reduce the amount that the commercial sector could harvest by 89%, the South Atlantic Council wanted to redistribute shares to active participants so that it would be economically feasible to continue fishing. By selecting a redistribution method based on landings history, the South Atlantic Council felt that **Alternative 3, Option b (Preferred)** would be most likely of the alternatives to provide shares to active participants and to allow their harvest to be close as possible to their current levels.

The South Atlantic Council concluded **Alternative 3, Option b (Preferred)** best meets the purpose and need to implement measures expected to achieve OY while minimizing, to the extent possible, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act (including National Standard 1) and other applicable law.

### 4.3 Action 3. Establish a share cap.

**Alternative 1**: No Action. Do not establish a share cap.

**Alternative 2**: Establish a share cap as 15% of the total shares.

**Alternative 3**: Establish a share cap as 25% of the total shares.

**Alternative 4 (Preferred)**: Establish a share cap as 49% of the total shares.

**Alternative 5**: Establish a share cap as 65% of the total shares.

**Alternative 6**: Establish a share cap as the percentage of total shares held by the largest shareholder after redistribution.

Note: It is the South Atlantic Council's intent that NOAA Fisheries Service administratively prohibit transfers of wreckfish shares for the necessary amount of time, not to exceed 45 days, until the reverted shares are redistributed.

#### 4.3.1 Biological Effects

Establishing a share cap is an ITQ management measure required by implementing provisions of the Magnuson-Stevens Act. The wreckfish ITQ program in the South Atlantic has not previously had a mechanism to ensure that limited access privilege holders do not acquire excessive shares of the total ITQs as required by the Magnuson-Stevens Act; therefore, Amendment 20A is addressing this mandate along with several other wreckfish shareholder issues. Under **Alternative 1 (No Action)**, a cap on shares would not be implemented and the wreckfish ITQ program would not comply with the Magnuson-Stevens Act mandates for limited access privilege programs. For this reason, **Alternative 1 (No Action)** is the least practical of all the alternatives considered, but would also result in no change to the biological environment from the status quo.

The level at which the South Atlantic Council chooses to cap total shares held by any one active shareholder would not be expected to impact the biological environment. Regardless of the level at which shares are capped, the commercial landings of wreckfish may not exceed the proposed commercial ACL of 223,250 pounds (ww) in the amended proposed rule for Comprehensive ACL Amendment (SAFMC 2011) without triggering corrective accountability measures, also proposed in the Comprehensive ACL Amendment (SAFMC 2011). Capping the number of shares held by a single active shareholder would not result in an increase or decrease in overall harvest of wreckfish in the commercial sector unless a large number of shares are held by relatively inactive fishermen who may not catch their allocated poundage. However, it is expected that any redistributed shares would be, for the most part, fished to their respective poundage limits in order to maximize yield among the current set of active shareholders. Based on this information, the establishment of a share cap is considered an administrative action with more socioeconomic implications than direct biological effects.

**Alternative 2** is the lowest share cap alternative at 15%. If the South Atlantic Council maintains its choice of preferred alternatives under Actions 1 and 2 of this amendment, **Alternative 2** would not be a viable option as a share cap given that only six currently active individuals would have shares under both Alternative 2 and Alternative 3 (Preferred) for Action 1. If all individuals (as opposed to shareholders) are capped at 15%, it is not possible to reach 100% of the shares to be redistributed. Under **Alternative 3** (based on Action 1, Alternative 2), two active individuals would exceed the 25% share cap and those excess shares would be redistributed to the other four active shareholders. Based on Alternative 3 (Preferred) under Action 1, only one active individual would exceed the 25% share cap. **Alternative 4 (Preferred)** would prevent any one individual from holding the majority of wreckfish shares, and would result in no active individuals exceeding the share cap. **Alternative 5** represents the highest share percentage (65%) the South Atlantic Council is willing to consider under this action. **Alternative 6** would take into account the greatest number of shares held by any one individual after reverted shares are redistributed, so as to maintain a situation as close to status quo as possible. The maximum percentage of shares that could be redistributed to any one individual under **Alternative 6** is 44.1% based on **Alternative 2** under Action 1, and 41.54% based on **Alternative 3 (Preferred)** under Action 1. If the number of shares held by a shareholder decrease, which could happen under **Alternative 2** (15% share cap) and **Alternative 3** (25% share cap), those excess shares would be redistributed to other shareholders holding shares in amounts less than the cap according to the redistribution method chosen under Action 2 of this amendment. If excess shares would still be held after applying the share cap and a second round of redistribution, a third round of redistribution according to preferred alternative under **Action 2** would be applied. Regardless of how many shares each active shareholder ultimately holds after redistribution, all harvest would be limited to the proposed commercial ACL of 223,250 pounds (ww) if approved, and therefore biological effects of redistribution under **Alternatives 2**, **3**, and **4 (Preferred)**, would not result in significant biological effects, such as increased fishing mortality or decreases in overall biomass, bycatch of non-target species, or gear impacts on essential fish habitat.

**Alternative 6** is the closest to the status quo in that it would allow the currently active shareholder holding the most shares to set the share cap. If this active shareholder were to acquire several more shares before the potential freeze on share transfers takes place the share cap could be higher than it would be under current conditions. However, as stated previously, the proposed commercial ACL for the wreckfish component of the snapper grouper fishery would be 223,250 pounds (ww) if the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011) is approved for implementation by the Secretary of Commerce. If this ACL is projected to be met an in-season closure would take place to prevent the ACL from being exceeded. If the ACL is exceeded, AMs would be triggered to correct for the overage in the following fishing season. Therefore, regardless of how shares are allocated or how efficiently the wreckfish portion of the snapper grouper fishery is prosecuted once streamlined to include only active shareholders, overall fishing-related mortality of wreckfish would be constrained by the proposed commercial ACL.

Establishing a share cap is not likely to change fishing practices or modify the gear types used in the wreckfish component of the snapper grouper fishery in ways that might cause new effects to sea turtles not considered in previous evaluations of effects to protected

species. Additionally, overall fishing harvest would be limited to the proposed commercial ACL of 223,250 pounds (ww), if approved, which is a reduction from current harvest levels. Therefore, even if effort from an individual fisher increases, the reductions in total landings would likely lead to a reduction in total wreckfish fishing harvest; thus, an increased risk to sea turtles, or other protected species and habitat areas of particular concern from this action is not anticipated.

### 4.3.2 Economic Effects

Transferability of quota shares allows shareholders to buy, sell, give away, or lease their shares. Buying or selling an allocation is equivalent to leasing in the normal sense of the word. In general, the ability to transfer quota shares enhances the economic performance of the commercial wreckfish component of the snapper grouper fishery. It provides fishermen with a valuable asset and compensation if they choose to stop fishing for wreckfish, which may in turn strengthen fishermen's desire to conserve and protect the resource on which the quota shares is based.

Trading of shares encourages the evolution of efficient-sized firms. For maximum economic performance, the number and size of firms in an industry must adjust over time as technology and markets vary. This outcome can be accomplished through private transactions in financial capital, equipment, natural resources, and technology. Similarly, transferability of quota shares allows firms to accumulate shares to achieve a quantity and species mix consistent with a low cost, efficient operation. In general, shares are expected to shift to the more economically efficient operators. Transferability of shares is necessary to make long-term adjustments in each producer's output, for example when purchasing a new boat.

Finally, transferability also helps shareholders plan future transactions, and gives them an economic incentive to preserve the underlying source of value (i.e., the resource). For example, a run-down vessel will have less value when sold than will a well-maintained vessel. Similarly, a quota share will be more valuable if the fish stocks underlying it are in good shape. Thus, transferability encourages shareholders to consider the long-term consequences of their short-term harvesting activities on the value of their assets.

While transferability of harvesting privileges offers many potential advantages, a concentration of ownership can lead to at least two different types of issues. One issue is the creation of market power, including monopoly (a single seller) and/or monopsony (a single buyer). The issue of market power is not unique to catch share programs. A second issue is concentration of ownership can lead to undesired changes in the structure of the fishing community, broadly defined.

The concentration of quota shares can lead to different types of market power issues. First, an operator may obtain a significant amount of quota shares, which results in monopoly power with respect to the sale of fish products to the general consumer. The desire for monopoly profits will lead to an artificial reduction in output and an increase in prices to the consumer. In most cases, the threat of monopoly power in commercial fisheries is quite small because the product from a single catch share program must compete with similar products from other domestic and international fisheries, including farmed products. Only when the catch share program is for a unique fishery, with a separate market niche, is this

likely to become a problem. In the case of wreckfish, the concentration of quota shares is somewhat unlikely to create monopoly power for shareholders as wreckfish directly competes against other domestically harvested and imported groupers, snappers, and other fish as well. On the other hand, there is evidence that harvesters and dealers have been somewhat successful in creating a niche market for wreckfish, and thus the creation of market power through concentration of quota shares is possible. The likelihood of a wreckfish shareholder possessing monopsony power is similarly remote. Most of the important inputs (e.g., fuel, crew, hooks, line, etc.) used by commercial wreckfish fishermen are also used by other commercial fishermen, recreational fishermen, and/or the general public. Even if a single shareholder possessed all of the shares, it is highly unlikely that a shareholder would possess any control over the prices of his inputs because of competition from other buyers.

Similarly, a shareholder may obtain a significant amount of shares and operate as a monopsonist or monopolist in the market for shares. Such market power can reduce the transferability of shares and thereby prevent an ownership pattern that allows for the most efficient operation of the fleet. In general, this type of market power is more likely to occur than market power in the sale of commercially harvested seafood, including wreckfish.

The second type of issue that can result from the concentration of shares has to do with the lifestyle of fishing households and fishing communities. There can be significant support for the maintenance of a fishery composed of many diverse individuals. According to this view, even if concentration will not produce market power problems, it is to be avoided for reasons other than economic efficiency. The loss of economic returns from the fishery resource in order to maintain a social or community structure is a policy and prioritization question for the South Atlantic Council.

While valid reasons exist for considering limits on ownership, such limits also have weaknesses. One of the primary purposes of using catch shares is to allow individuals to have the flexibility to obtain more shares in order to use more efficient vessels. Share caps can be a direct barrier to such efficiencies that can in turn result in significant economic losses.

An important reference point for discussions of "excessive shares" is National Standard 4 (Section 301(a)(4)):

> (4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Excessive share is referenced again in Section 303A(c)(5)(D) that grants Councils the authority to create limited access privilege (LAP) programs:

(D) ensure that limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program by—

(i) establishing a maximum share, expressed as a percentage of the total limited access privileges, that a limited access privilege holder is permitted to hold, acquire, or use; and

(ii) establishing any other limitations or measures necessary to prevent an inequitable concentration of limited access privileges.

In the same section, the Magnuson-Stevens Act states that when developing LAP programs, a Council should:

(B) consider the basic cultural and social framework of the fishery, especially through—

(i) the development of policies to promote the sustained participation of small owner-operated fishing vessels and fishing communities that depend on the fisheries, including regional or port-specific landing or delivery requirements; and

(ii) procedures to address concerns over excessive geographic or other consolidation in the harvesting or processing sectors of the fishery;

(C) include measures to assist, when necessary and appropriate, entry-level and small vessel owner-operators, captains, crew, and fishing communities through set-asides of harvesting allocations, including providing privileges, which may include set-asides or allocations of harvesting privileges, or economic assistance in the purchase of limited access privileges;

The requirements to consider the allocation of shares to different entities, loan programs, and methods to address different types of consolidation are examples of possible management objectives that may affect what constitutes an excessive share. Moreover, specific guidance is provided to develop procedures to address excessive geographic or other types of consolidation. However, the South Atlantic Council must still determine what "excessive" means.

Market power is one factor to consider when determining what constitutes an excessive share. However, the South Atlantic Council has considerable latitude in determining the management objectives for any FMP and in choosing the subsequent management measures to achieve those objectives, subject to the restrictions and obligations of the 10 National Standards and other Magnuson-Stevens Act requirements. National Standard 8 (Section 301(a)(8)) is particularly relevant to this issue.

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirements of paragraph (2), in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic effects on such communities.

Depending on the particular management objectives chosen and the ways in which the South Atlantic Council decides to address the National Standards, factors other than simple market power need to be considered in determining what constitutes an excessive share. However, it is useful to make a clear distinction between market power and other factors because they address different issues.

Under **Action 3**, the South Atlantic Council is considering six share cap alternatives (including a No Action alternative) of 15%, 25%, 49%, 65%, and the highest percentage of total shares held by a single shareholder after redistribution. Thus, excess shares would be shares in excess of the share cap (e.g., if an individual controls 35% of the shares and the share cap is 25%, then that individual's excess shares would be 10%). When applying a share cap in commercial fisheries operating under a catch share program, it is customary to apply it at the individual rather than the shareholder level. This approach has been employed in order to prevent individuals from exceeding the share cap by being or becoming partial or full owners of shareholdings, or rather share certificates in the case of wreckfish. For example, assume the share cap is 49%. An individual could own one share certificate representing 30% of the shares under his name and own 50% of a corporation that owns another share certificate representing 40% of the shares. Although neither shareholder would exceed the share cap, this individual would effectively own and control 50% of the shares and thus exceed the share cap.

Under both Alternative 2 and Alternative 3 (Preferred) for Action 1, only six individuals would own shares associated with an active shareholder. Thus, under **Alternative 1 (No Action)** for **Action 3**, these six individuals would be allowed to own as many shares as they could obtain, either via purchases through the market or as a result of the alternative selected under Action 2. In theory, a single individual could end up controlling at least a majority of the quota shares and possibly 100% of the quota shares. As previously noted, such levels of ownership could lead to the creation of monopoly power in the market for wreckfish as well as reduce the transferability of shares and thereby prevent an ownership pattern that allows for the most efficient operation of the fleet, which is contrary to the South Atlantic Council's goals and objectives.

Further, given that there are only six individuals associated with an active shareholder under both Alternative 2 and Alternative 3 (Preferred) for Action 1, **Alternative 2** under **Action 3**, which would establish a share cap of 15%, is no longer a viable or reasonable alternative.[20] Mathematically, if each individual can only own a maximum of 15% of the shares, then the maximum amount of shares those six individuals can own in total is 90%. As such, 10% of the shares would be unallocated and thus not available for harvest. Not only is such an

[20] At the beginning of the 2011/2012 fishing year, seven individuals were associated with the active shareholders under both Alternative 2 and Alternative 3 (Preferred) for Action 1 and thus **Alternative 2** under **Action 3** was a viable and reasonable alternative. However, one of the active shareholders recently sold his shares, which reduced the number of individuals associated with active shareholders to six.

outcome economically undesirable, as it would reduce gross revenue and likely profits, it is contrary to the South Atlantic Council's goals and objectives for this amendment.

As can be seen in **Tables 4-19** and **4-20**, under **Alternative 4 (Preferred)**, **Alternative 5**, and **Alternative 6**, no individuals would exceed the share cap and thus no individual would possess excess shares that could be subject to further redistribution, regardless of whether an active shareholder is defined under Alternative 2 or Alternative 3 (Preferred) for Action 1.[21] Thus, given current conditions, the issue of excess shares is only germane under **Alternative 3**.

Specifically, assuming Alternative 2 for Action 1, one or two individuals would exceed a 25% share cap regardless of which alternative is selected under Action 2, with the exception of Alternative 1 (No Action). Between 9.56% and 19.1% of the shares held by these one or two individuals would be considered excess shares and thus subject to redistribution among the other individuals.

Assuming Alternative 3 (Preferred) for Action 1, two individuals would exceed a 25% share cap regardless of which alternative is selected under Action 2, with the exception of Alternative 1 (No Action). Between 16.25% and 20.47% of the shares held by these two individuals would be considered excess shares and thus subject to redistribution among the other individuals.

**Tables 4-21** and **4-22** provide detailed information regarding the distribution of shares by individual[22] for each alternative under Action 2, under Alternative 2 and Alternative 3 (Preferred) for Action 1, respectively, assuming the 25% share cap under **Alternative 3** for **Action 3**. By examining the distribution of shares at the individual level, these tables convey additional important findings. For example, assuming Alternative 2 under Action 1, the maximum shares held by a single individual is 44.1%, which would occur under Alternative 4 for Action 2**.** The maximum shares held by a single individual are lower and accrue to a different individual under the other alternatives for **Action 2**. Thus, assuming Alternative 2 under Action 1, the share cap under **Alternative 6** for **Action 3** would be 44.1% given current conditions.

Assuming Alternative 3 (Preferred) under Action 1, the maximum shares held by an individual is 41.54% under Alternative 3b (Preferred) for Action 2. That same individual would own the largest amount of shares under all of the other alternatives for Action 2, with the exception of Alternative 4. In turn, the two individuals with the maximum amount of shares under each of these scenarios would also have the largest amount of excess shares

[21] In instances where more than one individual was associated with a single active shareholder (e.g., more than one individual owned the corporation holding the share certificate), landings were apportioned between those individuals according to the percentage of the corporation they own.
[22] Each entity, including individuals, is assigned a unique identifier in the Permit Information Management System (PIMS). That identifier is used in these tables to hide the identities of the individuals.

subject to redistribution. Thus, assuming Alternative 3 (Preferred) under Action 1, the share cap under **Alternative 6** for **Action 3** would be 41.54% given current conditions.

Although no individuals would have excess shares under **Alternative 4 (Preferred)** for **Action 3**, the South Atlantic Council indicated its intent to have excess shares redistributed according to the redistribution method specified under the preferred alternative for Action 2, which is Alternative 3b (Preferred). Therefore, it is assumed that this redistribution method is to be employed under **Action 3**. As previously mentioned, excess shares only become an issue under **Alternative 3** (25% share cap) for **Action 3**.

**Tables 4-23** and **4-24** provide detailed information regarding the distribution of shares and excess shares by individual for Alternative 3b (Preferred) under Action 2, assuming Alternative 2 and Alternative 3 (Preferred) for Action 1. Because excess shares would exist under **Alternative 3** (25% share cap) for **Action 3**, the redistribution method employed under Alternative 3b (Preferred) for Action 2 is applied. This method redistributes shares away from individuals with excess shares to individuals below the share cap based on their landings histories in fishing years 2006/2007 through 2010/2011. The application of this method results in an iterative redistribution process because the initial redistribution of excess shares based on this method results in a different individual exceeding the share cap, causing those "new" excess shares to be redistributed according to this method. Redistribution continues to occur until no individual exceeds the share cap.

The final shares for each individual after redistribution is complete are also presented in these tables. As can be seen from these results, the redistribution of excess shares under **Alternative 3** for **Action 3** causes the final distribution of shares under Alternative 3b (Preferred) for Action 2 to be much more equal than before redistribution occurred. In fact, the final distribution of shares under Alternative 3b (Preferred) for Action 2 is much more equal than all of the other alternatives under Action 2, with the exception of Alternative 1 (No Action).[23]

With respect to economic effects, approximately $83,500 in share value would be redistributed from the two individuals with the largest amount of shares to the other four individuals with shares, assuming Alternative 2 under Action 1. Assuming Alternative 3 (Preferred) under Action 1, approximately $131,200 would be redistributed from the two individuals with the largest amount of shares to the other four individuals with shares.

[23] Redistribution of excess shares under the other alternatives for Action 2 was not analyzed as that would cause two different redistribution methods to be employed, contrary to the South Atlantic Council's intent.

**Table 4-19**. Number of individuals exceeding share cap and total excess shares under all alternatives for **Action 3** for each alternative under Action 2 assuming Action 1, Alternative 2.

| Alternative under Action 2 | Number of Individuals Alt 3 (25%) | Excess Shares Alt 3 (25%) | Number of Individuals Alt 4 (Pref) (49%) | Excess Shares Alt 4 (Pref) (49%) | Number of Individuals Alt 5 (65%) | Excess Shares Alt 5 (65%) | Number of Individuals Alt 6 (44.1%) | Excess Shares Alt 6 (44.1%) |
|---|---|---|---|---|---|---|---|---|
| 2a | 2 | 9.78 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2b | 1 | 9.56 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3a | 2 | 17.33 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3b (Pref) | 2 | 13.03 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 1 | 19.10 | 0 | 0 | 0 | 0 | 0 | 0 |

Data source: NOAA Fisheries Southeast Regional Office

**Table 4-20**. Number of individuals exceeding share cap and total excess shares under all alternatives for **Action 3** for each alternative under Action 2 assuming Action 1, Alternative 3 (Preferred).

| Alternative under Action 2 | Number of Individuals Alt 3 (25%) | Excess Shares Alt 3 (25%) | Number of Individuals Alt 4 (Pref) (49%) | Excess Shares Alt 4 (Pref) (49%) | Number of Individuals Alt 5 (65%) | Excess Shares Alt 5 (65%) | Number of Individuals Alt 6 (41.54%) | Excess Shares Alt 6 (41.54%) |
|---|---|---|---|---|---|---|---|---|
| 2a | 2 | 16.25 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2b | 2 | 16.38 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3a | 2 | 20.21 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3b (Pref) | 2 | 20.47 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 2 | 17.05 | 0 | 0 | 0 | 0 | 0 | 0 |

Data source: NOAA Fisheries Southeast Regional Office

**Table 4-21**. Individual shares and excess shares under **Alternative 3** for **Action 3** for each alternative under Action 2 assuming Action 1, Alternative 2.

| Individual | Shares Alt. 2a | Shares Alt. 2b | Shares Alt. 3a | Shares Alt. 3b (Pref) | Shares Alt. 4 | Excess Shares Alt. 2a | Excess Shares Alt. 2b | Excess Shares Alt. 3a | Excess Shares Alt. 3b (Pref) | Excess Shares Alt. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10291 | 33.36 | 34.56 | 30.47 | 32.86 | 44.10 | 8.36 | 9.56 | 5.47 | 7.86 | 19.10 |
| 10932 | 7.02 | 7.48 | 5.66 | 6.59 | 8.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12646 | 26.42 | 23.07 | 36.86 | 30.17 | 15.50 | 1.42 | 0.00 | 11.86 | 5.17 | 0.00 |
| 3305 | 12.53 | 12.51 | 9.17 | 9.13 | 15.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5474 | 7.02 | 7.01 | 3.63 | 3.60 | 6.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5703 | 13.65 | 15.37 | 14.22 | 17.66 | 10.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Data source: NOAA Fisheries Southeast Regional Office

**Table 4-22**. Individual shares and excess shares under **Alternative 3** for **Action 3** for each alternative under Action 2 assuming Action 1, Alternative 3 (Preferred).

| Individual | Shares Alt. 2a | Shares Alt. 2b | Shares Alt. 3a | Shares Alt. 3b (Pref) | Shares Alt. 4 | Excess Shares Alt. 2a | Excess Shares Alt. 2b | Excess Shares Alt. 3a | Excess Shares Alt. 3b (Pref) | Excess Shares Alt. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10291 | 30.44 | 30.42 | 28.98 | 28.93 | 35.96 | 5.44 | 5.42 | 3.98 | 3.93 | 10.96 |
| 10932 | 6.21 | 6.33 | 5.45 | 5.70 | 6.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12646 | 35.80 | 35.96 | 41.22 | 41.54 | 31.09 | 10.80 | 10.96 | 16.22 | 16.54 | 6.09 |
| 3305 | 11.06 | 11.03 | 9.11 | 9.05 | 12.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5474 | 5.56 | 5.54 | 3.59 | 3.55 | 4.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5703 | 10.92 | 10.72 | 11.64 | 11.24 | 8.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Data source: NOAA Fisheries Southeast Regional Office

**Table 4-23**. Individual shares, excess shares, and final shares after redistribution under **Alternative 3** for **Action 3** assuming method under Action 2, Alternative 3b (Preferred) and assuming Action 1, Alternative 2.

| Individual | Shares Alt. 3b (Pref) | Excess Shares Alt. 3b (Pref) | Final Shares | Change in Shares | Change in Share Value |
|---|---|---|---|---|---|
| 10291 | 32.86 | 7.86 | 25.00 | -7.86 | -$50,359 |
| 10932 | 6.59 | 0.00 | 8.91 | 2.32 | $14,864 |
| 12646 | 30.17 | 5.17 | 25.00 | -5.17 | -$33,124 |
| 3305 | 9.13 | 0.00 | 12.35 | 3.22 | $20,631 |
| 5474 | 3.60 | 0.00 | 4.87 | 1.27 | $8,137 |
| 5703 | 17.66 | 0.00 | 23.88 | 6.22 | $39,852 |

Data source: NOAA Fisheries Southeast Regional Office

**Table 4-24**. Individual shares, excess shares, and final shares after redistribution under **Alternative 3** for **Action 3** assuming method under Action 2, Alternative 3b (Preferred) and assuming Action 1, Alternative 3 (Preferred).

| Individual | Shares Alt. 3b (Pref) | Excess Shares Alt. 3b (Pref) | Final Shares | Change in Shares | Change in Share Value |
|---|---|---|---|---|---|
| 10291 | 28.93 | 3.93 | 25.00 | -3.93 | -$25,178 |
| 10932 | 5.70 | 0.00 | 9.65 | 3.95 | $25,332 |
| 12646 | 41.54 | 16.54 | 25.00 | -16.54 | -$105,950 |
| 3305 | 9.05 | 0.00 | 15.31 | 6.26 | $40,122 |
| 5474 | 3.55 | 0.00 | 6.00 | 2.45 | $15,692 |
| 5703 | 11.24 | 0.00 | 19.04 | 7.80 | $49,982 |

Data source: NOAA Fisheries Southeast Regional Office

The U.S. Department of Justice (DOJ), the Federal Trade Commission (FTC), and state attorneys general have used the Herfindahl-Hirschman Index (HHI) to measure market concentration for purposes of antitrust enforcement. The HHI of a market is calculated by summing the squares of the percentage market shares held by the respective market participants. For example, an industry consisting of two participants with market shares of 60% and 40% has an HHI of $60^2+40^2$, or 5200.

According to the DOJ-FTC 2010 Horizontal Merger Guidelines, these agencies consider a market in which the post-merger HHI is below 1500 as "unconcentrated," between 1500 and 2500 as "moderately concentrated," and above 2500 as "highly concentrated." A merger

raises potential "significant competitive concerns" if it produces an increase in the HHI of more than 100 points in a moderately concentrated market or between 100 and 200 points in a highly concentrated market. A merger is presumed "likely to enhance market power" if it produces an increase in the HHI of more than 200 points in a highly concentrated market.[24]

In effect, the alternatives under Action 2 in this amendment cause a "merger" between active and inactive shareholders, as defined under the alternatives for Action 1, by redistributing shares from inactive to active shareholders. Because the share cap in **Action 3** is applied at the individual level, HHI values were also estimated at the individual level. These estimates are provided in **Table 4-25**.

**Table 4-25**. HHI estimates for all alternatives under Action 1 and Action 2, and **Alternative 3** for **Action 3**.

| Action 1 | Action 2 Alt. 2a | Action 2 Alt. 2b | Action 2 Alt. 3a | Action 2 Alt. 3b (Pref) | Action 2 Alt. 4 | Action 3 Alt. 3 (25% cap) |
|---|---|---|---|---|---|---|
| Alt. 1 | 1,433 | 1,433 | 1,433 | 1,433 | 1,433 | 1,433 |
| Alt. 2 | 2,520 | 2,526 | 2,801 | 2,815 | 2,562 | 1,976 |
| Alt. 3 (Pref) | 2,253 | 2,224 | 2,618 | 2,442 | 2,640 | 2,076 |

Data source: NOAA Fisheries Southeast Regional Office

The results in **Table 4-25** indicate that, currently, the commercial wreckfish component of the snapper grouper fishery is "unconcentrated" according to the DOJ/FTC guidelines. Given that the HHI is currently 1433, it is just below the threshold for "moderately concentrated." All of the alternatives under Action 2 significantly increase concentration, to the point where the industry becomes moderately concentrated or "highly concentrated." The highest levels of concentration would occur under Alternatives 3b (Preferred) and 3a for Action 2, assuming Alternative 2 is selected under Action 1. Assuming Alternative 3 (Preferred) under Action 1, the highest levels of concentration would occur under Alternatives 4 and 3a while the lowest levels of concentration would occur under Alternatives 2b and 2a for Action 2. Alternative 3b (Preferred) under Action 2 would be between these two extremes. It is also worth noting that, assuming Alternative 3 (Preferred) under Action 1, Alternative 3b (Preferred) under Action 2 would move the industry into the "moderately concentrated" rather than the "highly concentrated" category.

Consistent with the intent of share caps, implementation of a 25% share cap under Alternative 3 for Action 3 would decrease concentration in the industry relative to what it would be without a share cap. Although the decrease is significant, the industry would still fall into the "moderately concentrated" category and thus be greater than if inactive shares

[24] See http://unclaw.com/chin/teaching/antitrust/herfindahl.htm.

were not reverted and redistributed, as would be the case if the South Atlantic Council took no action in this amendment.

### 4.3.3 Social Effects

**Alternative 1 (No Action)** would not implement a share cap on the number of shares held by active entities and as mentioned in **Section 4.3.1** would thus not comply with the mandates for limited access privilege programs under the Magnuson-Stevens Act. Although **Alternative 1 (No Action)** would be expected to provide the most social benefits to shareholders holding a large number of shares, it is not practical because of its non-compliance with the mandates for limited access privilege programs.

All other alternatives would establish share caps at levels of 15% (**Alternative 2**), 25% (**Alternative 3**), 49% (**Alternative 4 [Preferred]**), 65% (**Alternative 5**), and at a level equal to that held by the largest shareholder after redistribution (**Alternative 6**). **Tables 4-19** and **4-22** in **Section 4.3.2** show in detail the number of shareholders and shares exceeding the share cap under the various alternatives and actions.

**Alternative 2** would establish a share cap at 15%. This is no longer a viable alternative because the number of active shareholders has been reduced to six individuals through recent share transfers and at a share cap of 15% assuming either Alternative 2 or Alternative 3 (Preferred) under Action 1 is selected, all six entities would receive 15 shares (for a total of 90 shares with a total of 10 shares remaining after the cap which could not be distributed because of the cap level) and it would not be possible to reach 100% of the shares to be redistributed. Also, this alternative would be expected to reduce the possible participation of the largest shareholders by giving each entity an equal share. This would act in opposition to the underlying social and economic purpose of this amendment which includes not adversely impacting those who depend on wreckfish for their livelihoods, because it would not allow the largest entities to continue to fish at a comparable level.

**Alternative 3** was proposed as a mid-point for analysis between **Alternatives 2** and **Alternative 4 (Preferred)** and would establish a share cap at 25% which would cap the shares of two entities throughout the various alternatives assuming Alternative 2 under Action 1, and would cap the shares of one entity assuming Alternative 3 (Preferred) under Action 1. These entities are the largest shareholders and, although other participants would likely fish the shares removed by the implementation of a 25% cap, this would act in opposition to the underlying social and economic purpose of this amendment which includes not adversely impacting those who depend on wreckfish for their livelihoods.

**Alternative 4 (Preferred)** would establish a share cap at 49% and would prevent any one entity from holding the majority of shares in the fishery. The share cap would currently not impact any one entity (at their current share level with any of the various alternatives and options). If the largest entity were to acquire more shares prior to the freeze on transfers, this could change.

**Alternative 5** would establish a share cap at 65% and currently would not impact any entity at their current share levels with any of the various alternatives and options. If the largest

entity were to acquire more shares prior to the freeze on transfers, this could change. If this large share cap were met by an entity, they would have the majority of the shares in the fishery and this could cause negative social effects including effects to wreckfish dealers which currently depend on wreckfish landings, but are located in a different delivery area from the large shareholder entity.

As explained in **Section 4.3.1**, **Alternative 6** is the closest to the status quo in that it would allow the entity currently holding the most shares in the fishery to set the share cap. If this entity were to acquire several more shares before the freeze on share transfers takes place, the share cap could be higher than it is with the current analysis. It is anticipated that entities interested in holding the largest proportion of shares among the shareholders are the most likely to fish all the shares. **Alternative 6** could allow for a possible situation similar to that of **Alternative 5** where one entity could have the majority of the shares in the fishery if significant consolidation were to occur prior to a freeze on transfers. Currently, regardless of which alternatives are selected under Action 1 or Action 2, no one entity would hold a majority of the shares; however if a significant transfer of shares were to occur prior to a freeze on transfers, both **Alternative 5** and **Alternative 6** have the capability of creating a situation where a majority of the shares are held by a single entity. If this situation occurred it could negatively impact other shareholders and dealers; however, for years (including the time period of 2006/2007 through 2010/2011 considered in this amendment), the bulk of wreckfish landings have been delivered primarily by a few individuals and this does not appear to have caused negative social effects.

### 4.3.4 Administrative Effects

Establishing a cap on the number of wreckfish shares that can be held by any single active shareholder is largely an administrative action with socio-economic implications. The South Atlantic Council has determined that excess shares would be redistributed to the active shareholders who have not yet met the share cap using the preferred redistribution method chosen under Action 2. If excess shares would still be held after applying the share cap and a second round of redistribution, a third round of redistribution according to preferred alternative under Action 2 would be applied. NOAA Fisheries Service staff would be responsible for determining which active shareholders are slated to receive shares in excess of the share cap and how many excess reverted shares each active shareholder who has not yet reached the share cap would receive. Excess shares are most likely to be an issue under **Alternatives 2** and **3**, and least likely under **Alternatives 5** and **6**.

It is reasonable to assume that the lower the share cap is set the more administratively burdensome the action would be due to the increased probability of there being excess shares. Therefore, **Alternative 2** is likely to incur the greatest cost and time burden followed by **Alternatives 3**, **4 (Preferred)**, **5,** and **6**. Depending on the South Atlantic Council's choice of preferred, dealing with excess shares and associated outreach efforts could constitute a moderate short-term impact on the administrative environment. **Alternatives 1 (No Action)** and **Alternative 6** are likely to result in the same negligible level of cost and time burden since both would require little to no effort to implement. However, as stated previously, a cap on shares is a Reauthorized Magnuson-Stevens Act requirement and;

therefore, if no share cap is established (**Alternative 1 (No Action)**), NOAA Fisheries Service could be subject to significant administrative burdens associated with litigation.

### 4.3.5 Council Conclusions

The Snapper Grouper AP recommended that the South Atlantic Council invalidate the wreckfish ITQ program and treat the fishery as an open access fishery within the snapper grouper program. The AP did not have a specific recommendation for this action.

The SEP of SSC reviewed the action. The SEP did not support the establishment of a share cap. Because there are many substitutes for wreckfish available in the market (e.g., grouper species), the SEP did not think that aggregation of shares would lead to market power and the ability to manipulate wreckfish prices on either the buyer or seller side. Another potential concern noted by the SEP for concentrated ownership is disproportionate influence in future management decisions. The SSC concurred with the SEP's recommendations.

The Law Enforcement AP reviewed the action but had no specific recommendations.

The South Atlantic Council is required to define excessive shares for the ITQ program to establish a cap on the number of shares that one entity may own. This action is necessary to prohibit one individual from holding so many shares that he/she would control the market for wreckfish, in addition to equity concerns for the fishermen. A share cap can also be defined based on management goals for the fishery. The wreckfish ITQ program does not currently have a cap on shares, as this was not a Magnuson-Stevens Act requirement until the Act was reauthorized in 2007 and the wreckfish ITQ program was implemented in 1992 under Amendment 5 (SAFMC 1991). It should be noted that Amendment 5 established a 10% cap on the shares that could be received in initial allocation, but not a cap for the number of shares that an entity could hold by purchasing additional shares. In addition, the South Atlantic Council concluded that at the time existing anti-trust laws were sufficient.

The South Atlantic Council selected **Alternative 4** as the preferred alternative. **Alternative 4 (Preferred)** would establish the share cap at 49%, so that an individual or entity may own no more than 49% of the wreckfish shares. Under **Alternative 4 (Preferred)**, no shareholder would exceed the share cap after redistribution of reverted shares. However, a shareholder may purchase additional shares, but the individual would not be able to own in excess of the 49% share cap.

The South Atlantic Council did not want to allow one shareholder to hold 50% or more of the wreckfish shares, but preferred to allow shareholders to increase shareholdings if necessary or if the shareholder wanted to expand operation size. Additionally, the fishery has a small number of participants, and the South Atlantic Council considered this factor when discussing the share cap.

The South Atlantic Council concluded that **Alternative 4 (Preferred)** best meets the purpose and need to implement and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the

Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

### 4.4 Action 4. Establish an appeals process.

**Alternative 1**: No Action. Do not specify provisions for an appeals process associated with the ITQ program.

**Alternative 2 (Preferred)**: A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The Regional Administrator will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 2a**: 3% of wreckfish shares will be set aside for appeals.
**Sub-alternative 2b (Preferred)**: 5% of wreckfish shares will be set aside for appeals.
**Sub-alternative 2c**: 10% of wreckfish shares will be set aside for appeals.

**Alternative 3**: A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to the Regional Administrator on appeals. Hardship arguments will not be considered. The special board and the Regional Administrator will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 3a**: 3% of wreckfish shares will be set aside for appeals.
**Sub-alternative 3b**: 5% of wreckfish shares will be set aside for appeals.
**Sub-alternative 3c**: 10% of wreckfish shares will be set aside for appeals.

#### 4.4.1 Biological Effects

The wreckfish shareholders' appeals process is largely an administrative action that would have few if any biological implications. **Alternative 1 (No Action)** would result in no adverse biological effects since it would not increase the number of shareholders allowed to receive reverted shares under Action 1 of Amendment 20A, and thus fish those shares. **Alternative 2 (Preferred)** is similar to the appeals processes used in the grouper/tilefish and red snapper IFQs in the Gulf of Mexico and the proposed endorsement programs for black sea bass and golden tilefish in Amendments 18A and 18B (under development), respectively. **Alternative 2 (Preferred**) would give shareholders an opportunity to appeal

their inactive share status or the number of reverted shares that were issued to active shareholders through the redistribution process. If either type of appeal were granted by the Regional Administrator, no adverse biological impact in the form if increased fishing pressure would be expected since the overall harvest of the proposed commercial ACL and the number of reverted shares are both limiting factors. Biological effects of **Alternative 3** would be the same as those under **Alternative 2 (Preferred)**. The only difference between **Alternatives 2 (Preferred)** and **3** is the means by which appeals would be considered; i.e., via Regional Administrator determination, or via recommendations of a special board recommendations presented to the Regional Administrator. **Sub-alternatives 2a-2c** and **3a-3c** may result in some short-term reduction in wreckfish fishing-related mortality during the 2012/2013 wreckfish fishing year since 3%, 5% (**Preferred**), or 10% respectively, of wreckfish shares would not be fished during the designated 90-days unless those shares are distributed to successful appellants. After the 2012/2013 season, the long-term biological effects on target and non-target species, and on essential fish habitat and habitat areas of particular concern, would be the same, assuming all shares would be redistributed to active shareholders who are likely to fish the redistributed shares. Since successful appeals would simply shift the distribution of existing shares among shareholders, no increase in effort would be expected, and new effects on protected species not previously considered are not anticipated.

### 4.4.2 Economic Effects

The adoption of **Alternative 1 (No Action)** would not include the establishment of an appeals process in the ITQ program. **Alternative 2 (Preferred)** and **Alternative 3** consider the establishment of an appeals process. These two alternatives only differ with respect to whether a special board composed of state directors/designees would be involved in the appeals process. Under **Alternative 3,** the special board would review, evaluate, and make individual recommendations to the Regional Administrator on appeals. Under **Alternative 2 (Preferred)**, the Regional Administrator would have sole authority with respect to reviewing, evaluating, and rendering final decisions on appeals. As such, the only difference in the expected economic effects would be with respect to the timeliness and administrative costs associated with rendering decisions on these appeals. In general, it is expected that appeals would be resolved in a more timely and less costly manner if fewer people are involved in the decision making process. Thus, adverse economic effects are expected to be less under **Alternative 2 (Preferred)** relative to **Alternative 3**.

**Alternative 2 (Preferred)** and **Alternative 3** smooth the implementation of the quota share redistribution process by reducing any adverse effects of the appeals process on active shareholders. At the same time, in the event many appeals are settled in favor of shareholders, it also helps to ensure the commercial wreckfish quota would not be exceeded in the first fishing year following redistribution of the quota shares. Setting aside a relatively small portion of quota shares for appeals purposes limits the likelihood of major share adjustments. Small reductions would be more economically acceptable than large reductions in allocations (i.e., coupons) to active shareholders during the first fishing year following redistribution of the quota shares.

An appeals process provides shareholders, particularly those presumed to be inactive or with a relatively low level of landings, with an avenue to potentially correct factual errors regarding the landings history of the permit(s) associated with each share certificate. Since the landings histories are currently on record through the wreckfish logbooks, the aggregate amount of contentious landings involved in the appeals is expected to be relatively low. Nonetheless, not establishing an appeals process and thereby allowing for the possibility that errors could exist in the logbook records could cause presumably inactive shareholders to question the fairness of the South Atlantic Council's decision to redistribute their shares. In turn, these presumed inactive shareholders might pursue legal action, which could delay redistribution of the quota shares and generate adverse economic effects on active shareholders by keeping them at their current level of shares.

With the exception of the administrative costs and potential costs associated with a potential delay in implementation noted above, the establishment of an appeals process and the design of its structure have mainly equity effects. While equity considerations are important, they have less significance in determining the economic effects of restructuring an ITQ program. Thus, neither the appeals process nor its structure is expected to have a noticeable effect on the overall economic benefits associated with restructuring the ITQ program. This is particularly true when an appeals process would only marginally affect the distribution of quota shares among eligible (i.e., active) participants. Economic changes would only be evident if the number of successful appeals from inactive shareholders were large compared to the number of active shareholders. Experience with the appeals for the red snapper and grouper/tilefish IFQ programs in the Gulf of Mexico revealed that the successful appeals did not materially alter the quota share distribution. Further, given that the total number of shareholders is only 20, of which no more than 14 are presumably inactive, the number of appeals is expected to be small and the number of successful appeals even smaller.

With respect to the three sub-alternatives under **Alternative 2 (Preferred)** and **Alternative 3**, the amount of quota to be set aside for appeals would be 6,698 pounds, 11,163 pounds, and 22,325 pounds, respectively. The set-aside under **Sub-alternatives 2a** and **3a** was thought to be potentially too small, even with the small number of expected appeals. Conversely, given the reduction in the commercial quota and the allocation to each shareholder due to proposed actions in the Comprehensive ACL Amendment (SAFMC 2011), a set-aside of more than 23,000 pounds was thought to be too large. Such a relatively large set-aside could create economic hardships for active shareholders, particularly since this poundage would be withheld in the early part of the fishing year when effort is relatively high. Thus, a 5% set-aside was determined to be an acceptable compromise between the two extremes.

### 4.4.3 Social Effects

Because the reversion and redistribution of shares would be expected to result in increased social benefits relative to the absence of a reversion and redistribution system, social benefits would be expected to be maximized if all appropriate fishermen are determined to hold active shares and receive reverted shares. The exclusion of any appropriate fishermen would be expected to result in decreased social benefits. The absence of an appeals process, as would occur under **Alternative 1 (No Action)**, would be expected to increase the likelihood that one or more appropriate qualifiers would have either been deemed inactive and would not

receive reverted shares or would not have received the proper amount of reverted shares through some sort of error, resulting in less social benefits. **Alternative 2 (Preferred)** and **Alternative 3** allow for an appeals process and would be expected to result in greater social benefits than **Alternative 1 (No Action)**.

**Alternative 2 (Preferred)** and **Alternative 3** both provide an appeals process; however, the process for coming to a decision is different. In **Alternative 2 (Preferred)**, the Regional Administrator would review, evaluate, and render a final decision based on NMFS logbooks and, if NMFS logbooks are not available, the Regional Administrator may use state landings records; whereas in **Alternative 3**, a board composed of state directors/designees would review, evaluate, and make individual recommendations to the Regional Administrator on appeals and would rely on logbooks or state landings records if logbooks are not available. Both **Alternative 2 (Preferred)** and **Alternative 3** include varying percentages of wreckfish shares which will be set aside for fishing year 2012/2013 for appeals including: 3% (**Sub-alternative 2a** and **Sub-alternative 3a**), 5% (**Sub-alternative 2b [Preferred]** and **Sub-alternative 3b**), and 10% (**Sub-alternative 2c** and **Sub-alternative 3c**) set-aside for appeals. After the appeals are settled, this alternative would redistribute those shares back to the remaining shareholders according to the method selected under **Action 2**.

**Sub-alternative 2c** and **Sub-alternative 3c** set aside the largest amount of shares, 10% for appeals, and if this amount of shares is not ultimately necessary for settling appeals, these two sub-alternatives have the potential to provide the most negative social impact to the remaining shareholders because these shares would be unavailable for use until all appeals are settled and they are redistributed. However the social benefits of these additional shares would be received after redistribution of the remaining set-aside shares. Conversely, if 10 % of the shares are required for the appeals process and they are not set aside, those appealing could be negatively impacted as they would not receive the shares to which they are entitled.

**Sub-alternative 2b (Preferred)** and **Sub-alternative 3b** set aside 5% of shares for appeals and provide a mid-point between the other options for setting aside shares (10% or 3%) for the appeals process. These sub-alternatives would likely provide more immediate positive social benefits for active shareholders in that these sub-alternatives would allow a larger amount of inactive shares to be redistributed and immediately harvested by those recognized immediately as active shareholders. However, as with **Sub-alternatives 2c** and **3c**, if not enough shares have been set aside for the appeals process, then those appealing and entitled to those shares could be negatively impacted.

**Sub-alternative 2a** and **Sub-alternative 3a** set aside 3% of shares for appeals. These sub-alternatives would likely provide the most immediate positive social benefits for recognized active shareholders in that these sub-alternatives would allow a larger amount of inactive shares to be redistributed and immediately harvested by those recognized as active shareholders. However, these sub-alternatives could have the most negative impact on appealing shareholders (if not enough shares have been set aside for the appeals process) since the percent set aside for these sub-alternatives is the lowest out of all the options.

### 4.4.4 Administrative Effects

**Alternative 1 (No Action)** would result in the lowest administrative burden when compared to the other appeals process alternatives under consideration. Under **Alternative 1 (No Action)** no inactive shareholders would have the ability to appeal their non-active status in the commercial wreckfish fishery, and no active shareholders could contest the number of shares that were redistributed to them through Action 2 of this amendment; therefore, no administrative action would be required. **Alternative 2 (Preferred)** would require the individual or entity to submit any and all applicable documentation they think could prove their status as an active shareholder including any type of landings records, dealer receipts, and logbooks. Those materials would need to be reviewed by NOAA Fisheries Service staff, as well as the Regional Administrator, to determine the legitimacy of the appellants request for inclusion in the wreckfish fishery, or for issuance of additional reverted shares. Under **Alternatives 2 (Preferred)** and **3**, the appellants would be given a limited amount of time to submit their appeal package, which would subsequently limit the time and cost associated with processing appeals requests. **Alternative 3** is likely to incur the greatest administrative burden since it is logistically cumbersome with the requirement to convene a group of individuals, which could be a time consuming and costly process.

**Sub-Alternatives 2a** and **3a** would set aside the smallest percentage of shares to be used in the appeals process, and would restrict the number of shares available to be fished during the 2012/2013 fishing year the least. Alternatively, under **Sub-Alternatives 2c** and **3c**, 10% of a small commercial ACL proposed in the Comprehensive ACL Amendment (compared to the previous quota of 2 million pounds) would be unavailable for a portion of the 2012/2013 fishing year, which could cause **Sub-Alternatives 2c** and **3c** to be the least attractive options for the affected individuals. The administrative effects of the sub-alternatives differ only in the percentage of shares set aside. Overall, the administrative burden of implementing any of the sub-alternatives would be relatively equal when compared to each other, and those effects are expected to be minimal to moderate.

If the South Atlantic Council were to choose Alternative 3 (25% share cap), under the share cap action, and if an active shareholder successfully appeals the percentage of reverted shares they received as a result of the Action 2 redistribution regime, there is a possibility that the individual could be granted shares in excess of the share cap. Under this scenario, the individual would only be issued a percentage of shares up to the share cap. Any excess shares that could result from the granting of an appeal would be redistributed to the active shareholders as specified under the preferred redistribution method in Action 2 of this amendment.

### 4.4.5 Council Conclusions

The Snapper Grouper AP recommended that the South Atlantic Council invalidate the wreckfish ITQ program and treat the fishery as an open access fishery within the snapper grouper program. The AP did not have a specific recommendation for this action.

The Scientific and Statistical Committee (SSC) did not have a specific recommendation for this action.

The Law Enforcement AP reviewed the action but had no specific recommendations.

The South Atlantic Council selected **Alternative 2, Sub-alternative 2b** as the preferred alternative and sub-alternative. **Alternative 2 (Preferred)** would establish the process under which the Regional Administrator would hear and consider all appeals requests, and **Sub-alternative 2b (Preferred)** would establish a set-aside of 5% of wreckfish shares to resolve appeals. The Regional Administrator would determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the Regional Administrator may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside would be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

The process under **Alternative 2 (Preferred)** is the same as the process used for the Gulf of Mexico Red Snapper IFQ program. For the set-aside proportions, the South Atlantic Council considered recommendations from NOAA Fisheries Service staff, which were based on outcomes of the appeals process for the Gulf of Mexico Red Snapper IFQ program. NOAA Fisheries Service staff recommended that 3% was adequate, but no more than 10% needed to be set aside for appeals. The South Atlantic Council felt that a 5% set-aside under **Sub-alternative 2b (Preferred)** would be sufficient to address appeals.

The South Atlantic Council concluded that the appeals process under **Alternative 2 (Preferred)** and the 5% set-aside under **Sub-alternative 2b (Preferred)** would provide an avenue for shareholders to have information reviewed if there is an error that results in designating shares as inactive, and for redistribution of reverted shares.

Further, the preferred alternatives best meet the purpose and need to implement measures to establish an appeals process and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

# 5 Cumulative Effects

## 5.1 Biological

### 5.1.1 Significant cumulative effects issues associated with the proposed action and assessment goals.

The direct and indirect effects of the proposed action are discussed in detail in (**Section 4**). Affected resources, ecosystems, and human communities are outlined in (**Section 3**).

### 5.1.2 Geographic scope of the analysis.

The immediate impact area would be the federal 200-nautical mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West; specifically, deepwater ecosystems identified in **Section 3**.

### 5.1.3 Timeframe for the analysis.

Wreckfish were added to the snapper grouper fishery management unit in 1991 through Amendment 3 to the Snapper Grouper Fishery Management Plan (FMP) (SAFMC 1990). The time period, on which this amendment focuses, is primarily between the years of 2001 and 2011 when the set of current shareholders was established. The most recent data used are from the 2010/2011 fishing season.

### 5.1.4 Other actions affecting the resources, ecosystems, and human communities of concern.

The cumulative effects to the social environment, specifically on the fishermen and associated dealers and businesses, are discussed in **Section 4**. Effects at the community level are not expected with the proposed actions in this amendment. Listed in the **Section 5.1.5** are other past, present, and reasonably foreseeable actions occurring in the South Atlantic region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical environment.

### 5.1.5 Past, Present, and Future Fishery-related actions affecting South Atlantic wreckfish.

#### A. Past

Recently implemented amendments to the FMP have resulted in an increasingly restrictive regulatory environment for the snapper grouper fishery in the South Atlantic. Therefore, effort shifts into other less capitalized components of the snapper grouper fishery have and are currently taking place. It is possible that such effort shifting may impact the wreckfish fishery as fishermen seek alternative means of fishing-related income. However, because wreckfish harvest will soon be limited to a relatively low annual catch limit (ACL), if approved, negative impacts on the stock are likely to be negligible. The reader is referred to **Section 1.3** and

Appendix D of the Comprehensive ACL Amendment (SAFMC 2011) for past regulatory activity for snapper grouper.

**B. Present**

The amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011) includes actions to establish an ACL of 235,000 pounds (ww). The commercial sector would be allocated 95% of the total proposed ACL (223,250 pounds (ww)) and 5% of the total ACL would be allocated to the recreational sector (11,750 pounds (ww)). The Comprehensive ACL Amendment also specifies accountability measures (AMs) for the commercial and recreational sectors that would limit harvest in both sectors to their respective ACLs. Amendment 20B to the Snapper Grouper FMP is also under development, which would update the current wreckfish individual transferable quota (ITQ) system to bring the fishery into compliance with Reauthorized Magnuson-Stevens Act limited access privilege program requirements and proposes other modifications to the ITQ program.

**C. Reasonably Foreseeable Future**

In the future the South Atlantic Council may consider an action to prohibit deep-dropping within the South Atlantic coral habitat areas of particular concern (CHAPCs) designated in the Comprehensive Ecosystem-Based Amendment 1. A prohibition of this type of fishing activity would impact prosecution of the wreckfish fishery in the areas where the subject CHAPCs have been established.

### 5.1.6 Non-Council and other non-fishery related actions, including natural events affecting wreckfish.

Non-Council, non-fishery related events such as hurricanes, fuel price fluctuations, and oil spills do periodically occur and could affect the wreckfish component of the snapper grouper fishery. However, the extent to which the wreckfish stock is impacted by such events cannot be determined at this time. It is assumed that events leading to decreased fishing effort would benefit the species and events that lead to increased pressure on the stock or adverse environmental conditions would result in negative impacts for the species. Specifically, the BP/Deepwater Horizon Oil spill, which occurred April 20, 2010, did not result in documented adverse impacts to South Atlantic snapper grouper species. Oil from that spill event was not detected in the South Atlantic region, and therefore, no short-term impacts are expected from the oil spill event. However, the long-term impacts of the spill in all regions of the southeast will continue to be monitored by NOAA Fisheries Service and several state and local entities.

Global climate changes could have significant effects on the wreckfish fishery. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007, and references therein). Climate change can affect factors such as migration, range, larval and juvenile survival,

prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may significantly impact species in the future, but the level of impacts cannot be quantified at this time, nor is the timeframe known in which these impacts will occur. Actions in this amendment are not expected to contribute to or reduce the wreckfish fishery's impact on global climate change.

### 5.1.7 Characterization of the resources, ecosystem, and human communities identified in scoping in terms of their response to change and capacity to withstand stresses.

Wreckfish are a long-lived deepwater species, and the southeastern stock is considered relatively data-poor. Because wreckfish have a vast range and may experience fishing pressure in other regions of the world, assessing the U.S. wreckfish stock's ability to withstand stresses such as increased fishing pressure or uneven sex ratios is extremely difficult. No issues regarding characterization of the resources, ecosystem, and human communities were identified during the scoping process. However, because of the species' biological characteristics, it may be assumed that impacts of increased fishing pressure or habitat loss would be slow to be detected and would require significant time to correct.

### 5.1.8 Characterization of the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

Stresses affecting the wreckfish stock include fishing pressure in most areas of the world where they exist at various stages of their lifecycle. Stresses affecting the wreckfish ecosystem may include the use of potentially destructive fishing gear used to harvest the species. Stresses affecting the human communities which rely on wreckfish as a source of income include highly variable fuel prices, and an ever-increasingly complex regulatory environment. Together these factors are influenced by regulatory thresholds in that the Magnuson-Stevens Act requires all overfishing to cease by 2010, and to limit harvest of any federally-managed species to the ACL. Regulations to achieve these ends can be highly restrictive and could contribute to effort shifting into other fisheries that are less restricted, and reductions in overall fishing harvest, which could benefit the species.

### 5.1.9 Baseline condition for the resources, ecosystems, and human communities.

According to the 2010 Status of Fisheries (NMFS 2010), wreckfish are not undergoing overfishing and their overfished status is unknown. During the development process for the Comprehensive ACL Amendment the South Atlantic Council's Scientific and Statistical Committee (SSC ) stated that the 2001 assessment (Vaughan et al. 2001) indicated depletion at higher historical levels of effort and that the catch reductions appeared to have come mainly from gear restrictions, the spawning season closure, and ITQ implementation. Since stock size cannot be projected, an estimate of the overfishing limit from the 2001 assessment could not be produced. Although an estimate of $F_{MSY}$ exists, it cannot be applied to current stock biomass. A recent estimate of F is close to $F_{MSY}$, so increasing F could lead to overfishing if there were increases in catch. Even though $B_{MSY}$ is unknown, fishing at $F_{MSY}$ on a stock that is below $B_{MSY}$ is acceptable for a stock that is not overfished. Therefore, the SSC recommended setting the

proposed allowable biological catch at the average historical catch (1997-recent) of 250,000 pounds in September 2010, which was included in the Comprehensive ACL Amendment. Due to confidentially of data, a more precise level could not be set.

The South Atlantic Council approved the Comprehensive ACL Amendment for final review in September 2011. In November 2011, NOAA Fisheries Service Southeast Regional Office (SERO) staff presented a depletion-corrected average catch analysis of the wreckfish population to the Scientific and Statistical Committee (SSC) (**Appendix G**). A subcommittee was formed during the meeting to review the analysis with SERO staff and determine the appropriateness of the current runs as well as evaluate the need for additional runs. As a result, the subgroup produced a report which included three additional runs (**Appendix H**), and concluded that two alternative analyses are equally valid, and have complementary strengths and weaknesses. Following the subgroup's conclusions, the SSC recommended an allowable biological catch (ABC) value for wreckfish of 235,000 pounds (ww). The South Atlantic Council reviewed the recommended ABC value in December 2011 and passed a motion to concur with the process of adjusting the wreckfish ACL to reflect the ABC value of 235,000 pounds (ww).

This level of harvest would cap effort in the wreckfish fishery where it is currently.

### 5.1.10 Important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

The relationship between human activities and biophysical ecosystems within the context of this amendment is solely related to extractive activities and the installment of regulations as outlined in **Table 5-1**.

**Table 5-1**. Relationship between South Atlantic Council action and wreckfish/fishery response.

| Action | Implementation Date | Action Taken | Species/Fishery Response |
|---|---|---|---|
| Amendment 3 to the FMP | 1990 | Wreckfish added to the FMP, required annual permit to fish for, land or sell wreckfish; Established a control date of March 28, 1990 for the area bounded by 33° and 30° N. latitude; Established a fishing year beginning 4/16; Established a process whereby annual quotas would be specified; Implemented a 10,000 pound trip limit and a 1/15-4/15 season closure. | Previously unregulated harvest was brought under control, and landings could be monitored. Spawning populations were protected. |

| | | | |
|---|---|---|---|
| Amendment 5 to the FMP | 1991 | Establish the wreckfish ITQ system. | Limited participants in the fishery to promote a sustainable fishery. Fishery participation dropped significantly over the next 20 years. No overfishing occurring. |
| Comprehensive ACL Amendment | Under review | Established ACLs and AMs for wreckfish. | Limited total harvest in commercial and recreational sectors to the ACLs. Prevents overfishing via AMs when triggered. |
| Amendment 20A to the FMP | TBD | Redistribute inactive shares to active fishery participants. | Once inactive shares are able to be fished, but harvest is still limited to the commercial ACL so no negative impacts to the stock. |
| Amendment 20B to the FMP | TBD | Update the wreckfish ITQ system. | Brings the fishery into compliance with Magnuson-Stevens Act requirements. No impacts on the stock. |
| Comprehensive Ecosystem-Based Amendment 3 | TBD | Address deep-dropping in CHAPCs | Could protect CHAPCs from gear interactions. |

### 5.1.11 Magnitude and significance of cumulative effects.

Defining inactive shares, establishing a share cap, and redistributing once inactive shares for the wreckfish portion of the snapper grouper fishery combined with past, present, and future actions as applied to the wreckfish sector, are not expected to result in any significant cumulative impacts on the biological environment. The majority of actions contained in this and other wreckfish amendments are largely administrative in nature with socioeconomic implications rather than biological impacts. Therefore, the magnitude and/or significance of actions contained within this amendment are considered extremely small and would not result in cumulative modifications to the biological environment.

### 5.1.12 Alternatives to avoid, minimize, or mitigate significant cumulative effects.

The cumulative effects on the biophysical environment are expected to be negligible. Therefore, avoidance, minimization, and mitigation are not necessary.

### 5.1.13 Monitoring the cumulative effects of the selected alternative and adaptation of management measures.

The effects of the proposed actions are, and will continue to be, monitored through collection of data by NOAA Fisheries Service, states, life history studies, and other scientific observations.

### 5.1.14 Effects on protected species

Endangered Species Act (ESA)-listed species, and species protected under the Marine Mammal Protection Act (MMPA) that occur within areas where the action area would be located and that may be impacted by unrelated, future, non-federal activities reasonably certain to occur within the action area include several species of marine mammals, sea turtles, and fish. The actions in this amendment are not expected to negatively affect any ESA-listed, or MMPA species if implemented through rulemaking.

## 5.2 Socio-economic

The overall cumulative socio-economic effects from actions that would revert inactive shares and redistribute them to active participants would likely be positive in the long term for active participants, but may have some negative effects for inactive shareholders and possibly for future participants. For active fishermen, actions that would revert shares and re-allocate shares would allow them to maintain operation size and to avoid loss of investment for those who bought shares. With the proposed ACL, these fishermen would not have enough shares to harvest at the same level, and would need to buy or lease shares in order to continue operating at the same scale. For inactive shareholders, the process of removing shares from their possession without compensation may incur negative socioeconomic impacts because they may have planned to use the shares to harvest wreckfish at a future time. Additionally, reversion of shares may be perceived as conflicting with the fundamentals of ITQ programs (long-term ownership of shares). The proposed actions will also cause some consolidation of the wreckfish commercial sector, which may hinder future participants from entering the wreckfish portion of the snapper grouper fishery if they cannot buy or lease shares. Furthermore, inactive shareholders would lose the asset value of the reverted shares, which are considered a source of wealth. However, with the proposed ACL for this fishery, it is likely that no action will result in the decline of wreckfish harvest and potential negative impacts on active fishermen, dealers, and seafood restaurants.

# 6 Fishery Impact Statement

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires a Fishery Impact Statement (FIS) be prepared for all amendments to Fishery Management Plans (FMPs). The FIS contains an assessment of the likely biological and socio-economic effects of the conservation and management measures on: 1) fishery participants and their communities; 2) participants in the fisheries conducted in adjacent areas under the authority of another Council; and 3) the safety of human life at sea.

## 6.1 Actions in Amendment 20A to the Snapper Grouper FMP

The purpose of the amendment is to identify and revert inactive wreckfish shares for redistribution among remaining shareholders, and establish a share cap and appeals process. The primary actions are necessary to achieve the optimum yield from the commercial wreckfish portion of the snapper grouper fishery in accordance with National Standard 1 of the Magnuson-Stevens Act and results in a more efficient use of the species as supported by National Standard 5. The establishment of a share cap and the appeals process are necessary to comply with requirements for limited access privilege programs under Section 303 A of the Magnuson-Stevens Act. The intended effect is to promote the management provisions of the FMP for Snapper Grouper Fishery of the South Atlantic Region and to allow the commercial fishermen with shares for wreckfish to maximize harvest potential within the constraints of the proposed annual catch limit (ACL).

## 6.2 Assessment of Biological Effects

Actions to revert and redistribute inactive wreckfish shares to active shareholders would not result in adverse or beneficial impacts on the biological environment. Because the proposed commercial ACL in the amended proposed rule for the Comprehensive ACL Amendment (SAFMC 2011) would limit harvest to 223,250 pounds (ww), and an in-season accountability measure would close the commercial fishery once the ACL is projected to be met, it is unlikely the commercial wreckfish sector would exceed the commercial ACL. Therefore, adverse biological impacts, such as increased harvest are not likely under either of the preferred alternatives for **Actions 1** or **2** of this amendment. **Actions 3** and **4** to establish a share cap and an appeals process are both largely administrative and socioeconomic in nature, and are not likely to result in any long-term biological impacts. However, under **Action 4**, 5% of the reverted shares would be set aside for 90-days during the appeals window, and therefore, would not be fished during that time, which could provide some very short-term protections for the wreckfish stock early in the 2012/2013 fishing season.

## 6.3 Assessment of Economic Effects

Under **Action 1**, 28.18% of the quota shares would be defined as inactive and reverted for redistribution to shareholders determined to be active. The 13 shareholders with inactive shares would not incur any losses in wreckfish landings or gross revenue. Eleven of these inactive shareholders had no commercial landings of any species between 2006 and 2010. The loss of wreckfish shares is not expected to affect the current operations of the other two inactive shareholders' vessels. The loss of quota share to the 13 inactive shareholders is

estimated to be valued at approximately $180,600, or about $13,890 per shareholder, which represents a loss in asset value or wealth.

Under **Action 2**, the seven active shareholders would receive .04%, .06%, 1.43%, 2.37%, 5.07%, 9.3%, and 9.9% in additional shares, respectively. After redistribution, the final distribution of shares across the seven active shareholders would be: 3.55%, 9.05%, 11.24%, 11.62%, 18.38%, 23%, and 23.16%, respectively. Even though the distribution of additional shares is rather unequal, all active shareholders would receive some economic benefits. With respect to short-term economic benefits, the increase in annual allocation for each active shareholder ranges from 86 pounds to 22,114 pounds, or by approximately 8,986 pounds on average. In turn, the expected change in annual gross revenue from wreckfish landings for all active shareholders is approximately $186,220. On a per shareholder basis, the increase ranges from $257 to $65,457, or by approximately $26,603 on average. On average, this increase in active shareholders' gross revenue from wreckfish landings represents an increase of approximately 15.4% in gross revenue from all of their commercial fishing activities. With respect to long-term economic benefits, the expected increase in the total value of the active shareholders' shares is approximately $180,600. On a per shareholder basis, the increase ranges from $249 to $63,465, or by approximately $13,890 on average. Because some individuals are owners of multiple corporations that possess wreckfish shares, the distribution of final shares is even more unequal and the concentration of shares is therefore greater at the individual level. Specifically, the final distribution of shares across the remaining six individuals would be: 3.55%, 5.70%, 9.05%, 11.24%, 28.93%, and 41.54%. Under the combination of **Actions 1** and **2**, the Herfindahl-Hirschman Index (HHI) increases from 1,433 to 2,442 when measured at the individual level. In recent years, approximately 80% of landings and sales of wreckfish have occurred in South Carolina with the other 20% occurring in Florida. Given that approximately 40% of the shares will be held by active shareholders that operate from South Carolina while the other 60% will be held by active shareholders operating from Florida, a shift in the distribution of landings and sales of wreckfish from South Carolina to Florida dealers may occur.

Under **Action 3**, no individuals currently exceed the 49% share cap and thus no individual would possess excess shares that would be subject to further redistribution. As a result, no direct economic effects are expected.

Under **Action 4**, because the Regional Administrator would have sole authority with respect to reviewing, evaluating, and rendering final decisions on appeals, it is expected that appeals would be resolved in a relatively more timely and less costly manner than if a group of people were involved in the decision making process. Further, a set aside of 11,163 pounds is likely large enough to meet the expected number of appeals, but also small enough to avoid creating adverse economic effects on active shareholders.

### 6.4 Assessment of the Social Effects

The social effects from the proposed actions that would revert inactive shares and redistribute them to active participants would likely be positive in the long term for active participants, but may have some negative effects for inactive shareholders and possibly for future

participants. For active fishermen, actions that would revert shares and re-allocate shares would allow them to maintain operation size and to avoid loss of investment for those who bought shares. For inactive shareholders, the process of removing shares from their possession without compensation may incur negative socioeconomic effects because they may have planned to use the shares to harvest wreckfish at a future time. Additionally, reversion of shares may be perceived as conflicting with the fundamentals of individual transferable quota programs (long-term ownership of shares). The proposed actions could also cause some consolidation of the wreckfish portion of the snapper grouper fishery, which may hinder future participants from entering the wreckfish commercial sector if they cannot buy or lease shares. However, with the proposed ACL for this fishery, it is likely that no action would result in the decline of wreckfish harvest and potential negative effects on active fishermen.

## 6.5 Assessment of Effects on Safety at Sea

The actions contained in the Amendment 20A to the Snapper Grouper FMP are not expected to change the manner in which fisheries are prosecuted in the wreckfish commercial sector. Therefore, the actions proposed in this amendment are not expected to affect safety at sea.

## 7 List of Preparers

| Name | Title | Agency |
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## 8 List of Agencies, Organizations, and Persons to Whom Copies of the Statement were Sent

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SAFMC Coral Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
National Marine Fisheries Service

- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

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## Appendix A. Alternative Considered but Eliminated from Detailed Analyses

Action: Redistribute reverted shares to remaining shareholders.
Alternative 5: Redistribute reverted shares equally among all remaining shareholders.

Discussion: Because landings history and share holdings are highly varied in the wreckfish fishery, the South Atlantic Council chose to consider only alternatives that would incorporate these factors into the redistribution method. Specifically, the South Atlantic Council discussed that there were permit holders who had not reported wreckfish landings in several years, and also that two individuals had recently purchased wreckfish shares but did not have long-term landings. The South Atlantic Council selected landings history and share holdings, both of which vary significantly among the shareholders, as the primary considerations for defining inactive shares and for redistribution among remaining shareholders in order to adequately address concerns of active participants in the fishery.

## Appendix B. Regulatory Impact Review

### 1.1 Introduction

The National Marine Fisheries Service requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action; 2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem; and, 3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way. The RIR also serves as the basis for determining whether the proposed regulations are a "significant regulatory action" under the criteria provided in Executive Order (E.O.) 12866 and provides some information that may be used in conducting an analysis of impacts on small business entities pursuant to the Regulatory Flexibility Act (RFA). This RIR analyzes the impacts that the proposed management alternatives in this interim rule would be expected to have on the snapper grouper fishery.

### 1.2 Problems and Objectives

The problems and objectives addressed by this action are discussed in **Section 1.2** of this document and are incorporated herein by reference. In summary, management measures considered in this regulatory action are intended to achieve optimum yield in the commercial wreckfish sector of the South Atlantic snapper grouper fishery in accordance with National Standard 1 of the Magnuson-Stevens Act, which will in turn result in a more efficient use of the species in accordance with National Standard 5. Establishment of a share cap is necessary to comply with requirements for limited access privilege programs under Section 303A of the Magnuson-Stevens Act.

### 1.3 Description of Fisheries

A description of the commercial wreckfish sector of the South Atlantic snapper grouper fishery is provided in Section 3 of this document and is incorporated herein by reference.

### 1.4 Impacts of Management Measures

#### 1.4.1 Action 1: Define and revert inactive wreckfish shares

A detailed analysis of the economic effects expected to result from this action is provided in **Section 4.1.2** and is incorporated herein by reference. Under **Alternative 3 (Preferred)**, 28.18% of the quota shares would be defined as inactive and reverted for redistribution to shareholders determined to be active. By definition, the 13 inactive shareholders would not incur any losses in wreckfish landings or gross revenue. Most of these shareholders (11) have not been active in commercial fishing during the past five fishing years. However, two of these inactive shareholders did have commercial landings and gross revenue of other species between 2006 and 2010. The extent to which these shareholders were involved in other fisheries differs greatly, as one was only minimally involved and the other significantly

involved in commercial fishing for other species. The loss of wreckfish shares under **Alternative 3 (Preferred)** is not expected to affect the current operations of these two shareholders' vessels, though it would take away the option of fishing for wreckfish in the future. Technically, the loss of shares would also prevent these shareholders from leasing their coupons. However, as no coupons have been leased by any shareholder since 1995, this loss is not considered to be "real" economically and is therefore discounted.

The loss of quota share to these 13 shareholders is estimated to be valued at approximately $180,600, or about $13,890 per shareholder. If the median quota share per shareholder is used, then the "average" loss per shareholder would be approximately $11,494. These losses represent a loss in asset value or wealth as opposed to profits or income. Because information on these shareholders' wealth is not available, it is not possible to determine the economic significance of these losses to them.

The seven active shareholders would not experience any direct economic effects under **Alternative 3 (Preferred),** but would be expected to economically benefit indirectly since the intent of this alternative is to redistribute the inactive shares to the active shareholders. The active shareholders would not only benefit from the increased value of their assets, but would also benefit due to the expected increase in their wreckfish landings, gross revenue, and profits, relative to **Alternative 1 (No Action)**. In turn, the eight vessels used by these shareholders to harvest their annual allocations would also benefit because of the expected increase in their wreckfish landings and gross revenue. Under **Alternative 3 (Preferred)**, active shareholders from South Carolina control approximately 40% of the total shares held by all active shareholders while active shareholders from Florida control about 60% of the total shares held by all active shareholders. The geographic distribution of these benefits will approximate the geographic distribution of the shares.

Similarly, the five active dealers who bought wreckfish in 2010 would also be expected to experience indirect economic benefits under **Alternative 3 (Preferred)**, as their sales of wreckfish would be expected to increase relative to what they would be under **Alternative 1 (No Action)**. **Alternative 3 (Preferred)** will also affect the distribution of benefits across dealers. In order to avoid disclosing confidential information, the nature of these distributional effects is only discussed in geographical terms. Specifically, the primary effect of **Alternative 3 (Preferred)** would be to shift landings and sales of wreckfish between dealers in Florida and dealers in South Carolina. In recent years, approximately 80% of landings and sales of wreckfish have occurred in South Carolina with the other 20% occurring in Florida. In general, active shareholders sell to dealers in the state from which they operate. Thus, the geographic distribution of active shareholders generally predicts the geographic distribution of the landings and sales of wreckfish. Given that approximately 40% of the shares held by active shareholders operate from South Carolina while the other 60% is held by active shareholders operating from Florida under **Alternative 3 (Preferred)**, a shift in the distribution of landings and sales of wreckfish from South Carolina to Florida dealers would likely occur.

### 1.4.2 Action 2: Redistribute reverted shares to remaining shareholders

Under **Alternative 3b (Preferred),** the distribution of additional and final shares between the seven remaining active shareholders is rather unequal as reflected by the fact that the minimum additional (i.e., redistributed) and final shares for any active shareholder occurs under this alternative and the differences between the median and mean additional and final shares, and in turn the standard deviations, are relatively large. More specifically, two of these shareholders would receive .04% and .06% in additional shares respectively, two of these shareholders would receive approximately 1.4% and 2.4% in additional shares respectively, one shareholder would receive slightly more than 5% in additional shares, while the other two shareholders would receive approximately 9.3% and 9.9% in additional shares respectively. These results are driven by the fact that the distribution of landings among active shareholders is unequally distributed in general and much more so relative to the distribution of shares among active shareholders. After redistribution, the final distribution of shares across the seven active shareholders is as follows: 3.55%, 9.05%, 11.24%, 11.62%, 18.38%, 23%, and 23.16%. Thus, the maximum amount of shares held by a single shareholder is 23.16%.

Even though the distribution of additional shares is rather unequal, all active shareholders would receive some economic benefits under **Alternative 3b (Preferred)**. In the short-term, increases in economic benefits would take the form of an increase in annual gross revenue. These increases would directly depend on the increase in each shareholder's annual allocation of wreckfish, which is in turn derived from the increase in wreckfish shares. It is assumed that active shareholders would harvest all of their annual allocation, which is reasonable given the significant reduction in the commercial quota due to actions in the Comprehensive ACL Amendment. Because the distribution of additional shares is highly unequal, so is the distribution of short-term economic benefits. Specifically, the increase in annual allocation for each active shareholder ranges from 86 pounds to 22,114 pounds, or by approximately 8,986 pounds on average. In turn, the expected change in annual gross revenue from wreckfish landings for all active shareholders is approximately $186,220. On a per shareholder basis, the increase ranges from $257 to $65,457, or by approximately $26,603 on average. This increase in shareholders' gross revenue from wreckfish landings represents an increase of approximately 15.4% in gross revenue from all of their commercial fishing activities on average.

In the long-term, these economic benefits are in the form of an increase in the value of each shareholder's shares, which would increase according to the amount of additional shares each shareholder receives under each alternative. The market value of a 1% share is estimated to be $6,407. Because the distribution of additional shares is highly unequal, so is the distribution of long-term economic benefits. Specifically, the expected change in the total value of shareholders' shares is approximately $180,600, which is equivalent to the value of the shares lost by inactive shareholders under **Action 1**. On a per shareholder basis, the increase ranges from $249 to $63,465, or by approximately $13,890 on average.

Some of the active shareholders are corporations. A few of these corporations are partly or wholly owned by individuals who partly or wholly own other shareholdings. When taken in

combination of **Action 1** and **Action 2**, there are only six individuals that will own wreckfish shares. Moreover, when viewed from the perspective of individuals, the distribution of final shares is even more unequal, and the concentration of shares is therefore greater. Specifically, the final distribution of shares across these six individuals is as follows: 3.55%, 5.70%, 9.05%, 11.24%, 28.93%, and 41.54%. Thus, the maximum amount of shares held by a single individual is 41.54%.

The U.S. Department of Justice (DOJ), the Federal Trade Commission (FTC), and state attorneys general have used the Herfindahl-Hirschman Index (HHI) to measure market concentration for purposes of antitrust enforcement. According to their guidelines, these agencies consider a market in which the post-merger HHI is below 1500 as "unconcentrated," between 1500 and 2500 as "moderately concentrated," and above 2500 as "highly concentrated." Given that the HHI is currently 1,433 in the commercial wreckfish component of the snapper grouper fishery, it is "unconcentrated" according to the DOJ/FTC guidelines. However, it is just below the threshold for "moderately concentrated." The combination of **Action 1** and **Action 2** increases the HHI to 2,442, representing an increase of more than 1,000, which moves the commercial wreckfish sector into the "moderately concentrated" category. In effect, **Action 1** and **Action 2** create a merger between the active and inactive shareholders. A merger raises potential "significant competitive concerns" if it produces an increase in the HHI of more than 100 points in a moderately concentrated market or between 100 and 200 points in a highly concentrated market. A merger is presumed "likely to enhance market power" if it produces an increase in the HHI of more than 200 points in a highly concentrated market. Thus, **Action 1** and **Action 2** in combination are likely to reduce competition and enhance market power in the market for wreckfish quota shares.

### 1.4.3 Action 3: Establish a share cap

**Alternative 4 (Preferred)** would establish a 49% share cap. Since the maximum amount of shares owned by a single individual is 41.54% under the combination of **Action 1** and **Action 2**, no individuals would exceed the share cap and thus no individual would possess excess shares that could be subject to further redistribution. As such, **Action 3** is not currently binding and thus is not expected to generate any direct economic effects on active shareholders at the present time. However, it does preclude active shareholders from purchasing additional shares greater than the difference between their final shares, as determined under the combination of **Action 1** and **Action 2**, and the 49% share cap. For example, the individual with the maximum amount of shares could only purchase an additional 7.46% of the shares, even if he wanted to purchase more in order to maintain his recent level of wreckfish landings and gross revenue. Thus, **Action 3** may generate some indirect economic effects on active shareholders who want to own shares above the share cap.

### 1.4.4 Action 4: Establish an appeals process

**Alternative 2 (Preferred)** would establish an appeals process. Under **Alternative 2 (Preferred)**, the RA would have sole authority with respect to reviewing, evaluating, and rendering final decisions on appeals. In general, it is expected that appeals would be

resolved in a more timely and less costly manner if fewer people are involved in the decision making process. Thus, adverse economic effects are expected to be minimal and possibly trivial under **Alternative 2 (Preferred)**.

**Alternative 2 (Preferred)** facilitates the implementation of the quota share redistribution process by reducing any adverse effects of the appeals process on active shareholders. At the same time, in the event many appeals are settled in favor of shareholders, it also helps to ensure the commercial wreckfish quota would not be exceeded in the first fishing year following redistribution of the quota shares. Setting aside a relatively small portion of quota shares for appeals purposes limits the likelihood of major share adjustments. Small reductions would be more economically acceptable than large reductions in allocations (i.e., coupons) to active shareholders during the first fishing year following redistribution of the quota shares. An appeals process reduces the probability that shareholders presumed to be inactive might pursue legal action, which could delay redistribution of the quota shares and generate adverse economic effects on active shareholders by keeping them at their current level of shares.

With the exception of the administrative costs and potential costs associated with a potential delay in implementation, the establishment of an appeals process and the design of its structure have mainly equity effects. While equity considerations are important, they have less significance in determining the economic effects of restructuring an IFQ program. Thus, neither the appeals process nor its structure is expected to have a noticeable effect on the overall economic benefits associated with restructuring the IFQ program. This is particularly true when an appeals process would only marginally affect the distribution of quota shares among eligible (i.e., active) participants. Economic changes would only be evident if the number of successful appeals from inactive shareholders were large compared to the number of active shareholders. Given that there are only 20 wreckfish shareholders, of which no more than 13 are presumably inactive, the number of appeals is expected to be small and the number of successful appeals even smaller.

The amount of quota to be set aside for appeals would be 5%, or 11,163 pounds, under **Sub-alternative 2b (Preferred)**. A set aside of 11,163 pounds was determined to be large enough to meet the expected number of appeals, but also small enough to avoid creating adverse economic effects on active shareholders, as this poundage would be withheld in the early part of the fishing year when effort is relatively high.

### 1.4.5 Economic Impacts

By defining 28.18% of the quota shares as inactive and redistributing those shares to active shareholders, the combination of Action 1 and Action 2 is expected to increase annual gross revenue by approximately $186,220, assuming active shareholders harvest all of their annual wreckfish allocation.

This increase in gross revenue will in turn generate economic impacts for seafood dealers, restaurants, and other onshore businesses. The estimated economic impacts are presented in **Table B-1**. According to the information in this table, the expected increase in annual gross

revenue is expected to increase employment, income, and output by 35 jobs, $1.045 million, and $2.452 million, respectively.

**Table B-1.** Summary of Commercial Economic Impacts**.**

| **Industry Sector** | Direct | Indirect | Induced | Total |
|---|---|---|---|---|
| Harvesters | | | | |
| Employment impacts (FTE jobs) | 3 | 0 | 1 | 5 |
| Income Impacts (000 of dollars) | 75 | 21 | 57 | 154 |
| Output Impacts (000 of dollars) | 139 | 75 | 185 | 399 |
| Primary dealers/processors | | | | |
| Employment impacts (FTE jobs) | 1 | 0 | 1 | 3 |
| Income Impacts (000 of dollars) | 49 | 17 | 63 | 129 |
| Output Impacts (000 of dollars) | 139 | 58 | 205 | 402 |
| Secondary wholesalers/distributors | | | | |
| Employment impacts (FTE jobs) | 1 | 0 | 1 | 2 |
| Income Impacts (000 of dollars) | 68 | 11 | 47 | 126 |
| Output Impacts (000 of dollars) | 108 | 37 | 151 | 296 |
| Grocers | | | | |
| Employment impacts (FTE jobs) | 1 | 0 | 0 | 1 |
| Income Impacts (000 of dollars) | 29 | 3 | 20 | 53 |
| Output Impacts (000 of dollars) | 40 | 10 | 64 | 114 |
| Restaurants | | | | |
| Employment impacts (FTE jobs) | 18 | 1 | 5 | 24 |
| Income Impacts (000 of dollars) | 331 | 30 | 223 | 583 |
| Output Impacts (000 of dollars) | 432 | 89 | 719 | 1,240 |
| Harvesters and seafood industry | | | | |
| Employment impacts (FTE jobs) | 24 | 1 | 9 | 35 |
| Income Impacts (000 of dollars) | 552 | 82 | 410 | 1,045 |
| Output Impacts (000 of dollars) | 858 | 270 | 1,324 | 2,452 |

Data Source: SERO using SEFSC wreckfish logbook

**1.5 Public and Private Costs of Regulations**

The preparation, implementation, enforcement, and monitoring of this or any federal action involves the expenditure of public and private resources that can be expressed as costs associated with the regulations. Costs associated with this specific action would include:

Council costs of document preparation, meetings, public hearings, and information dissemination……..$140,000

NMFS administrative costs of document preparation, meetings, and review…….....$80,000

TOTAL……...$220,000

The Council and Federal costs of document preparation are based on staff time, travel, printing, and any other relevant items where funds were expended directly for this specific

action. There are no permit requirements proposed in this rule. Under a fixed budget, any additional enforcement activity due to the adoption of this rule would mean a redirection of resources to enforce the new measures.

### 1.6 Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in: 1) An annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, this action has been determined to not be economically significant for purposes of E.O. 12866.

## Appendix C. Regulatory Flexibility Analysis

### 1.1 Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to establish a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure such proposals are given serious consideration. The RFA does not contain any decision criteria; instead the purpose of the RFA is to inform the agency, as well as the public, of the expected economic impacts of various alternatives contained in the FMP or amendment (including framework management measures and other regulatory actions) and to ensure the agency considers alternatives that minimize the expected impacts while meeting the goals and objectives of the FMP and applicable statutes.

With certain exceptions, the RFA requires agencies to conduct an initial regulatory flexibility analysis (IRFA) for each proposed rule. The IRFA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An IRFA is conducted to primarily determine whether the proposed action would have a "significant economic impact on a substantial number of small entities." In addition to analyses conducted for the RIR, the IRFA provides: 1) A description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; and, 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule.

### 1.2 Statement of the need for, objectives of, and legal basis for the rule

A discussion of the reasons why action by the agency is being considered is provided in **Section 1.2** of this document. In summary, the purposes of this proposed rule are to define and revert inactive shares, redistribute reverted shares to remaining, active shareholders, establish a share cap, and establish an appeals process. The objectives of this proposed rule are to achieve optimum yield in the commercial wreckfish sector of the South Atlantic snapper grouper fishery in accordance with National Standard 1 of the Magnuson-Stevens Act, which will in turn result in a more efficient use of the species in accordance with National Standard 5. Establishment of a share cap is necessary to comply with requirements for limited access privilege programs under Section 303A of the Magnuson-Stevens Act.

## 1.3 Description and estimate of the number of small entities to which the proposed action would apply

This proposed rule is expected to directly affect shareholders that possess quota shares in the commercial wreckfish sector of the snapper grouper fishery. The Small Business Administration (SBA) has established size criteria for all major industry sectors in the U.S. including fish harvesters. A business involved in fish harvesting is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $4.0 million (NAICS code 114111, finfish fishing) for all its affiliated operations worldwide.

As of November, 17, 2011, there were 20 shareholders in the commercial wreckfish sector of the snapper grouper fishery. The current minimum quota share held by a shareholder is 0.06%, the maximum quota share is 20.63%, and the average quota share is approximately 5%. With respect to the distribution of shares, 13 shareholders own less than 5%, four shareholders own between 5% and 10%, two shareholders own between 10% and 15%, and one shareholder owns more than 20% of the quota shares. Given that the current market value of a 1% share is $6,407, the minimum market value of a shareholder's quota shares is $384, the maximum market value of a shareholder's quota shares is approximately $132,176, while the average market value of a shareholder's quota shares is approximately $32,035.

Based on landings data from the five most recent fishing years (i.e., 2006/2007 to 2010/2011), 13 of the 20 shareholders had no commercial wreckfish landings during this time. Further, 11 of the 13 inactive shareholders were not commercially active in any fisheries, and thus earned no gross revenue or profit from commercial fishing activities, between 2006 and 2010. The other two inactive shareholders commercially harvested species other than wreckfish during this time. The extent to which these two shareholders were involved in other commercial harvesting activities differs greatly, as one was only minimally involved and the other significantly involved in such activities. Specific information regarding their landings and gross revenue is confidential and thus cannot be provided, while information regarding their profits is currently not available.

Seven of the 20 shareholders had at least one pound of commercial wreckfish landings during the five most recent fishing years. More specifically, annual wreckfish landings and gross revenue were 32,804 pounds and $82,085 on average during this time, respectively. On average, these shareholders also earned $90,582 in annual gross revenue from other species during this time. Thus, annual gross revenue from commercial fishing was $172,668 per shareholder on average during the five most recent fishing years. Information regarding these shareholder's profits is not currently available. The maximum gross revenue earned by a single shareholder in any of the five most recent fishing years is confidential information and cannot be reported. However, this figure is less than the SBA threshold for a small business. Based on these figures, all shareholders expected to be directly affected by this proposed rule are determined for the purpose of this analysis to be small business entities.

### 1.4 Description of the projected reporting, record-keeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records

This proposed rule would not establish any new reporting, record-keeping, or other compliance requirements.

### 1.5 Identification of all relevant federal rules, which may duplicate, overlap or conflict with the proposed rule

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

### 1.6 Significance of economic impacts on small entities

Substantial number criterion

This proposed rule, if implemented, would be expected to directly affect all entities that possess quota shares in the commercial wreckfish sector of the snapper grouper fishery. All affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, it is determined that the proposed rule will affect a substantial number of small entities.

Significant economic impacts

The outcome of "significant economic impact" can be ascertained by examining two factors: disproportionality and profitability.

Disproportionality: Do the regulations place a substantial number of small entities at a significant competitive disadvantage to large entities?

All entities expected to be directly affected by the measures in this proposed rule are determined for the purpose of this analysis to be small business entities, so the issue of disproportionality does not arise in the present case.

Profitability: Do the regulations significantly reduce profits for a substantial number of small entities?

For the action to define and revert inactive shares, 28.18% of the quota shares would be defined as inactive and reverted for redistribution to shareholders determined to be active. By definition, the 13 inactive shareholders possessing these quota shares would not incur any losses in wreckfish landings or gross revenue. Eleven of these inactive shareholders had no commercial landings of any species between 2006 and 2010 and thus have no gross revenue or profits from commercial fishing. As such, this action would not reduce their profits from

commercial fishing. The other two inactive shareholders did have commercial landings and gross revenue of other species between 2006 and 2010. Because all of their landings, gross revenue, and thus profit come from the commercial harvest of species other than wreckfish, the loss of wreckfish shares under this action is not expected to affect the current operations of these two shareholders' vessels, though it would take away the option of fishing for wreckfish in the future. The loss of shares would also prevent the inactive shareholders from leasing their annual allocation of wreckfish coupons. However, as no coupons have been leased by any shareholder since 1995, no loss in profits is expected. The loss of quota share to these 13 inactive shareholders is estimated to be valued at approximately $180,600, or about $13,890 per shareholder. However, these losses represent a loss in asset value or wealth rather than a loss in profits.

For the action to redistribute reverted shares to remaining shareholders, the seven active shareholders would receive .04%, .06%, 1.43%, 2.37%, 5.07%, 9.3%, and 9.9% in additional shares, respectively. After redistribution, the final distribution of shares across the seven active shareholders would be: 3.55%, 9.05%, 11.24%, 11.62%, 18.38%, 23%, and 23.16%, respectively. Even though the distribution of additional shares is rather unequal, all active shareholders would receive some economic benefits. With respect to short-term economic benefits, the increase in annual allocation for each active shareholder ranges from 86 pounds to 22,114 pounds, or by approximately 8,986 pounds on average. In turn, the expected increase in annual gross revenue from wreckfish landings ranges from $257 to $65,457 per shareholder, or by approximately $26,603 on average. This increase in shareholders' gross revenue from wreckfish landings represents an increase of approximately 15.4% in gross revenue from all of their commercial fishing activities on average. Thus, this action would be expected to increase the profits of the seven active shareholders relative to the profits they would earn if the reverted shares were not redistributed. With respect to long-term economic benefits, the expected increase in the total value of shareholders' shares is approximately $180,600. On a per shareholder basis, the increase in the value of each shareholder's shares ranges from $249 to $63,465, or by approximately $13,890 on average. These gains represent an increase in asset value or wealth rather than an increase in profits.

For the action to establish a 49% share cap, share caps are applied at the individual rather than the shareholder level. The maximum quota share held by an individual as a result of the actions to define and revert inactive shares and redistribute those shares is 41.54%. Thus, no individuals would exceed the 49% share cap and, in turn, no individual would possess excess shares that would be subject to further redistribution. As a result, no direct, adverse economic effects are expected and profits would not be reduced.

For the action to establish an appeals process, because the RA would have sole authority with respect to reviewing, evaluating, and rendering final decisions on appeals, the cost to a shareholder for filing an appeal is expected to be minimal. Further, the set aside of 11,163 pounds to resolve appeals is likely small enough to avoid creating any adverse economic effects on active shareholders.
As a result of the information above, a reduction in profits for a substantial number of small entities would not be expected.

## 1.7 Description of significant alternatives to the proposed action and discussion of how the alternatives attempt to minimize economic impacts on small entities

This proposed action, if implemented, would not be expected to have a significant direct adverse economic effect on the profits of a substantial number of small entities. As a result, the issue of significant alternatives is not relevant.

## Appendix D. Bycatch Practicability Analysis

Bycatch is defined as fish harvested in a fishery, but not sold or retained for personal use. This definition includes both economic and regulatory discards and excludes fish released alive under a recreational catch-and-release fishery management program. Economic discards are generally undesirable from a market perspective because of their species, size, sex, and/or other characteristics. Regulatory discards are fish required by regulation to be discarded, but also include fish that may be retained but not sold.

Agency guidance provided at 50 CFR 600.350(d)(3) identifies ten factors to consider in determining whether a management measure minimizes bycatch or bycatch mortality to the extent practicable. These are:

1. Population effects for the bycatch species;
2. Ecological effects due to changes in the bycatch of that species (effects on other species in the ecosystem);
3. Changes in the bycatch of other species of fish and the resulting population and ecosystem effects;
4. Effects on marine mammals and birds;
5. Changes in fishing, processing, disposal, and marketing costs;
6. Changes in fishing practices and behavior of fishermen;
7. Changes in research, administration, and enforcement costs and management effectiveness;
8. Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources;
9. Changes in the distribution of benefits and costs; and
10. Social effects.

The Councils are encouraged to adhere to the precautionary approach outlined in Article 6.5 of the Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries when uncertain about these factors.

The commercial fishery for wreckfish (*Polyprion americanus*) occurs over a complex bottom feature that has over 100 m of topographic relief, known as the Charleston Bump, that is located 130-160 km southeast of Charleston, South Carolina, off the southeastern United States (Sedberry et al. 2001). Fishing occurs at water depths of 450-600 m. Vertical hook-and-line gear consisting of 1/8 inch cable and a terminal rig (around 23 kg of weight), with 8-12 hooks baited with squid, is deployed from hydraulic reels to target wreckfish.

There is limited information on bycatch in the wreckfish portion of the snapper grouper fishery; however, the mortality rate of any released wreckfish is likely to be 100%, because the fish are typically harvested in waters deeper than 300 m (Machias et al. 2003; NMFS 2001; SAFMC 1991). In the wreckfish commercial fishery, barrelfish (*Hyperoglyphe perciformes*) and red bream (*Beryx decadactylus*) are caught incidental to wreckfish (Friess and Sedberry 2011;

Goldman and Sedberry 2011) and are likely sold or used for personal consumption. Goldman and Sedberry (2011) reports other species caught by commercial wreckfish fishermen on vertical lines with baited hooks from 400 to 800 m depth, on and around Charleston Bump include: splendid alfonsino (*Beryx splendens*), conger eel (*Conger oceanicus*), gulper shark (*Centrophorus granulosus*), roughskin dogfish (*Cirrhigaleus asper*), and shortspine dogfish (*Squalus mitsukurii*). It is unknown if all these species are retained by commercial wreckfish fishermen. Red bream landings in the southeastern United States are not currently monitored, and the species is not under federal management since it is caught in very small numbers in the commercial wreckfish portion of the snapper grouper fishery (Friess and Sedberry 2011).

Because of the depth at which the wreckfish commercial fishery operates and the gear used, not all of the protected species known to occur in the South Atlantic interact with the wreckfish fishery (see **Section 3.2.2** for details). Sea turtles are vulnerable to capture in the vertical hook-and-line gear used in the wreckfish commercial fishery, and there may be impacts to the critical habitat designated for the North Atlantic right whale. The impacts of the wreckfish fishery on sea turtles were evaluated in the biological opinion on the entire South Atlantic snapper grouper fishery (NMFS 2006). The biological opinion concluded the entire South Atlantic snapper grouper fishery (including the wreckfish component) was likely to adversely affect sea turtles, but not jeopardize their continued existence. The biological opinion also concluded the continued authorization of the fishery would not affect Endangered Species Act (ESA)-listed marine mammals and is not likely to jeopardize the continued existence of any other ESA-listed species.

Therefore, regarding factors 1-4, as noted in **Sections 3.2**, **4.1.1**, and above, there is limited information available to determine the effects on bycatch and bycatch mortality that results from the commercial wreckfish fishery in the South Atlantic under current regulations.

The actions in Amendment 20A are largely administrative in nature and their implementation is not expected to significantly implicate factors 5-10 (see **Sections 3** and **4** for details). Defining inactive shares, and reverting them for redistribution would have no immediate biological impacts on target or non-target species; however, it could result in indirect biological impacts by freeing up the unused shares to be fished in the future. Redistribution of the inactive shares, may increase the probability of bycatch associated with the commercial fishery for wreckfish. However, the decrease in the new annual catch limit (ACL) for the commercial sector for wreckfish proposed in the Comprehensive ACL Amendment (SAFMC 2011) is 223,250 pounds whole weight (ww), compared to the previous 2 million pound ww commercial quota. This new harvest limit would result in a significant reduction in the amount of pounds associated with each share, including inactive shares, in order to maintain harvest at or below the ACL. Furthermore, the proposed regulations in the Comprehensive ACL Amendment would not change the manner in which the fisheries are conducted. However, if the ACL proposed in the Comprehensive ACL Amendment results in reduced effort for wreckfish, there could be a corresponding decrease in bycatch and potential interaction with protected species.

Any additional actions to reduce bycatch in the wreckfish portion of the snapper grouper fishery would affect effort or gear, resulting in potentially adverse changes to associated costs, benefits, and behavior of fishery participants. Also, new measures would result in additional administrative burdens related to implementation and enforcement.

## Appendix E. Scoping Summary and Public Comment Summary

Scoping Summary- March 2009

Comment 1: Program continuation

- Do not abolish program (4 people)
- I have a major investment (3 people)
- Although unused in past, I may use shares in the future due to expected closures
- Abolish program (1 person)

Comment 2: Recreational allocation

- Provide for a recreational allocation
- Do not provide for a recreational allocation

Comment 3: Redistribute shares to current participants only

- If TAC is cut, can't maintain historical landings without economic difficulties

Comment 4: Do nothing until new stock assessment

Comment 5: Federal buyout of shareholders needed

Comment 6: Get additional public comment on this action

Public Comments Summary- November 14-17,2011, and December 6, 2011*

At the public hearings, three individuals spoke in regards to wreckfish. The comments of one individual were focused only on commercial/recreational allocations, including a request for 100% commercial allocation or requirement of hand gear only for recreational harvest of wreckfish.

Another individual expressed concern on how the SSC specified the ABC using landings data, and recommended that the SSC consider additional information on fishing effort and gear type.

One individual, on behalf of the Florida Saltwater Anglers, recommended a recreational allocation for wreckfish. The organization also does not support catch share programs because it is privatization of a public resource.

Six written comments were received in regards to Amendment 20A. Three of the letters came from organizations and three came from individuals.

Individual 1

- Amendment 20A consolidates the fishery and gives control of the fishery to a small number of participants.
- concerned about wreckfish discards of non-shareholders because of the ITQ program
- recommends abolishing the ITQ program and open the commercial wreckfish fishery to all Snapper Grouper permit holders.

- the ACL should be set at the current TAC of 2 million pounds
- the South Atlantic Council should support an artificial reef program for wreckfish habitat

Individual 2
- allocate wreckfish shares based on historic landings
- no new entrants until the commercial quota increases

Individual 3
- supports Action 1, Preferred Alternative 3
- supports Action 2, Preferred Alternative 3, Preferred Option b
- supports Action 3, Preferred Alternative 4 (49% share cap)
- supports Action 4, Preferred Alternative 2, Sub-alternative 2b

Southeastern Fisheries Association
- supports Action 1, Preferred Alternative 3
- supports Action 2, Alternative 2, Option b
- supports Action 3, Preferred Alternative 4 (49% share cap)
- supports Action 4, Preferred Alternative 2, Sub-alternative 2b

Florida Saltwater Anglers
- supports the recreational allocation of the proposed wreckfish ACL, and requests a fair share of the catch
- does not support the ITQ program, and supports the No Action alternatives on Actions 1 and 2. The proposed actions will put shares into the hands of a small number of fishermen.
- supports Action 3, Alternative 2 (15% share cap). No one person should be able to have 49% of the wreckfish shares.
- supports Action 4, Alternative 1. There should not be an ITQ program.

South Carolina Seafood Alliance
- concerned that the commercial quota will be too low after the whole weight to gutted weight conversion, 5% recreational allocation of the ACL, and 5% set-aside for appeals
- concerned about the data used by the SSC to specify the ABC
- the actions in 20A will result in negative perceptions of the efficacy of catch share programs
- recommends that wreckfish should be managed separately from the rest of the snapper grouper complex
- supports no action for Amendment 20A
- recommends setting the ACL at 750,000 pounds until the 2013 assessment is complete
- the Council and SSC should consult experts on wreckfish

**Appendix F. Public Hearing Summary Document**

# PUBLIC HEARING SUMMARY
# of
# AMENDMENT 20A
# to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Wreckfish)

When the Wreckfish ITQ program was implemented in 1992, the Total Allowable Catch (TAC) was set at 2 million pounds whole weight (ww). The fishery has changed significantly over the last two decades, and while the effort of the active shareholders account for all of the landings, their ITQ shares represent less than 60% of the total shares. The 2012 ACL is expected to be set at 250,000 pounds (ww) through the Comprehensive ACL Amendment. The commercial ACL will be set at 237,500 pounds, (95% commercial/5% recreational allocation). This quota level represents an 87% decrease from the current TAC. With this significant reduction in the commercial sector's allocation, the annual pounds (coupons) each shareholder will receive under the new ACL will also be reduced by more than 87%. Thus, active shareholders, captains, crew, and dealers who depend on a certain level of wreckfish production to maintain their operations will be particularly affected by the reduction in the commercial ACL.

The purpose of the amendment is to identify and revert inactive wreckfish shares for redistribution among remaining shareholders, and establish a share cap and appeals process. The primary actions are necessary to achieve the optimum yield from the commercial wreckfish fishery in accordance with National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and result in more efficient use of wreckfish as supported by National Standard 5. Establishment of a share cap and appeals process are necessary to comply with requirements for limited access privilege programs under Section 303A of the MSA. The intended effect is to promote the management provisions of the Fishery Management Plan for Snapper Grouper and to allow the commercial fishery to maximize harvest potential within the constraints of the Annual Catch Limit.

This document is intended to serve as a SUMMARY for all the actions and alternatives in Amendment 20A. It also provides background information and includes a summary of the expected biological and socio-economic effects from the management measures.

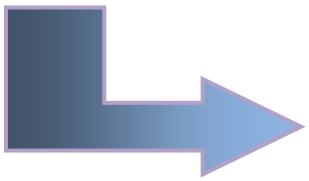
**Why is the South Atlantic Council taking Action?**

With this significant reduction in the commercial sector's allocation, the annual pounds (coupons) each shareholder will receive under the new ACL will also be reduced by more than 87 percent. Thus, active shareholders, captains, crew, and dealers who depend on a certain level of wreckfish production to maintain their operations will be particularly affected by the reduction in the commercial ACL.

The purpose of Amendment 20A is to facilitate the maximum harvest in the commercial sector of the wreckfish fishery that would otherwise not occur due to a combination of inactive shares and a significantly reduced commercial annual catch limit (ACL).

**What Are the Proposed Actions?**

There are four actions in Amendment 20A. Each *action* has a range of *alternatives*, including a 'no action alternative' and a 'preferred alternative'.



***Proposed Actions in Amendment 20A***

1. Define and revert inactive wreckfish shares.
2. Redistribute reverted shares to remaining shareholders.
3. Establish a share cap.
4. Establish an appeals process.

**Action 1. Define and revert inactive shares**

**Alternative 1**: No Action. Do not define or revert inactive shares for redistribution.

**Alternative 2:** Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings in 2009-10 and/or 2010-11, and revert for redistribution.

**Alternative 3 (Preferred):** Define inactive shares as shares belonging to any ITQ shareholder who has not reported wreckfish landings in 2006-07 through 2010-11, and revert for redistribution.

***Proposed Actions in Amendment 20A***

1. Define and revert inactive shares.
2. Redistribute reverted shares to remaining shareholders.
3. Establish a share cap.
4. Establish an appeals process.

**What Are the Expected Effects?**

Biological Impacts

**Alternative 1 (No Action)** could result in the lowest overall commercial harvest of wreckfish and is considered the most biologically beneficial alternative for the wreckfish stock when compared to **Alternatives 2** and **3 (Preferred)**. Out of 25 wreckfish shareholders, currently there are either 18 inactive shareholders (**Alternative 2**), or 17 inactive shareholders (**Alternative 3 (Preferred)**) holding shares that would be redistributed among a group of 7-8 remaining active wreckfish shareholders (**Table S-1**).

Economic Impacts

**Alternative 1 (No Action)** would result in the most negative economic impacts. **Alternative 2** is not expected to affect these vessels' current operations, though it would take away the option of fishing for wreckfish in the future. **Alternative 3 (Preferred)** is not expected to affect these vessels' current operations, though it would take away the option of fishing for wreckfish in the future. Based on the average market value of a 1% share, the total loss of quota share to these 18 shareholders is estimated to be approximately $264,000, or $14,667 per shareholder.

Social Impacts

**Alternative 1 (No Action)** would result in the most negative social impacts. If the inactive shares are not redistributed to active shareholders it is assumed that the amount of wreckfish being fished and delivered would also be reduced at the same level. **Alternative 2** and **Alternative 3 (Preferred)** are the most socially beneficial because these alternatives revert inactive shares to active shareholders and allow for their continued participation at a comparable level to pre-Comprehensive ACL levels. **Alternatives 2** and **3 (Preferred)** will also cause some

negative social impacts by removing the ability of those shareholders deemed inactive to utilize their shares in the future.

**Table S-1.** Inactive shares held by ITQ shareholder with no landings during the time periods specified under each alternative.

| **Alternative** | **Number of Active Shareholders** | **Percentage of Shares Held by Active Shareholders** | **Number of Inactive Shareholders*** | **Percentage of Shares Held by Inactive Shareholders** |
|---|---|---|---|---|
| **Alternative 2** (No landings during the 2009-10 thru 2010-11 fishing years) | 7 | 45.55% | 18 | 54.45% |
| **Alternative 3 (Preferred)** (No landings between and during the 2006-07 thru 2010-11 fishing years) | 8 | 58.8% | 17 | 41.2% |

**Action 2. Redistribute reverted shares to remaining shareholders**

**Alternative 1**: No Action. Do not redistribute reverted shares.

**Alternative 2:** Redistribute reverted shares to remaining shareholders based on 50% equal allocation + 50% landings history.
**Option a**: landings history in fishing years 2009-10 through 2010-11.
**Option b**: landings history in fishing years 2006-07 through 2010-11.

**Alternative 3 (Preferred):** Redistribute reverted shares to remaining shareholders based landings history.
**Option a**: landings history in fishing years 2009-10 through 2010-11
**Option b (Preferred)**: landings history in fishing years 2006-07 through 2010-11.

***Proposed Actions in Amendment 20A***

1. Define and revert inactive shares.
2. Redistribute reverted shares to remaining shareholders.
3. Establish a share cap.
4. Establish an appeals process.

**Alternative 4:** Redistribute reverted shares based on proportion of remaining shares held by each remaining shareholder after inactive shares are reverted.

**What Are the Expected Effects?**

Biological Impacts
**Alternative 2** is the most complex of the alternatives considered. **Option a** would benefit individuals who recently entered the fishery and do not have extensive landings histories, whereas **Option b** would include a broader time series of landings histories among current active shareholders and would also include those active shareholder who have recently entered the fishery (**Table S-2**). Therefore, adverse biological impacts that could result from this action would be expected to be negligible unless the fishery far exceeds the ACL repeatedly over the course of several years. Regardless of how those shares are allocated among the active fishery participants, the total number of redistributed shares would not change, limiting effort to the total percentage of shares issued to each shareholder. The biological impacts of **Alternative 3 (Preferred)** would be similar to those under **Alternative 2** for the same reasons given above. No significant biological impacts are expected to result from redistributing reverted shares to active shareholders based on landings histories. Assuming the largest active shareholders are the most likely to fish all shares they own because they are the most active fishery participants, **Alternative 4** may have the potential to have slightly higher biological implications for the species when compared to **Alternatives 2** and **3 (Preferred)**. However, because overall harvest

would be limited by the system of ACLs and AMs included in the Comprehensive ACL Amendment, significant biological impacts would not be expected.

Social and Economic Impacts

**Alternative 2, Option a** would benefit shareholders that are new to the fishery; whereas **Alternative 2, Option b** would benefit shareholders with a longer landing history. As with **Alternative 2, Alternative 3 (Preferred), Option a** would benefit shareholders that are new to the fishery because this option would redistribute reverted shares to remaining shareholders based on landings history in fishing years 2009/10 to 2010/11. Conversely, **Alternative 3, Option b (Preferred)** would benefit shareholders with a longer landing history because this alternative would redistribute reverted shares to remaining shareholders based on landings history in fishing years 2006/07 to 2010/11. **Options a** and **b** under **Alternative 3 (Preferred)** have a high likelihood of being perceived as fair redistribution methods because they are based on past participation. **Alternative 4** would benefit shareholders who have recently purchased additional or new shares.

**Table S-2.** Summary of total % shares that would be held by each shareholder after redistribution under **Action 2**.

| | **Shareholders after redistribution - Action 1, Alt 2** | | | | | **Shareholders after redistribution - Action 1, Alt 3 (Preferred)** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **% shares after redistribution** | Alt 2(a) | Alt 2(b) | Alt 3(a) | **Alt 3(b) (Pref)** | Alt 4 | Alt 2(a) | Alt 2(b) | Alt 3(a) | **Alt 3(b) (Pref)** | Alt 4 |
| 0-5% | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 5.01-10% | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10.01-15% | 1 | 0 | 1 | 1 | 1 | 2 | 2 | 3 | 2 | 1 |
| 15.01-20% | 1 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 2 |
| 20.01-25% | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 |
| 25.01-30% | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 30.01-35% | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35.01-40% | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 40.01-45% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45.01-50% | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Action 3. Establish a share cap**

**Alternative 1**: No Action. Do not establish share cap.

**Alternative 2:** Establish share cap as 15% of the total shares.

**Alternative 3:** Establish share cap as 25% of the total shares.

**Alternative 4 (Preferred):** Establish share cap as 49% of the total shares.

**Alternative 5:** Establish share cap as 65% of the total shares.

***Proposed Actions in Amendment 20A***

1. Define and revert inactive shares.
2. Redistribute reverted shares to remaining shareholders.
3. Establish a share cap.
4. Establish an appeals process.

**Alternative 6:** Establish share cap as the percentage of total shares held by largest shareholder after redistribution.

**What Are the Expected Effects?**

Biological Impacts

The level at which the South Atlantic Council chooses to cap total shares held by any one active shareholding entity would not be expected to impact the biological environment. Regardless of the level at which shares are capped, the fishery may not exceed the proposed commercial ACL of 237,500 pounds ww in the Comprehensive ACL Amendment, without triggering corrective AMs. Biological impacts under **Alternative 6** may be slightly higher than under **Alternatives 2-4 (Preferred)**, but may be lower than **Alternative 5** since no shareholder currently holds 65% of the shares. Capping the number of shares held by a single active shareholder would not result in an increase or decrease in overall harvest of wreckfish in the commercial sector unless a large number of shares are held by relatively inactive fishermen who may not catch their allocated poundage. However, it is expected that any re-allocated shares would be, for the most part, fished to their respective poundage limits in order to maximize yield among the current universe of active shareholders.

Social and Economic Impacts

The number of shareholders who would be over the different share caps, and by how much, is shown in **Table S-3** and this would depend on the preferred alternatives in Actions 1 and 2. **Alternative 2** would allow for equal participation by all entities at some point in time; however it would cap the shares of 3 to 4 entities throughout the various alternatives assuming **Alternative 2** under **Action 1**, and would cap the shares of 2 to 3 entities assuming **Alternative 3** under **Action 1**. This would reduce the possible participation of the largest shareholders and although it is assumed the other participants would fish their shares and therefore the commercial sector's ACL would be harvested and OY would be achieved, this would act in opposition to the

underlying social and economic purpose of this amendment which includes not adversely impacting those who depend on wreckfish for their livelihoods. **Alternative 3** would cap the shares of 1 to 2 entities assuming **Alternative 3** under **Action 1**. These entities are the largest shareholders and as was explained above in **Alternative 2**, although other participants would likely fish the shares removed by implementation of a 25% cap, this would act in opposition to the underlying social and economic purpose of this amendment which includes not adversely impacting those who depend on wreckfish for their livelihoods.

**Alternative 4 (Preferred)** would establish a share cap at 49% and would prevent any one entity from holding the majority of shares in the fishery. The share cap would currently only impact 1 entity (at their current share level with any of the various alternatives and options) under **Action 2** assuming **Alternative 3** under **Action 1** for **Alternative 3 Sub-alternative a** (redistribute shares based on landings history in fishing years 2009/10 to 2010/11) and **Alternative 3 Option b** (redistribute shares based on landings history in fishing years 2006/07 to 2010/11).

**Alternative 5** would establish a share cap at 65% and currently would not impact any entity at their current share levels with any of the various alternatives and sub-alternatives. If the largest entity were to acquire more shares prior to the freeze on transfers, this could change **Alternative 6** and could allow for a possible situation similar to that of **Alternative 5** where one entity would have the majority of the shares in the fishery. Both **Alternative 5** and **Alternative 6** have the capability of creating a majority shares held by an entity situation which could negatively impact other shareholders and dealers; however for years (including the time period of 2006-2011 considered by this amendment) the bulk of wreckfish landings have been delivered primarily by a few individuals and this does not appear to have caused negative social impacts.

**Table S-3.** Number of shareholders and shares exceeding share cap under alternatives for **Action 3** for each alternative under **Action 2** assuming **Alternative 3 (Preferred)** under **Action 1**.

| Alternative under Action 2 | Alt2 | Alt3 | Alt4 (**Pref**) | Alt5 | Alt6 | Alt2 | Alt3 | Alt4 (**Pref**) | Alt5 | Alt6 |
|---|---|---|---|---|---|---|---|---|---|---|
| 2a | 2 | 1 | 0 | 0 | 0 | 32.24 | 16.27 | 0 | 0 | 0 |
| 2b | 2 | 1 | 0 | 0 | 0 | 32.24 | 16.50 | 0 | 0 | 0 |
| 3a | 2 | 1 | 1 | 0 | 0 | 40.28 | 24.92 | .92 | 0 | 0 |
| 3b (**Pref**) | 2 | 1 | 1 | 0 | 0 | 40.29 | 25.39 | 1.39 | 0 | 0 |
| 4 | 3 | 2 | 0 | 0 | 0 | 38.23 | 15.90 | 0 | 0 | 0 |
| 5 | 3 | 1 | 0 | 0 | 0 | 24.54 | 7.62 | 0 | 0 | 0 |

It is the Council's intent that NMFS administratively prohibit transfers of wreckfish shares for the necessary amount of time, not to exceed 45 days, until the reverted shares are redistributed.

This action would allow for exact calculations of shareholdings to be finalized for redistribution of shares.

**Action 4. Establish an appeals process**

> ***Proposed Actions in Amendment 20A***
>
> 1. Define and revert inactive shares.
> 2. Redistribute reverted shares to remaining shareholders.
> 3. Establish a share cap.
> 4. Establish an appeals process.

**Alternative 1:** No Action. Do not specify provisions for an appeals process associated with the ITQ program.

**Alternative 2 (Preferred)**: A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator (RA) will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. The RA will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the RA may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 2a:** Three percent of wreckfish shares will be set aside for appeals.

**Sub-alternative 2b (Preferred):** Five percent of wreckfish shares will be set aside for appeals.

**Sub-alternative 2c:** Ten percent of wreckfish shares will be set aside for appeals.

**Alternative 3**: A percentage of the wreckfish shares for fishing year 2012/2013 will be set-aside to resolve appeals for a period of 90-days starting on the effective date of the final rule. The Regional Administrator (RA) will review, evaluate, and render final decisions on appeals. Hardship arguments will not be considered. A special board composed of state directors/designees will review, evaluate, and make individual recommendations to RA on appeals. The special board and the RA will determine the outcome of appeals based on NMFS' logbooks. If NMFS' logbooks are not available, the RA may use state landings records. Appellants must submit NMFS' logbooks or state landings records to support their appeal. After the appeals process has been terminated, any amount remaining from the set-aside will be distributed back to remaining ITQ shareholders according to the redistribution method selected under Action 2.

**Sub-alternative 3a:** Three percent of wreckfish shares will be set aside for appeals.

**Sub-alternative 3b:** Five percent of wreckfish shares will be set aside for appeals.

**Sub-alternative 3c:** Ten percent of wreckfish shares will be set aside for appeals.

**What Are the Expected Effects?**

Biological Impacts

The wreckfish shareholders' appeals process is largely an administrative action that would have few if any biological implications. **Sub-Alternatives 2a-2c** and **3a-3c** may result is some short-term biological benefit during the 2012/2013 wreckfish fishing season, since 3%, 5% (**Preferred**), or10% respectively, of the wreckfish shares would not be fished during that season unless those shares are distributed to successful appellants. After the 2012/2013 season, the long-term biological impacts of all the sub-alternatives would be the same, assuming all shares would be redistributed to active shareholders who are likely to fish the redistributed shares.

Social and Economic Impacts

The absence of an appeals process, as would occur under **Alternative 1 (No Action)**, would be expected to increase the likelihood that one or more appropriate qualifiers would have either been deemed inactive and would not receive reverted shares or would not have received the proper amount of reverted shares through some sort of error, resulting in less social benefits. **Alternative 2 (Preferred)** and **Alternative 3** allow for an appeals process and would be expected to result in greater social benefits than **Alternative 1 (No Action)**. **Sub-alternative 2c** and **Sub-alternative 3c** set aside the largest amount of shares, ten percent, for appeals and if this amount of shares is not ultimately necessary for settling appeals, these two sub-alternatives have the potential to provide the most negative social impact to the remaining shareholders because these shares would be unavailable for use until all appeals are settled and they are redistributed (but then the social benefits of these additional shares would be received after redistribution of the remaining set-aside shares). Conversely, if ten percent of the shares are required for the appeals process and they are not set aside, those appealing could be negatively impacted as they would not receive the shares to which they are entitled.

**Sub-alternative 2b (Preferred)** and **Sub-alternative 3b** set aside five percent of shares for appeals and provide a mid-point between the other options for setting aside shares (ten percent or three percent) for the appeals process. These sub-alternatives would likely provide more immediate positive social benefits for active shareholders in that these sub-alternatives would allow a larger amount of the pool of latent shares to be redistributed and immediately harvested by those recognized immediately as active shareholders. However, as with **Sub-alternatives 2c** and **3c**, if not enough shares have been set aside for the appeals process then those appealing and entitled to those shares could be negatively impacted.

**Sub-alternative 2a** and **Sub-alternative 3a** set aside three percent of shares for appeals. These sub-alternatives would likely provide the most immediate positive social benefits for recognized active shareholders in that these sub-alternatives would allow a larger amount of the pool of latent shares to be redistributed and immediately harvested by those recognized as active shareholders. However, these sub-alternatives could have the most negative impact on appealing shareholders (if not enough shares have been set aside for the appeals process) since the percent set aside for these sub-alternatives is the lowest out of all the options.

**PUBLIC HEARING DATES & LOCATIONS**
**All hearings are from 4 pm – 7 pm except Charleston and Raleigh**

| | |
|---|---|
| **Monday, November 14, 2011**<br>Avista Resort<br>300 N. Ocean Blvd.<br>**North Myrtle Beach, SC** 29582<br>(843) 249-2521<br><br>Hampton Inn & Suites<br>Savannah/Midtown<br>20 Johnston Street<br>**Savannah, GA** 31405<br>(912) 721-3700 | **Wednesday, November 16, 2011**<br>Radisson Resort at the Port<br>8701 Astronaut Boulevard<br>**Cape Canaveral, FL** 32920<br>(321) 784-0000 |
| **Tuesday, November 15, 2011** –<br>Charleston Marriott Hotel*<br>170 Lockwood Blvd.<br>**Charleston, SC** 29403<br>(843) 723-3000<br>*Hearing from 5:30 – 7:30 pm<br><br>Jacksonville Marriott<br>4670 Salisbury Rd.<br>**Jacksonville, FL** 32256<br>(904) 296-2222 | **Thursday, November 17, 2011**<br>Key Largo Bay Marriott<br>103800 Overseas Highway<br>**Key Largo, FL** 33037<br>(305) 453-0000 |
| | **Tuesday, December 6, 2011**<br>Holiday Inn Brownstone*<br>1707 Hillsborough Street<br>Raleigh, NC 27605<br>(919) 828-0811<br>*Hearing begins at 5:30 pm |

Written Comments:

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## What's Next?

- Snapper Grouper Advisory Panel (10/5/11-10/6/11) in Charleston, SC; final review of Amendment 20A
- Scientific & Statistical Committee (11/8/11 - 11/10/11) in Charleston, SC; final review of Amendment 20A
- Public Hearings from SC thru FL (11/14/11-11/17/11)
- Comments due by 5 p.m. on Monday, November 21, 2011
- Public Hearing during Council meeting (12/6/11) in Raleigh, NC
- Snapper Grouper Committee & Council review hearing comments and approve all actions (12/7/11-12/9/11) in Raleigh, NC
- Council (12/8/11-12/9/11) in Raleigh – Final Approval
- Send to Secretary of Commerce by December 15, 2011
- Public Comment on proposed rule
- Public Comment on amendment to Secretary of Commerce

# Appendix G. Depletion-Corrected Average Catch (DCAC) Estimates for Wreckfish

## Depletion-Corrected Average Catch Estimates for U.S. South Atlantic Wreckfish
## NOAA Fisheries Service
## Southeast Regional Office
## October 23, 2011; updated December 20, 2011
## SERO-LAPP-2011-07

### Introduction

Wreckfish *Polyprion americanus* is large bass distributed globally in temperate waters, including the U.S. South Atlantic (Heemstra 1986). They constitute a single genetic stock across the north Atlantic ocean (Sedberry et al. 1996). Significant catches are reported off Spain, Portugal, and the Blake Plateau of the U.S. South Atlantic (Sadovy 2003). Wreckfish are caught at depths ranging from 1,500-2,400 feet over high relief and flat hard bottom habitat (Sedberry et al. 1999). Spawning occurs in late winter and early spring, and juveniles are pelagic to 20-24 inches total length (TL), associating with floating seaweeds and wreckage.

In 1990, the South Atlantic Fishery Management Council (SAFMC) added wreckfish to the Snapper-Grouper Fishery Management Plan due to a rapid increase in landings and effort that resulted in overfishing (SAFMC 1990; Vaughn et al. 2001). In 1991, the SAFMC approved an individual transferable quota (ITQ) program for commercial wreckfish to address excess capacity and economic inefficiency in the wreckfish fleet (SAFMC 1991). The ITQ program allocated shares of quota to eligible participants; initial allocations were partially based on landings histories. Since the 1992/93 fishing year, wreckfish have been managed under an ITQ program, a two-million pound quota, and a fishing season from April 16-January 14 each year. A fixed seasonal closure from January 15-April 15 each year is in effect to protect wreckfish during peak spawning.

The Magnuson-Stevens Reauthorization Act of 2006 requires regional fishery management councils to implement annual catch limits (ACLs) and accountability measures (AMs) for all stocks under federal management by 2011. In August 2010, the SAFMC's Scientific and Statistical Committee (SSC) established an acceptable biological catch (ABC) for wreckfish of 0.250 million pounds (mp) whole weight (ww). The SAFMC later allocated 95% of the ABC to the commercial wreckfish sector and set a commercial quota of 0.2375 mp ww (SAFMC 2011). This quota is 88% less than the current 2 mp ww commercial quota and is based on recent, non-confidential average catches (SAFMC 2010). At their August 2010 meeting, the SSC recommended conducting Depletion-Corrected Average Catch (DCAC) or Depletion-Based Stock Reduction Analysis (DB-SRA) in 2011 to compare with their 2010 catch-only recommendation (SAFMC 2010). The intent of this analysis is to estimate a sustainable yield level for the U.S. segment of the north Atlantic wreckfish stock using DCAC analysis (MacCall 2009) as recommended by the SSC.

**Methods**

*Depletion-Corrected Average Catch Formula*

MacCall (2009) developed the DCAC formula to estimate sustainable yield in data poor situations. The formula is an extension of the potential-yield formula developed by Alverson and Pereyra (1969) and (Gulland 1970). DCAC divides landed catches over an extended period of time into a sustainable yield component and a windfall component associated with a reduction in stock biomass (MacCall 2009). The DCAC formula requires the following input parameters: 1) sum of catches; 2) number of years in the catch time series; 3) estimated reduction in biomass (Δ; expressed as a ratio); 4) natural mortality rate (M); and, 5) an assumed relationship (*c*) between the fishing mortality rate at maximum sustainable yield ($F_{msy}$) and M. The model also requires inputs on the coefficient of variation surrounding the sum of catches and standard deviations for M, *c, and* Δ. Users can also specify the type of distribution for *c* (lognormal or normal) and Δ (beta bounded, lognormal, or normal).

Sustainable yield ($Y_{sust}$) is calculated as:

$$Ysust = \frac{\sum C}{n + W/Y_{pot}} \quad (1)$$

where *C* is the sum of catches, *n* is the number of years in the catch time series, and $W/Y_{pot}$ is the windfall ratio. The windfall ratio is calculated as:

$$\frac{W}{Y_{pot}} = \frac{\Delta B_0}{0.4cM\mathrm{B}_0} = \frac{\Delta}{0.4cM} \quad (2)$$

where *Δ is the decline in biomass from the first year to the last year of the catch time series relative to the unfished biomass level, c is the tuning adjustment for setting* $F_{msy}$ *relative to M, M is the natural mortality rate,* $B_{fyr}$ is biomass in the first year of the time series, $B_{lyr}$ is biomass in the last year of the time series, and $B_0$ is the unfished biomass level.

Uncertainty in DCAC estimates is accomplished by Monte Carlo simulation. The distribution of sustainable catches is conditioned on the distribution of input parameters. For further details regarding the DCAC formula see MacCall (2009). The model, as well as reference manual for using DCAC, can be downloaded from the NOAA Fisheries Service stock assessment toolbox at: http://nft.nefsc.noaa.gov.

*Model Inputs*

*Sum of Landings (C)*

Wreckfish landings in whole weight (ww) were obtained from the Accumulated Landings System for 1987-1990 and from wreckfish ITQ logbooks for 1991-2010 (Gloeckner, pers. comm.). Table 1 summarizes total landings reported from 1987 through present and from 1989 through present. Two catch time periods were used in the DCAC analysis to explore the sensitivity of model results to the total sum of catches. Because DCAC calculates a windfall reduction in biomass, 1989 was chosen for sensitivity runs because landings significantly increased between the 1988 and 1989 fishing seasons. The highest reported annual landings were in 1990 (3.812 mp ww).

**Table 1.** Total wreckfish commercial landings (million pounds whole weight) for two different time periods and the number of years included in the sum of catches.

| Years | Sum of Landings (mp ww) | Number of Years of Landings |
|---|---|---|
| 1987-2010 | 15.556 | 24 |
| 1989-2010 | 15.220 | 22 |

*Natural Mortality (M)*

Vaughn et al. (2001) estimated wreckfish M from life history characteristics using the approaches of Pauly (1979) and Hoenig (1983). M ranged from 0.06-0.09 using Pauly (1979) and 0.11-0.14 using Hoenig (1983). Estimates of M for Hoenig (1983) were based on maximum ages of 30-39 years. More recent age and growth data from Peres and Haimovici (2004) indicate wreckfish may live considerably longer (up to 76 years). Based on Hoenig (1983) and Hewitt and Hoenig (2005) and a maximum age of 76 years, M ranged from 0.04-0.06. Vaughn et al. (2001) recommended 0.1 be used as the preferred estimate of M. This analysis evaluated the sensitivity of DCAC estimates for M = 0.025, 0.05, 0.075, and 0.1. A coefficient of variation (CV) for M of 0.5 was used for all sensitivity runs. MacCall (2009) indicated a CV of 0.5 should be used as a minimal default value and there appears to be no justification for assuming a CV<0.5 for data poor stocks.

*Change in Biomass (Δ)*

MacCall (2009) indicates that it is difficult to estimate the fractional depletion in biomass (Δ) and that informed judgment or expert opinions from fishermen may be useful in estimating Δ. To assess the depletion in wreckfish stock biomass, nominal and standardized catch per unit effort (CPUE) indices were developed using wreckfish logbook data from 1992 to 2010. The top 3 vessels reporting landings during the entire catch time series were selected for developing the CPUE index since these were the only vessels reporting landings continuously during the catch time series. These three vessels accounted for approximately 30% of the annual landings from 1992-1995 and 50% or more of the landings since 1996.

Variables reported in the wreckfish logbook data set include, but are not limited to: wreckfish permit number, vessel identification number, dealer number, state, day, month, and year of landing, days fished, lines fished, hooks per line, hours fished, pounds and numbers of wreckfish landed, area fished, and depth of fishing. A fixed-effects general linear model (using PROC GLM; SAS Institute 2008) was used to develop the CPUE index. The dependent variable was pounds landed per day. Other dependent variables were also explored, including numbers landed per day, pounds landed per hook-hour fished, and pounds landed per hook fished. Because DCAC requires specification of a windfall reduction in biomass, CPUE based on pounds caught per day was considered a better representation of changes in biomass than numbers caught per day. Hook-hours and hooks fished provided more temporally-refined metrics of effort, but were not used because plots of CPUE versus effort revealed decreasing catchability with increasing effort. In contrast, there was no trend in CPUE versus days-fished.

Wreckfish logbooks allow landings to be entered in both numbers and pounds for up to five additional species. If snapper-grouper, dolphin, wahoo, or mackerels are caught while fishing for wreckfish, then landings and effort for those species must be reported via separate coastal logbooks to the Southeast Fisheries Science Center. Landings (in pounds) of species other than wreckfish were summed from wreckfish logbooks. Landings of species other than wreckfish were also summed for trips reported in coastal logbooks and trip records were merged with wreckfish logbook data using vessel identification number and month, day, and year of landing. Of the 701 wreckfish logbook records, 22 had matching coastal logbook records. For each wreckfish trip, the ratio of wreckfish landings to total landings was determined. Total landings were determined using the maximum landings reported for all other species in either the wreckfish logbook or coastal logbook. Trips were then eliminated if less than 90% of the trip's total landings were not wreckfish. Of the 701 wreckfish trips, 44 were eliminated from CPUE analysis. These trips were eliminated to ensure only directly trips targeting wreckfish were included in CPUE calculations.

Log transformation of the dependent variable failed to satisfy GLM assumptions. A square root transformation of the dependent variable was performed to satisfy assumptions of normality and constant variance. Six factors were considered as possible influences on CPUE: fishing year, season (Apr-Jul, Aug-Oct, Nov-Jan) nested within fishing year, vessel ID, total hooks (i.e. lines fished*hooks per line), area fished, and depth fished. Factors were added to the base model using a forward stepwise procedure ($\alpha$=0.05). Factors included in the final model were: fishing year, vessel ID, total hooks, and season nested within fishing year (Appendix 1). These variables explained 57.4% of the variation in CPUE. To facilitate visual comparison, a relative index and relative nominal CPUE series were calculated by dividing each value in the series by the mean CPUE of the series.

Figure 1 shows the nominal and standardized trend in catch per day from 1992-2010. Nominal and standardized catch rates declined from 1992-1997. From 1998 through 2005, standardized catch rates were stable, while nominal catch rates gradually declined. Since 2007, standardized and nominal catch rates have increased. The reduction in CPUE from 1992 to 2010 was 35% for nominal and standardized indices. Reductions in CPUE from 1992 to 2006 were ~57-58%. A 35% change in biomass was used as the lower bound for model runs and a 60% change in biomass was used as the upper bound for model runs. A middle run was also conducted using a 50% change in biomass. This run was based on personal communication with Paul Reiss (September 9, 2011), a wreckfish shareholder who currently lands a significant portion of the annual wreckfish landings. Mr. Reiss indicated that a 50% reduction in his CPUE has likely occurred since landings peaked in the early 1990s. Mr. Reiss also indicated that his CPUE has been increasing in recent fishing years.

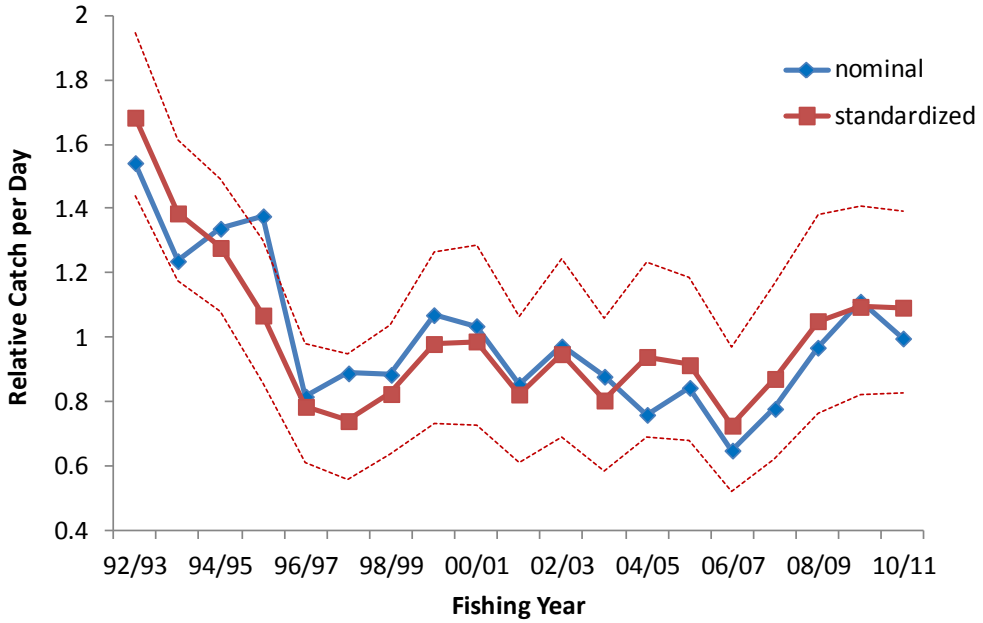


**Figure 1.** Nominal and standardized index of wreckfish abundance (± 80% confidence intervals) for High-3 fishing vessels, 1992-2010.

*Fmsy relative to M (c)*

There is currently no estimate for $F_{msy}$. M is often considered a conservative proxy for $F_{msy}$ (Restrepo et al. 1998) and MacCall (2009) noted that a ratio of $F_{msy}$ to M = 1 may be considered a target or upper limit for many stocks. Walters and Martell (2004) indicated ratios = 0.75-0.8 may be appropriate in data poor situations and that the ratio of $F_{msy}$ to M may be as low as 0.6 for highly vulnerable stocks. For this analysis, sensitivity runs were conducted using $F_{msy}$ to M ratios of 0.8 and 1.0.

*Sensitivity Runs*

Eighteen sensitivity runs were performed to evaluate how changes to various model parameters affect estimates of sustainable yield (Table 2). Runs 1-3 explored how changes in biomass affected yield estimates (35%, 50%, and 60%). Runs 4-6 explored how estimates of yield were affected by a different landing time series (1987-2010 vs. 1989-2010). Runs 7-15 evaluated how estimates of yield were affected by higher and lower assumed natural mortality rates (0.05 vs. 0.025, 0.075, and 0.10). Runs 16-18 evaluated how estimates of yield were affected by a lower $F_{msy}$ to M ratio (0.8 vs 1.0).

*Length-frequencies*

Wreckfish lengths were obtained from the Trip Interview Program to evaluate trends in wreckfish length over time. A total of 16,962 length measurements collected between 1988 and 2010 were available. Lengths were reported as total length, fork length, or standard length in both centimeters and millimeters and were converted to total length in inches using length conversions summarized in Vaughn et al (2001). Sample sizes varied greatly over time, with most length measurements collected

prior to 2000 (n = 14,984 lengths 1988-1999; n = 1,978 lengths 2000-2010). Most wreckfish length measurements were from South Carolina (52.6%) and Florida (36.1%), followed by North Carolina (10.3%) and Georgia (1.0%). Lengths were aggregated across years (1988-1991, … , 2008-2010) to determine if changes in length-frequency distributions have occurred over time. A two factor general linear model ($\alpha = 0.05$) was used to test if the mean size of wreckfish was significantly affected by time period, state landed (Florida, Georgia, and other South Atlantic states), and the interaction between state landed and time period. Bonferroni t-tests were used to conduct multiple comparisons of main effects and summary statistics were generated to facilitate comparisons of mean, median, minimum, and maximum lengths over time by state of landing.

## Results

*Estimated DCAC yields*

Figure 2 and Table 2 summarize estimated yields from Monte Carlo simulations using eighteen different DCAC model parameterizations for wreckfish. Estimated sustainable yields ranged from 0.175 to 0.449 mp ww. The lowest yield was based on model run 9, which assumed a 60% windfall reduction in biomass and an M of 0.025. The highest yield was based on model run 13, which assumed a 35% windfall reduction in biomass and an M = 0.1. Of the 18 model runs, 11 estimated a higher mean annual yield for wreckfish than the current 0.250 mp ABC, three estimated a lower mean yield than the current ABC, and four estimated a mean yield comparable to the current ABC. Mean annual yields for model runs 1-3 and 4-6 were nearly identical, indicating the time series of catch data had little influence on model results. Higher assumed M increased the estimated mean annual yields (runs 10-15), while lower M (runs 7-9) and an $F_{msy}$ to M ratio equal to 0.8 decreased the estimated yields (runs 16-18).

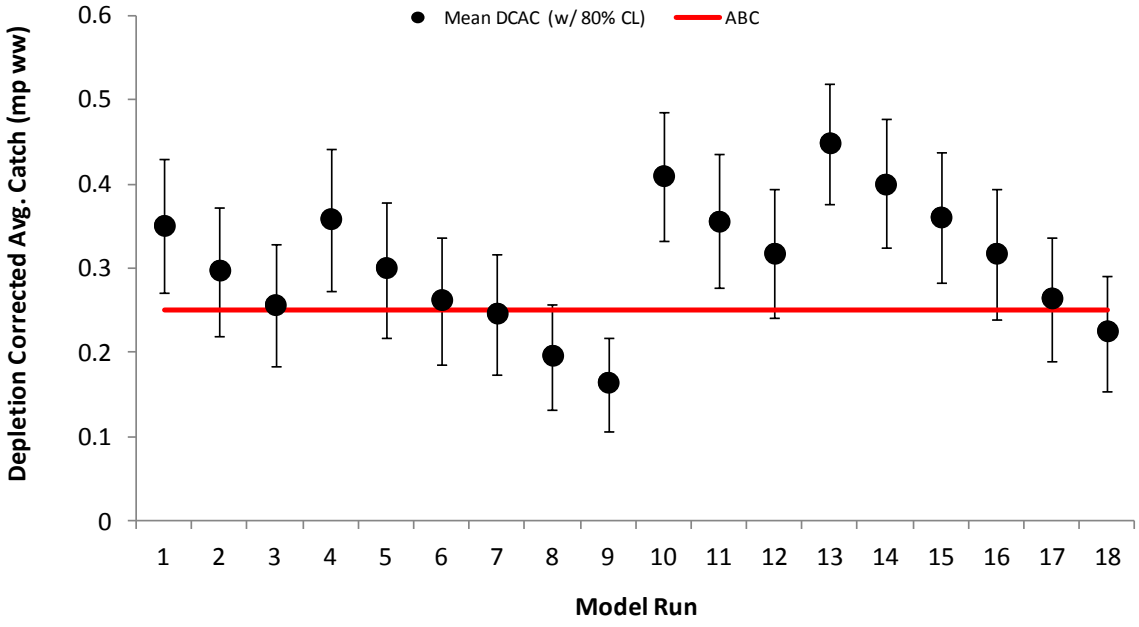


**Figure 2.** Mean yields (± 80% CL) estimated for eighteen different DCAC model parameterizations for wreckfish.

*Length-frequencies*

Length-frequency distributions of wreckfish were significantly different for time period ($F = 78.6$, $p < 0.0001$), state landed ($F = 90.45$, $p < 0.0001$), and the interaction of time period by state landed ($F = 61.7$, $p < 0.0001$). Multiple comparison tests indicated that significant differences in mean length between time periods were no greater than 0.8 inches TL and significant differences in mean length between states of landing were no greater than 0.4 inches TL. There were no discernable trends in mean length over time by state of landing (Table 3, Figure 3). Lengths of 38 to 42 inches TL were the most frequent in all six aggregated time periods. Lengths collected during 2000-2003 showed the broadest distribution and highest proportion of fish above 44 inches TL, while lengths collected during 2004-2007 showed the largest proportion of fish collected below 28 inches TL.

**Table 2**. Estimated yields resulting from Monte Carlo simulations using eighteen DCAC model parameterizations for wreckfish.

| Parameter | Run 1 | Run 2 | Run 3 | Run 4 | Run 5 | Run 6 | Run 7 | Run 8 | Run 9 | Run 10 | Run 11 | Run 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fishery performance | | | | | | | | | | | | |
| Catch (mp ww) | 15.556 | 15.556 | 15.556 | 15.220 | 15.220 | 15.220 | 15.556 | 15.556 | 15.556 | 15.556 | 15.556 | 15.556 |
| Number of years | 24 | 24 | 24 | 22 | 22 | 22 | 24 | 24 | 24 | 24 | 24 | 24 |
| CV of sum of catch | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Average catch (mp ww) | 0.648 | 0.648 | 0.648 | 0.692 | 0.692 | 0.692 | 0.648 | 0.648 | 0.648 | 0.648 | 0.648 | 0.648 |
| DCAC | | | | | | | | | | | | |
| Assumed M ($yr^{-1}$) | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.025 | 0.025 | 0.025 | 0.075 | 0.075 | 0.075 |
| Standard deviation ln(M) (yr -1) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Assumed Biomass Change ($\Delta$) | 0.35 | 0.5 | 0.6 | 0.35 | 0.5 | 0.6 | 0.35 | 0.5 | 0.6 | 0.35 | 0.5 | 0.6 |
| Standard Deviation $\Delta$ | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Assumed c | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Standard Deviation c | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Monte Carlo results (n=10,000) | | | | | | | | | | | | |
| Monte Carlo mean (mp ww) | **0.351** | **0.298** | **0.269** | **0.359** | **0.301** | **0.275** | **0.247** | **0.197** | **0.175** | **0.410** | **0.356** | **0.330** |
| Percentiles (%) | | | | | | | | | | | | |
| 5 | 0.203 | 0.161 | 0.140 | 0.205 | 0.158 | 0.141 | 0.122 | 0.092 | 0.078 | 0.262 | 0.209 | 0.188 |
| 20 | 0.271 | 0.219 | 0.194 | 0.274 | 0.218 | 0.197 | 0.174 | 0.132 | 0.114 | 0.333 | 0.277 | 0.253 |
| 50 | 0.351 | 0.293 | 0.262 | 0.356 | 0.296 | 0.269 | 0.240 | 0.188 | 0.166 | 0.411 | 0.354 | 0.328 |
| 80 | 0.429 | 0.373 | 0.341 | 0.441 | 0.379 | 0.351 | 0.316 | 0.258 | 0.230 | 0.485 | 0.436 | 0.407 |
| 95 | 0.502 | 0.450 | 0.419 | 0.521 | 0.463 | 0.433 | 0.395 | 0.334 | 0.306 | 0.556 | 0.509 | 0.482 |

**Table 2 (cont.)** Estimated yields resulting from Monte Carlo simulations using eighteen DCAC model parameterizations for wreckfish.

| Parameter | Run 13 | Run 14 | Run 15 | Run 16 | Run 17 | Run 18 |
|---|---|---|---|---|---|---|
| Fishery performance | | | | | | |
| Catch (mp ww) | 15.556 | 15.556 | 15.556 | 15.556 | 15.556 | 15.556 |
| Number of years | 24 | 24 | 24 | 24 | 24 | 24 |
| CV of sum of catch | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Average catch (mp ww) | 0.648 | 0.648 | 0.648 | 0.648 | 0.648 | 0.648 |
| DCAC | | | | | | |
| Assumed M ($yr^{-1}$) | 0.1 | 0.1 | 0.1 | 0.05 | 0.05 | 0.05 |
| Standard deviation ln(M) (yr -1) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Assumed Biomass Change ($\Delta$) | 0.35 | 0.5 | 0.6 | 0.35 | 0.5 | 0.6 |
| Standard Deviation $\Delta$ | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Assumed c | 1 | 1 | 1 | 0.8 | 0.8 | 0.8 |
| Standard Deviation c | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Monte Carlo results (n=10,000) | | | | | | |
| Monte Carlo mean (mp ww) | **0.449** | **0.400** | **0.373** | **0.318** | **0.265** | **0.237** |
| Percentiles (%) | | | | | | |
| 5 | 0.307 | 0.254 | 0.228 | 0.175 | 0.136 | 0.116 |
| 20 | 0.377 | 0.324 | 0.295 | 0.239 | 0.190 | 0.165 |
| 50 | 0.450 | 0.401 | 0.372 | 0.316 | 0.259 | 0.229 |
| 80 | 0.520 | 0.477 | 0.449 | 0.395 | 0.337 | 0.305 |
| 95 | 0.583 | 0.545 | 0.517 | 0.472 | 0.414 | 0.386 |

**Table 3.** Mean, median, minimum, and maximum wreckfish total lengths (in) by state landed for six time periods between 1988 and 2010.

| State | Time Period | n | Mean | Median | Min | Max |
|---|---|---|---|---|---|---|
| eFL | 1988-1991 | 718 | 37.9 | 37.8 | 26 | 60 |
| | 1992-1995 | 4,002 | 38.3 | 38.2 | 25.2 | 57.6 |
| | 1996-1999 | 781 | 38.2 | 38.3 | 25.2 | 52 |
| | 2000-2003 | 30 | 39.4 | 40 | 29.8 | 47.1 |
| | 2004-2007 | 509 | 38.7 | 38.9 | 23.9 | 55.1 |
| | 2008-2010 | 79 | 39.5 | 39.6 | 28.3 | 49.1 |
| SC | 1988-1991 | 2,376 | 38.9 | 38.6 | 25.6 | 58.7 |
| | 1992-1995 | 3,047 | 38.9 | 38.6 | 25.2 | 57.5 |
| | 1996-1999 | 2,178 | 38.1 | 38.2 | 23.6 | 57.6 |
| | 2000-2003 | 1,043 | 38.9 | 38.7 | 24.8 | 57.6 |
| | 2004-2007 | 172 | 39 | 38.5 | 24.8 | 59.6 |
| | 2008-2010 | 110 | 37.6 | 38.3 | 27.2 | 49.4 |
| GA/NC | 1988-1991 | 1,476 | 38.9 | 38.6 | 26.8 | 55.1 |
| | 1992-1995 | 406 | 38.8 | 38.6 | 27.6 | 55.5 |
| | 1996-1999 | 0 | -- | -- | -- | -- |
| | 2000-2003 | 5 | 26.4 | 24.8 | 21.5 | 32.6 |
| | 2004-2007 | 30 | 23.6 | 23.1 | 22.1 | 28.7 |
| | 2008-2010 | 0 | -- | -- | -- | -- |

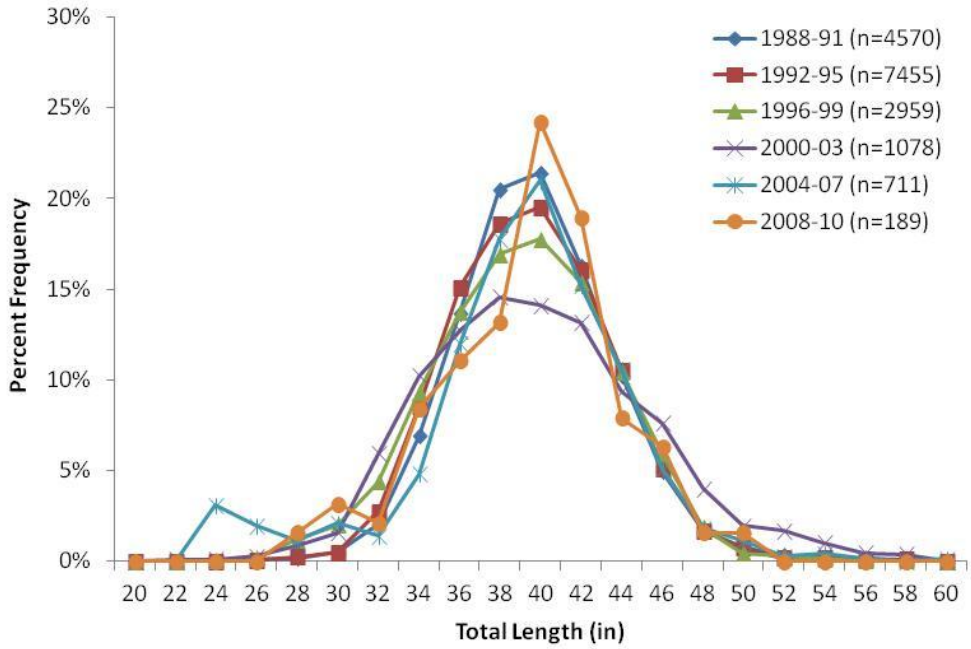


**Figure 3.** Frequency of wreckfish total lengths during six different time periods between 1988 and 2010.

## Discussion

In September 2011, the SAFMC approved a Comprehensive Annual Catch Limit (ACL) Amendment, which specifies ACLs for most federally managed species in the South Atlantic, including wreckfish (SAFMC 2011). The SAFMC cannot establish an ACL above the 0.250 mp ww ABC recommended by the SSC, which was based on recent average wreckfish commercial catches. The Comprehensive ACL Amendment sets the wreckfish ACL equal to ABC and allocates 95% of the ACL to the commercial sector (0.2375 mp ww) and 5% of the ACL to the recreational sector (0.0125 mp ww). Upon implementation, this amendment will reduce the commercial wreckfish quota by 88%; from 2 mp ww to 0.2375 mp ww.

During their August 2010 meeting, the SSC recommended conducting Depletion-Corrected Average Catch (DCAC) or Depletion-Based Stock Reduction Analysis (DB-SRA) in 2011 to compare with the current catch-only recommendations (SAFMC 2010), resulting in the work summarized herein. The DCAC model results appear to indicate that ABC could be set slightly higher than the SSC's current 0.250 mp recommendation; however, this result is contingent on model parameters assumed for Δ, M, and $F_{msy}$.

Evaluation of model parameterizations indicated that results were most sensitive to changes in natural mortality rate, followed by reductions in biomass and the assumed ratio of $F_{msy}$ to M. An M of 0.05 is consistent with a longevity of 70+ years, as determined by Peres and Haimovici (2004), whereas an M of 0.10 is more consistent with a longevity of 30-40 years, which is the oldest known age of wreckfish sampled from the South Atlantic (Vaughn et al. 2001). An M of 0.075 is intermediate to the above-mentioned natural mortality rates and is consistent with a life-span of 50-60 years, while an M of 0.025 is representative of a maximum age greater than currently observed for wreckfish. Based upon a review of recent stock assessments in the Southeast Region and estimates of M based on Hoenig (1983) and Hewitt and Hoenig (2005), values of M at or near 0.05 are more likely given the longevity (76 years) and life history of the species (Table 4).

**Table 4.** Summary of Fmsy or Fmsy proxies compared to M for recent stock assessments in the Gulf of Mexico and South Atlantic.

| Region | Species | Fmsy or proxy | F value | M | F to M ratio | Max Age | Source |
|---|---|---|---|---|---|---|---|
| SA | Wreckfish | Fmax | 0.14-0.16 | 0.05 | 2.8-3.2 | 39 | Vaughn et al. 2001 |
| SA | Wreckfish | $F_{0.1}$ | 0.14-0.15 | 0.10 | 1.4-1.5 | 39 | Vaughn et al. 2001 |
| SA | Wreckfish | $F_{0.1}$ | 0.23-0.25 | 0.15 | 1.5-1.6 | 39 | Vaughn et al. 2001 |
| SA/Gulf | Black Grouper | $F_{30\%SPR}$ | 0.216 | 0.136 | 1.6 | 33 | SEDAR 19 2010 |
| SA | Red Grouper | Fmsy | 0.221 | 0.14 | 1.6 | 26 | SEDAR 19 2010 |
| SA | Red Snapper | F30%/F40%SPR | 0.104-0.148 | 0.078 | 1.3-1.9 | 54 | SEFSC 2009 |
| Gulf | Gag | Fmax | 0.22 | 0.15 | 1.5 | 31 | GMFMC 2010 |
| Gulf | Yellowedge Grouper | $F_{30\%SPR}$ | 0.0964 | 0.073 | 1.3 | 85 | SEDAR 22 2011 |
| Gulf | Yellowedge Grouper | $F_{30\%SPR}$ | 0.092 | 0.055 | 1.7 | 85 | SEDAR 22 2011 |

The change in biomass is also an important factor in determining the DCAC. CPUE indices and one fishermen interview were conducted to gauge the decline in biomass that occurred after wreckfish exploitation began and reached peak landings in 1990. CPUE trends indicated a 35-60% drop in catch

rate occurred from the early 1990s through present. Catch rates declined rapidly from 1992 to 1997 then remained stable for nearly a decade, before increasing from 2007-2010. Not surprisingly, results indicated that smaller windfall reductions in biomass resulted in higher sustainable yield estimates. A 35% reduction in biomass resulted in sustainable yields from 0.247-0.449 mp, whereas a 60% reduction in biomass resulted in sustainable yields that ranged from 0.175-0.373 mp. A 50% reduction in biomass resulted in sustainable yields that ranged from 0.197-0.400 mp. The 50% reduction level was based on expert opinion by a fisherman who has participated in the fishery since it began. This reduction in biomass is within the range of estimates provided by the CPUE index. Given that catch rates and fish lengths have remained stable for a decade or more and catch rates are showing signs of increase in recent years, a 50% reduction in biomass seems to be a reasonable proxy for the windfall reduction in biomass. This estimated reduction is considerably lower than Vaughn et al. (2001), who estimated ~85-90% reduction in biomass using wreckfish data through 1998.

Trends in CPUE are affected by a variety of factors. In this analysis, several effort metrics were evaluated and it was determined that landings in pounds per day was most appropriate for calculating CPUE. Because small changes in Δ can affect estimates of sustainable yield, estimates derived from the CPUE index are critical to how high or low sustainable yield can be set. CPUE can be affected by a variety of factors including changes in abundance, changes in fishing practices and geographic areas fished, concentration of fishing effort in areas of greatest fish abundance, environmental conditions, and many other factors. These factors can lead to CPUE not corresponding to trends in abundance. If hyperstabilization of CPUE occurs, then trends in CPUE will remain high as stock abundance declines (Hilborn and Walters 1992). Similarly, hyperdepletion may occur if CPUE declines faster than stock abundance (Hilborn and Walters 1992). Review of logbook records indicated that wreckfish were harvested from 10 different statistical areas between 1992 and 2010. Of the 10 statistical areas, three accounted for 98% of the wreckfish landings. Beginning in 2003 there was a shift to catching wreckfish in statistical areas closer to shore. The influence of this shift on CPUE is unknown. Similarly, it is unknown how fishing practices may have affected the CPUE index. Logbook records indicated trip length increased from slightly over 6 days to more than 9 days, while the number of lines fished per vessel has remained relatively stable over time and the number of hooks fished per line has declined. This latter change in gear usage was accounted for when standardizing CPUE.

Given that there is no estimate of $F_{msy}$, a proxy for $F_{msy}$ must be assumed. In this analysis, $F_{msy}$ was assumed to be equal to M or 80% of M. The lower $F_{msy}$ is set, the less productive the stock is estimated to be; reducing the estimate of sustainable yield. Recent stock assessments from the Southeast Region were used to compare values of $F_{msy}$ to M to assess if M is a reasonable proxy for $F_{msy}$ (Table 4). For all assessments reviewed, the estimated ratio of $F_{msy}$ to M was greater than 1. It should be noted that this conclusion is based on a limited number of assessments of species with differing life history characteristics and is not intended to be a comprehensive list of $F_{msy}$ to M ratios for all species in the Southeast Region. Given these results, an $F_{msy}$ to M ratio of 1 is considered a reasonable proxy for wreckfish.

In conclusion, the intent of this analysis was to provide additional information for SSC consideration based on their recommendation for conducting a DCAC or DBSRA analysis for wreckfish (SAFMC 2010). Given the sensitivity runs considered in this report, and the discussion above, it appears the ABC for wreckfish could be increased by 19,000 to 109,000 lbs given a windfall biomass reduction of 35-60%, M = 0.05, and an $F_{msy}$ to M ratio of 1.0. Catch rates for wreckfish have been stable since the late 1990s and in recent years have been slightly increasing, while fish lengths have been stable since the fishery began

in the late 1980s. This is evidence that a sustainable yield has been taken over a prolonged period of time without indication of a change in underlying resource abundance (MacCall 2009). Given the stability of catch rates over time, the level of current take appears sustainable and could potentially be increased.

It should be noted that yields summarized in Table 2 represent sustainable yields but may not represent maximum sustainable yield, given that wreckfish constitutes a single genetic stock across the North Atlantic ocean (Sedberry et al. 1996) and fishing mortality in other regions of the Atlantic Ocean could affect yields from U.S. South Atlantic waters. Similar to the U.S. segment of the wreckfish stock, landings of wreckfish in Portugal and Spain peaked in the early 1990s and then declined thereafter due to overexploitation (Sadovy 2003). Fishing records from the Azores indicate wreckfish landings have stabilized in more recent years after sharply declining from 1994-1999 (Damaso 2006). For this assessment of wreckfish, it was assumed that wreckfish stocks on U.S. fishing grounds would not be affected by fishing elsewhere. However, given that the source of juvenile wreckfish is unknown and European fish hooks are frequently found in wreckfish caught in U.S. waters (Sedberry et al. 1999), this is a tenous assumption. A north Atlantic assessment of wreckfish may be more appropriate, but would require reliable landings and CPUE data from numerous fishing grounds throughout the north Atlantic. Given the complexity of conducting a north Atlantic assessment, it is recommended that the U.S. South Atlantic portion of wreckfish be managed based on a target level of depletion, thus avoiding local overfishing. Regular review of U.S. trends in catch per unit effort and fish length would ensure annual catch limits are not resulting in stock depletion.

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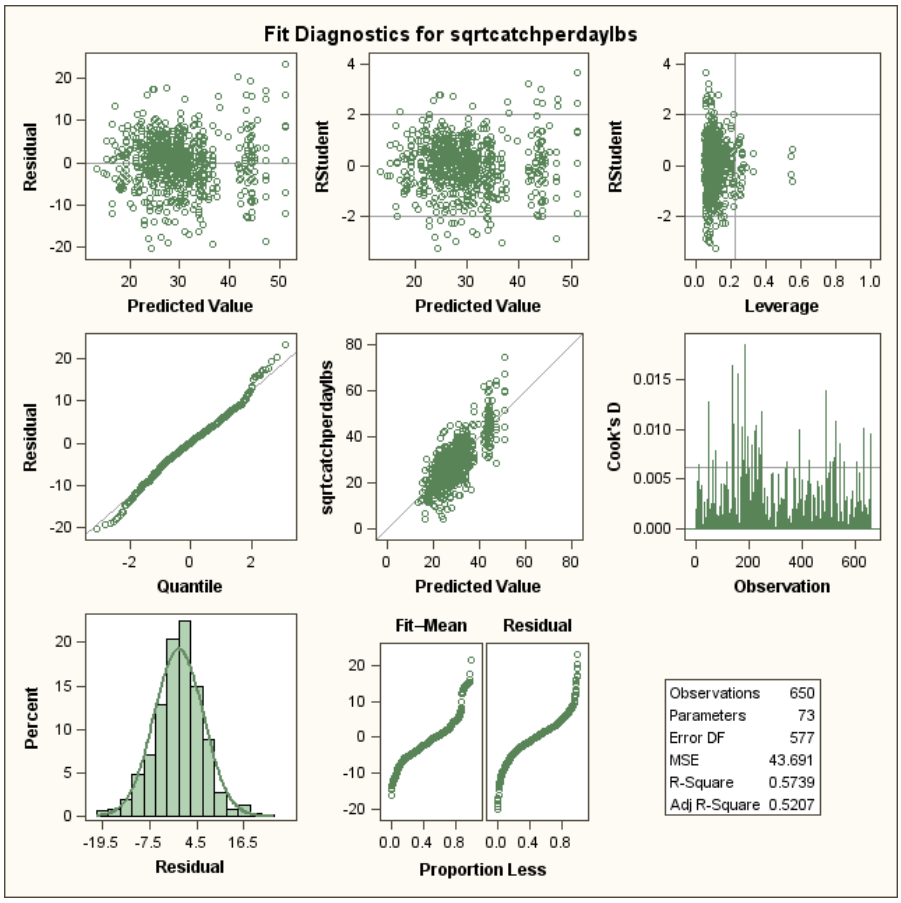
**Appendix 1:** GLM results and diagnostic plots for standardized pounds per day indices.

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| **Model** | 72 | 33955.37356 | 471.60241 | 10.79 | <.0001 |
| **Error** | 577 | 25209.94928 | 43.69142 | | |
| **Corrected Total** | 649 | 59165.32284 | | | |

| R-Square | Coeff Var | Root MSE | sqrtcatchperdaylbs Mean |
|---|---|---|---|
| 0.573907 | 22.27010 | 6.609949 | 29.68083 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| **vesselid** | 2 | 15950.71662 | 7975.35831 | 182.54 | <.0001 |
| **fishingyear** | 18 | 11177.10363 | 620.95020 | 14.21 | <.0001 |
| **seasons(fishingyear)** | 38 | 3342.52751 | 87.96125 | 2.01 | 0.0004 |
| **totalhooks** | 14 | 3485.02580 | 248.93041 | 5.70 | <.0001 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| **vesselid** | 2 | 4783.766042 | 2391.883021 | 54.74 | <.0001 |
| **fishingyear** | 18 | 4550.019905 | 252.778884 | 5.79 | <.0001 |
| **seasons(fishingyear)** | 38 | 2769.711567 | 72.887146 | 1.67 | 0.0083 |
| **totalhooks** | 14 | 3485.025799 | 248.930414 | 5.70 | <.0001 |




**ADDENDUM**

## Background and Methods

During the November 8-10, 2011 SAFMC's Scientific and Statistical Committee (SSC) meeting, the SSC convened a subcommittee to review the wreckfish DCAC analysis. The subcommittee went through each one of the model input parameters and made the following recommendations:

1. Natural mortality should be set equal to 0.06 based on Hewitt and Hoenig (2005). A standard deviation of 0.5 on ln(M) should be used for Monte Carlo simulations.
2. Landings from 1992 through 2006 should be used as this time period is consistent with the CPUE time series used to derive the depletion estimate. A coefficient of variation of 10% should be used for catch as ITQ landings are well-estimated.
3. The ratio of $F_{msy}$ to M should be set equal to 1.0. Meta-analysis of stocks in the region with known $F_{msy}$ and M indicated that c was greater than 1. There is nothing about wreckfish life history or the fishery that would justify setting $c<1$.
4. Biomass depletion should be calculated as:

$$\Delta = \frac{CPUE_{max} - CPUE_{min}}{CPUE_{B0}}$$

where $CPUE_{max}$ corresponds to the CPUE in 1992/1993, $CPUE_{min}$ corresponds to the CPUE in 2006/2007, and $CPUE_{B0}$ corresponds to the CPUE in 1990/1991, the peak year of landings and effort.

Based on these updated model parameters, the subcommittee recommended model Run 19 as the base run. Three additional sensitivity runs (Runs 20-22) were also conducted. Run 20 included the same input parameters as model run 19, except landings through 2010/2011 were included and $\Delta$ was computed using $CPUE_{min}$ equal to CPUE in 2010/11. Model run 21 was similar to run 19, except two additional years of landings were included (1990/1991 and 1991/1992) and $CPUE_{max}$ was set equal to the estimated CPUE in 1990/1991 (see below). Run 22 was similar to run 21, except landings through 2010/11 were included and $\Delta$ was computed using $CPUE_{min}$ equal to CPUE in 2010/11.

The subcommittee also discussed estimating uncertainty in $\Delta$ using the standardized CPUE (e.g., the distribution of maximum and minimum year CPUE) rather than an assumed standard deviation of 0.2 and extending the CPUE time series back to 1991/1992. The subcommittee suggested doing a bootstrap analysis of the GLM to derive joint-distributions of the maximum and minimum year CPUE, and the resulting distribution in depletion. This recommendation was not completed due to time constraints; however, the CPUE time series was extended to include 1991/1992.

Review of logbook records indicated that permit data were available, but vessel IDs for the 1991/1992 fishing season were not available. The general linear model was updated to include data beginning in 1991/1992. The model was fit using the same methods as previously described, except permit number rather than vessel ID was used as factor in the model. Catch per day was the dependent variable and was square root transformed to satisfy model assumptions. Permit number, fishing year, season nested within fishing year, and total hooks were all significant factors included in the model. These parameters explained 57% of the variability in catch per day. An updated CPUE index is provided in Figure A1. Model results and fit diagnostics are summarized in Table A1.

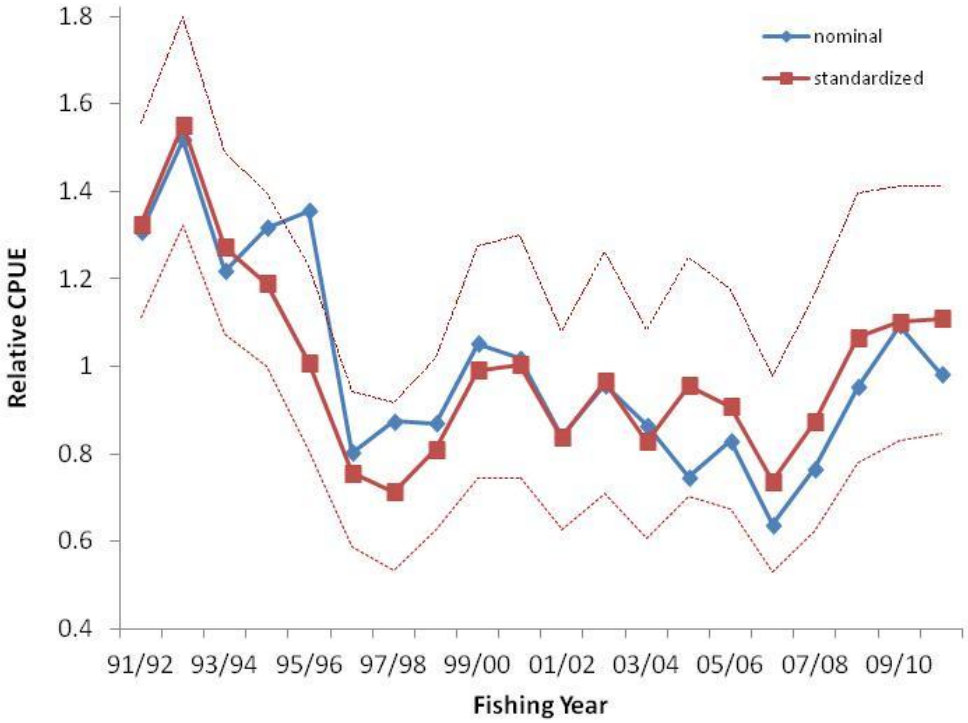



**Figure A1.** Nominal and standardized index of wreckfish abundance (± 80% confidence intervals) for High-3 fishing vessels, 1991/1992 through 2010/2011.

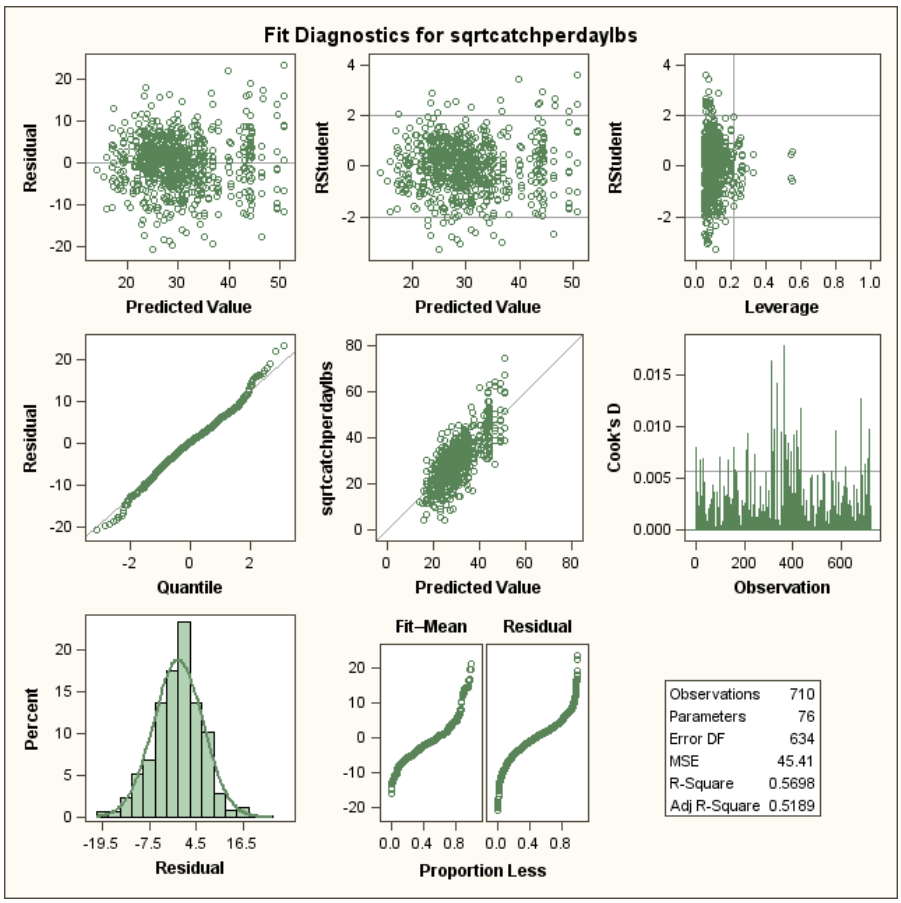
**Table A1.** Model fit and diagnostics for CPUE general linear model.

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 75 | 38136.98156 | 508.49309 | 11.20 | <.0001 |
| Error | 634 | 28789.94388 | 45.41001 | | |
| Corrected Total | 709 | 66926.92544 | | | |

| R-Square | Coeff Var | Root MSE | sqrtcatchperdaylbs Mean |
|---|---|---|---|
| 0.569830 | 22.46560 | 6.738695 | 29.99562 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| PERMNUM | 2 | 17798.97630 | 8899.48815 | 195.98 | <.0001 |
| fishingyear | 19 | 12388.33619 | 652.01769 | 14.36 | <.0001 |
| seasons(fishingyear) | 40 | 4423.62357 | 110.59059 | 2.44 | <.0001 |
| totalhooks | 14 | 3526.04550 | 251.86039 | 5.55 | <.0001 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| PERMNUM | 2 | 4751.142709 | 2375.571354 | 52.31 | <.0001 |
| fishingyear | 19 | 4205.954099 | 221.366005 | 4.87 | <.0001 |
| seasons(fishingyear) | 40 | 3502.258890 | 87.556472 | 1.93 | 0.0007 |
| totalhooks | 14 | 3526.045501 | 251.860393 | 5.55 | <.0001 |




To estimate CPUE in 1990/1991, a linear regression was fit to CPUE data from 1992/1993 through 1997/1998. This provided a very good fit ($r^2 = 0.97$) to the data and allowed for CPUE in 1990/1991 to be estimated through extrapolation of the regression line (Figure A2). Non-linear regression lines were also explored, but did not improve the fit to the data. If CPUE is higher than estimated in Figure A2, then $\Delta$ would be lower for runs 19-20 and higher for runs 21-22.

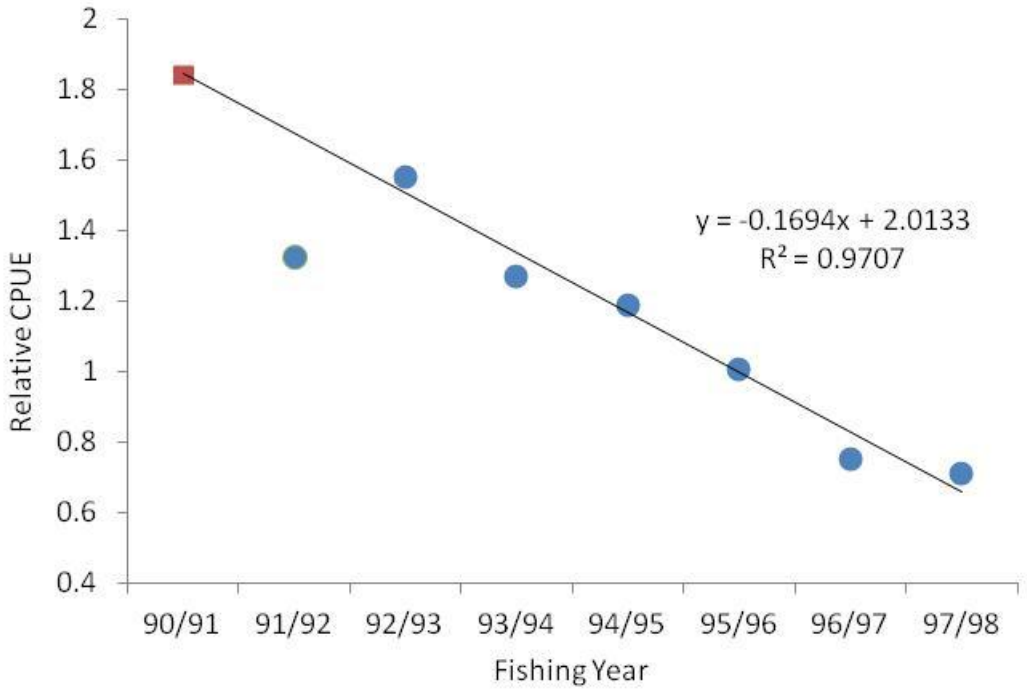



**Figure A2.** Linear regression of relative CPUE versus fishing year. Blue circles represent standardized CPUE values based on logbook data. The red square indicates the extrapolated CPUE value for 1990/1991.

**Results**

Relative CPUE in 1990/1991 was 1.84, or approximately 19% greater than the 1992/1993 CPUE estimate. CPUE in 1991/1992 was lower than the CPUE observed in 1992/1993 and consistent with results presented in Vaughn et al. (2001). Table A2 summarizes estimated yields for Runs 19-22. Sustainable yield was estimated to be 0.191 mp ww for Run 19, 0.247 mp ww for Run 20, 0.278 mp for Run 21, and 0.330 mp ww for Run 22. Figure A3 summarizes the frequency distribution of DCAC results for runs 19 and 21 based on Monte Carlo sampling of parameter values.

**Discussion**

The SSC recommended model runs 19 and 21 as preferred model runs that were equally plausible. Model run 19 was based on landings corresponding to the time period when CPUE data were available (1992+), while model run 21 relied on a projected estimate of CPUE to estimate biomass during the first year of catch. The SSC recommended averaging the two model runs, producing an ABC of 0.235 mp ww, which is 0.015 mp ww less than the current ABC based on non-confidential average landings. MacCall (pers. comm.) indicated it was most appropriate to include only data in the model corresponding to when the depletion occurred, therefore, runs 20 and 22 were excluded from further consideration since CPUE has increased since 2006/2007.

**Table A2.** Estimated yields and model parameters for Runs 19-22.

| Parameter | Run 19 | Run 20 | Run 21 | Run 22 |
|---|---|---|---|---|
| Fishery performance | | | | |
| First yr of landings | 1992/93 | 1992/93 | 1990/91 | 1990/91 |
| Last yr of landings | 2006/07 | 2010/11 | 2006/07 | 2010/11 |
| Catch (mp ww) | 6.776 | 7.559 | 12.499 | 13.281 |
| Number of years | 15 | 19 | 17 | 21 |
| CV of sum of catch | 0.1 | 0.1 | 0.1 | 0.1 |
| Average catch (mp ww) | 0.452 | 0.398 | 0.735 | 0.632 |
| DCAC | | | | |
| Assumed M ($yr^{-1}$) | 0.06 | 0.06 | 0.06 | 0.06 |
| Standard deviation ln(M) (yr -1) | 0.5 | 0.5 | 0.5 | 0.5 |
| Assumed Biomass Change ($\Delta$) | 0.44 | 0.24 | 0.60 | 0.40 |
| Standard Deviation $\Delta$ | 0.2 | 0.2 | 0.2 | 0.2 |
| Assumed c | 1 | 1 | 1 | 1 |
| Standard Deviation c | 0.2 | 0.2 | 0.2 | 0.2 |
| Monte Carlo results (n=10,000) | | | | |
| Monte Carlo mean (mp ww) | **0.191** | **0.247** | **0.278** | **0.330** |
| Percentiles (%) | | | | |
| 5 | 0.099 | 0.154 | 0.139 | 0.190 |
| 20 | 0.137 | 0.199 | 0.197 | 0.254 |
| 50 | 0.187 | 0.247 | 0.270 | 0.329 |
| 80 | 0.242 | 0.294 | 0.356 | 0.405 |
| 95 | 0.297 | 0.337 | 0.444 | 0.472 |

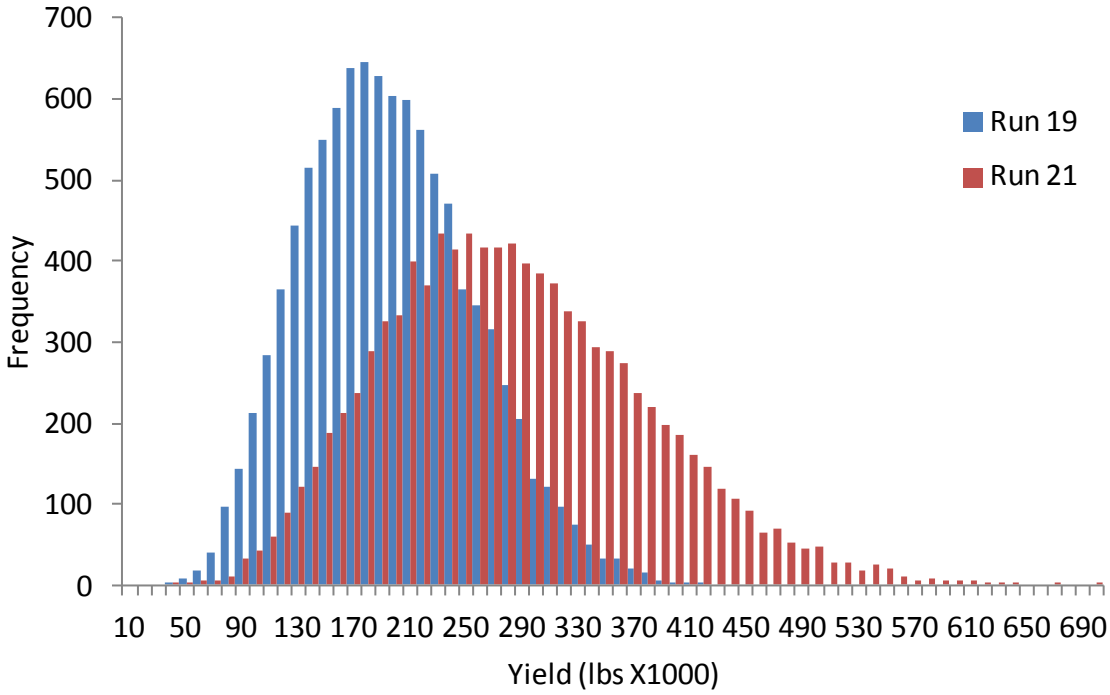



**Figure A3.** Frequency distribution of wreckfish DCAC results for Runs 19 and 21 based on Monte Carlo sampling of parameter values.

# Appendix H. Scientific and Statistical Committee (SSC) Subcommittee Review of DCAC Report

**Peer Review of "Depletion-Corrected Average Catch Estimates for U.S. South Atlantic Wreckfish"**
SAFMC SSC Subcommittee
November 10, 2011

The report (NMFS SERO, October 23, 2011) was reviewed by a subcommittee of the SEFSC SSC (L. Barbieri, chair; J. Berkson; S. Cadrin, and Y. Jiao) and met with A. Strelcheck on November 9 2011. Each of the model inputs (landings series, natural mortality, depletion estimate, and the ratio of Fmsy to natural mortality) to attempt a determination of a 'best run' and a candidate ABC recommendation for review by the entire SSC.

**1. Landings:**
Time series: Two options for time series of landings were used in the report (1987-2010 and 1989-2010). The subcommittee requested revised analyses that use a time periods of landings that are consistent with the two options for periods used to derive the depletion estimate (1990 to 2006 and 1992 to 2006). The choice on period of rebuilding is discussed below. Total landings were 12.5 mil lb for the 17 years from 1990 to 2006, and 6.8 mil lb from the 15 years of 1992 to 1996.

Uncertainty in landings: The assumed variability in total catch (CV=10%) corresponds to a relatively well-estimated catch in this ITQ fishery with few fishery

**2. Natural Mortality (M)**
Most likely value of M: The report states: "*M ranged from 0.06-0.09 using Pauly (1979) and 0.11-0.14 using Hoenig (1983). Estimates of M for Hoenig (1983) were based on maximum ages of 30-39 years. More recent age and growth data from Peres and Haimovici (2004) indicate wreckfish may live considerably longer (up to 76 years). Based on Hoenig (1983) and Hewitt and Hoenig (2005) and a maximum age of 76 years, M ranged from 0.04-0.06. Vaughn et al. (2001) recommended 0.1 be used as the preferred estimate of M*."

The subcommittee agreed that calculations of M that are based on the most recent age data are most defensible (Peres et al. 2004; maximum age of 76 years). However, the subcommittee recommended that the estimate of M from Hewitt and Hoenig (2005; M=0.06) is an improvement for deriving M from maximum age than the Hoenig (1983) method.

Uncertainty in M: We can only approximate uncertainty in M, and a standard deviation of 0.5 in Ln(M) produces a reasonable distribution of M (0.04 to 0.10 +/- 1 SD).

**3. Depletion:**
CPUE standardization: Appendix 1 gives sufficient detail to accept the analysis to provide a standardized CPUE. A large portion of variance was explained ($R^2$=57%), and the model diagnostics (distribution of residuals, etc.) look quite good.

CPUE trends: The use of CPUE as a measure of relative abundance assumes that catchability of a GLM-standardized unit of effort is constant throughout the time series. Violation of this assumption should be expected to be in a direction of increasing catchability, because of technological advances since the early fishery (1992). Therefore, the apparent depletion from the trend in CPUE may be an underestimate of depletion.

Choice of depletion period: The report states that "*Since 2007, standardized and nominal catch rates have increased. The reduction in CPUE from 1992 to 2010 was 35% for nominal and standardized indices. Reductions in CPUE from 1992 to 2006 were ~57-58%. A 35% change in biomass was used as the lower bound for model runs and a 60% change in biomass was used as the upper bound for model runs. A middle run was also conducted using a 50% change in biomass. This run was based on personal communication with Paul Reiss (September 9, 2011), a wreckfish shareholder who currently lands a significant portion of the annual wreckfish landings. Mr. Reiss indicated that a 50% reduction in his CPUE has likely occurred since landings peaked in the early 1990s. Mr. Reiss also indicated that his CPUE has been increasing in recent fishing years*." (page 4).

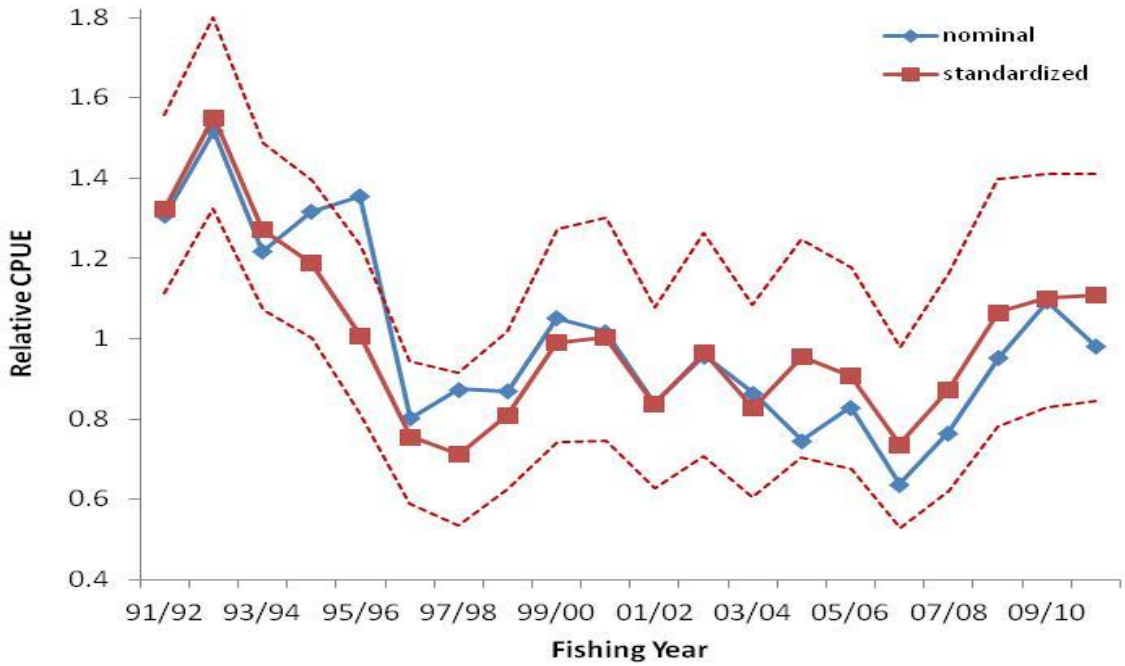



**Figure 1. Extended series nominal and standardized index of wreckfish abundance (± 80% confidence intervals) for High-3 fishing vessels, 1991-2010.**

The subcommittee supports the derivation of depletion based on the maximum year of CPUE (1992/1993) and the minimum year of CPUE (2006/2007). This choice of depletion period is consistent with MacCall's (2009) application of DCAC to Gulf of Maine redfish in which he chose the year of minimum biomass as the last year of the depletion, and excluded subsequent years of rebuilding to provide a good approximation of MSY from a more informative age-based assessment.

Unfished Biomass: The subcommittee felt that there were two valid options for calculating depletion relative to unfished biomass (B0):

1) $\Delta = \frac{CPUE_{max} - CPUE_{min}}{CPUE_{B0}}$

2) $\Delta = \frac{CPUE_{B0} - CPUE_{min}}{CPUE_{B0}}$

The CPUE standardization was extending further back in time. The Extended series back to 1991 had lower CPUE than 1992, similar to the CPUE series developed by Vaughan et al. (2001). In lieu of a CPUE observation that represents B0, the depletion trend in the CPUE series was extrapolated back to the beginning of the fishery to derive $CPUE_{B0}$ (1.82). The resulting calculations of depletion are 44% (equation 1) and 60% (equation 2).

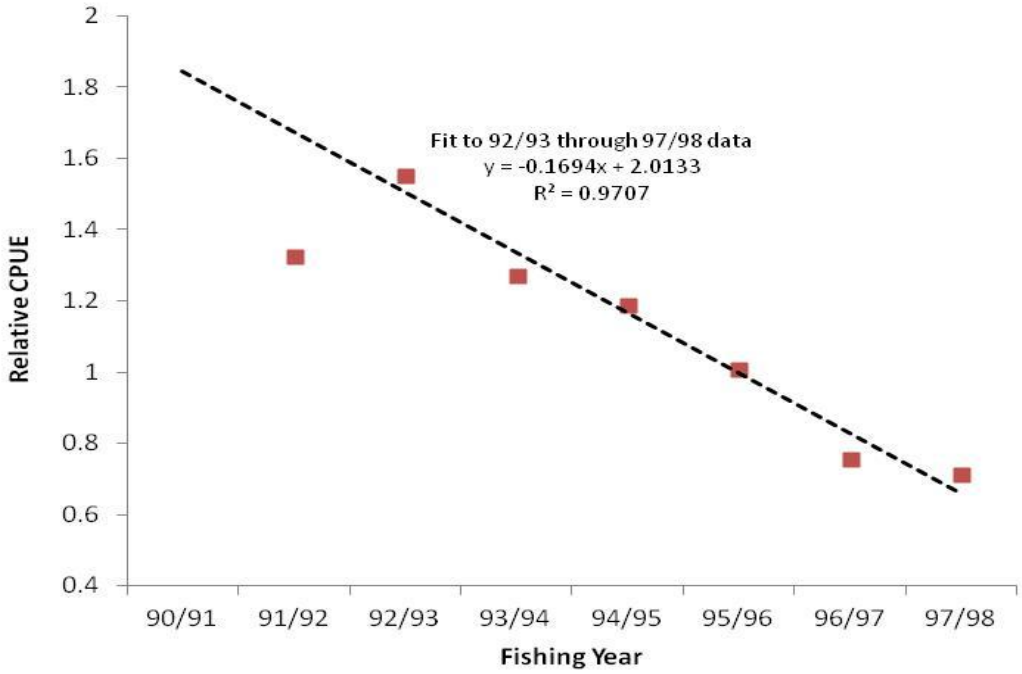



**Figure 2. Extrapolation of depletion to the beginning of the fishery to approximate CPUE at B0.**

Uncertainty in depletion: The distribution of delta should be a function of uncertainty in the standardized CPUE (e.g., the distribution of maximum and minimum year CPUE) rather than an assumed standard deviation of 0.2. This can be done using a bootstrap analysis of the GLM to derive joint-distributions of the maximum and minimum year CPUE, and the resulting distribution in depletion.

A crude approximation of such an analysis is calculating extremes of depletion using confidence limits of CPUE during the maximum and minimum years. The resulting range of depletion calculations around the point estimate of 44% depletion (17% to 68%) is similar to the distribution of depletions based on a standard deviation of 0.2 (24% to 64% +/- 1 SD).

**4. Fmsy:**

The report states that "*There is currently no estimate for Fmsy. M is often considered a conservative proxy for Fmsy (Restrepo et al. 1998) and MacCall (2009) noted that a ratio of Fmsy to M = 1 may be considered a target or upper limit for many stocks. Walters and Martell (2004) indicated ratios = 0.75-0.8 may be appropriate in data poor situations and that the ratio of Fmsy to M may be as low as 0.6 for highly vulnerable stocks. For this analysis, sensitivity runs were conducted using Fmsy to M ratios of 0.8 and 1.0.*"

The choice of the parameter c (Fmsy/M) is an expert judgment. Meta-analysis of all stocks in the region with known Fmsy and M indicated that c was greater than 1 for all stocks. There is nothing about wreckfish life history or the fishery that would justify c<1. Therefore, the most defensible value of c provided in the report is c=1.0.

**Recommendation**

The subcommittee concludes that two alternative analyses are equally valid, and have complementary strengths and weaknesses. The 44% depletion estimate is based directly on observed years of CPUE, whereas the 60% depletion estimate is based on the entire period of depletion. The average estimate of Ysust is 0.235 mil lb. This is 6% less than the previous ABC recommendation of 0.25 mil lb.

In the future, the catch and CPUE series may support a biomass dynamics approach to stock assessment of wreckfish, which would be a more informative basis for fishery management. Both DCAC and biomass dynamics models represent productivity in the fished area, and sustainable yield in the entire resource area may be greater.

**Acknowledgments**

The subcommittee thanks Andy Strelcheck for his efforts and responsiveness in providing alternative analyses. We are also grateful to Alec MacCall for his technical guidance.

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## Appendix I. Essential Fish Habitat and Move to Ecosystem Based Management

### South Atlantic Fishery Management Council Habitat Conservation, Ecosystem Coordination and Collaboration

The Council, using the Essential Fish Habitat Plan as the cornerstone, adopted a strategy to facilitate the move to an ecosystem-based approach to fisheries management in the region. This approach required a greater understanding of the South Atlantic ecosystem and the complex relationships among humans, marine life and the environment including essential fish habitat. To accomplish this, a process was undertaken to facilitate the evolution of the Habitat Plan into a Fishery Ecosystem Plan (FEP), thereby providing more comprehensive understanding of the biological, social and economic impacts of management necessary to initiate the transition from single species management to ecosystem-based management in the region.

**Moving to Ecosystem-Based Management**

The Council adopted broad goals for Ecosystem-Based Management to include maintaining or improving ecosystem structure and function; maintain or improving economic, social and cultural benefits from resources; and maintaining or improving biological, economic and cultural diversity. Development of a regional FEP (SAFMC 2009a) provided an opportunity to expand scope of the original Council Habitat Plan and compile and review available habitat, biological, social, and economic fishery and resource information for fisheries in the South Atlantic ecosystem. The South Atlantic Council views habitat conservation at the core of the move to EBM in the region. Therefore, development of the FEP was a natural next step in the evolution and expands and significantly updates the SAFMC Habitat Plan (SAFMC 1998a) incorporating comprehensive details of all managed species (SAFMC, South Atlantic States, ASMFC, and NOAA Fisheries Highly Migratory Species and Protected Species) including their biology, food web dynamics, and economic and social characteristics of the fisheries and habitats essential to their survival. The FEP therefore serves as a source document presents more complete and detailed information describing the South Atlantic ecosystem and the impact of the fisheries on the environment. This FEP updates information on designated Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern; expands descriptions of biology and status of managed species; presents information that will support ecosystem considerations for managed species; and describes the social and economic characteristics of the fisheries in the region. In addition, it expands the discussion and description of existing research programs and needs to identify biological, social, and economic research needed to fully address ecosystem-based management in the region. In is anticipated that the FEP will provide a greater degree of guidance by fishery, habitat, or major ecosystem consideration of bycatch reduction, prey-predator interactions, maintaining biodiversity, and spatial management needs. This FEP serves as a living source document of biological, economic, and social information for all Fishery Management Plans (FMP). Future Environmental Assessments and Environmental Impact Statements associated with subsequent amendments to Council FMPs will draw from or cite by reference the FEP.

The Fishery Ecosystem Plan for the South Atlantic Region encompasses the following volume structure: FEP Volume I - Introduction and Overview of FEP for the South Atlantic Region
FEP Volume II - South Atlantic Habitats and Species
FEP Volume III - South Atlantic Human and Institutional Environment
FEP Volume IV - Threats to South Atlantic Ecosystem and Recommendations
FEP Volume V - South Atlantic Research Programs and Data Needs
FEP Volume VI - References and Appendices

Comprehensive Ecosystem-Based Amendment (CE-BA) 1 (SAFMC 2009b) is supported by this FEP and updates EFH and EFH-HAPC information and addresses the Final EFH Rule (e.g., GIS presented for all EFH and EFH-HAPCs). Management actions implemented in the CE-BA establish deepwater Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deepwater coral ecosystems in the world.

**Ecosystem Approach to Deepwater Ecosystem Management**

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deepwater
corals, through the Fishery Management Plan for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP). Mechanisms exist in the FMP, as amended, to further protect deepwater coral and live/hard bottom habitats. The SAFMC's Habitat and Environmental Protection Advisory Panel and Coral Advisory Panel have supported proactive efforts to identify and protect deepwater coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b)established deepwater coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deepwater coral ecosystems in the world. In addition, CE-BA 1 established areas within the CHAPC which provide for traditional fishing in limited areas which do not impact deepwater coral habitat. CE-BA 1, supported by the FEP, also addresses non-regulatory updates for existing EFH and EFH- HAPC information and addresses the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs).

**Building from a Habitat to an Ecosystem Network to Support the Evolution**

Starting with our Habitat and Environmental Protection Advisory Panel, the Council expanded and
fostered a comprehensive Habitat network in our region to develop the Habitat Plan of the South Atlantic Region completed in 1998 to support the EFH rule. Building on the core regional collaborations, the Council facilitated an expansion to a Habitat and Ecosystem network to support the development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

These efforts include participation as a member and on the Board of the Southeast Coastal Regional Ocean Observing Association (SECOORA) to guide and direct priority needs for observation and modeling to support fisheries oceanography and integration into stock assessment process through SEDAR. Cooperation through SECOORA is envisioned to facilitate the following:

- Refining current or water column designations of EFH and EFH-HAPCs (e.g., Gulf Stream and
Florida Current)
- Providing oceanographic models linking benthic, pelagic habitats and food webs
- Providing oceanographic input parameters for ecosystem models
- Integration of OOS information into Fish Stock Assessment process in the SA region
- Facilitating OOS system collection of fish and fishery data and other research necessary to support the Council's use of area-based management tools in the SA Region including but not limited to EFH, EFH-HAPCs, Marine Protected Areas, Deepwater Coral Habitat Areas of Particular Concern, Special Management Zones and Allowable Gear Areas.
- Integration of OOS program capabilities and research Needs into the South Atlantic Fishery
Ecosystem Plan
- Collaboration with SECOORA to integrate OOS products on the Council's Habitat and Ecosystem Internet Mapping System to facilitate model and tool development
- Expanding IMS and Arc Services will provide permissioned researchers access to data or products including those collected/developed by SA OOS partners

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted the collaboration by including the Southeast Aquatic Habitat Plan and associated watershed conservation restoration targets into the FEP. Many of the habitat, water quality, and water quantity conservation needs identified in the threats and recommendations Volume of the FEP are directly addressed by on-the-ground projects supported by SARP. This cooperation results in funding fish habitat restoration and conservation intended to increase the viability of fish populations and fishing opportunity which also meets the needs to conserve and manage
Essential Fish Habitat for Council managed species or habitat important to their prey.

Initially discussed as a South Atlantic Eco-regional Compact, the Council has also cooperated with South Atlantic States in the formation of a Governor's South Atlantic Alliance (SAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The SAA was initiated in 2006. An Executive Planning Team (EPT), by the end of 2007, had created a framework for the Governors South Atlantic Alliance. The formal agreement between the four states (NC, SC, GA, and FL) was executed in May 2009. The Agreement specifies that the Alliance will prepare a "Governors South Atlantic Alliance Action Plan" which will be reviewed annually for progress and updated every five years for relevance of content. Alliance mission and purpose is to promote collaboration among the four states, and with the support and interaction of federal agencies, academe, regional organizations, non-governmental organizations, and the private sector, to sustain and enhance the region's coastal and marine resources. The Alliance proposes to regionally implement science-based actions and policies that balance coastal and marine ecosystems capacities to support both human and natural systems. An Action Plan was approved by the Governors and an Implementation Plan is under development.

One of the more recent collaborations is the Council participation as Steering Committee

member for the newly establish South Atlantic Landscape Conservation Cooperative (SALCC). Landscape Conservation Cooperatives (LCCs) are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include DOI agencies, other federal agencies, states, tribes, non-governmental organizations, universities and others. The newly formed Department of Interior Southeast Climate Services Center (CSC) has the LCCs in the region as their primary clients. One of the initial charges of the CSCs is to downscale climate models for use at finer scales.

**Building Tools to support EBM in the South Atlantic Region**

The Council has developed a Habitat and Ecosystem Section of the website http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx and, in cooperation with the Florida Wildlife Research Institute (FWRI), developed a Habitat and Ecosystem Internet Map Server (IMS) http://www.safmc.net/EcosystemManagement/EcosystemBoundaries/MappingandGISData/tabid /62/Default.aspx. The IMS was developed to support Council and regional partners' efforts in the transition to EBM. Other regional partners include NMFS Habitat Conservation, South Atlantic States, local management authorities, other Federal partners, universities, conservation organizations, and recreational and commercial fishermen. As technology and spatial information needs evolve, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services initially for for Essential Fish Habitat (http://ocean.floridamarine.org/SAFMC_EFH/) and Fishery Regulations (http://ocean.floridamarine.org/SAFMC_Regulations/) and is refining permissioned services for Fishery Independent and Habitat Research and developing one for Ocean Energy activities in the region (e.g., wind, wave and current).

**Ecosystem Based Action, Future Challenges and Needs**

The Council has implemented ecosystem-based principles through several existing fishery management actions including establishment of deepwater Marine Protected Areas for the Snapper Grouper fishery, proactive harvest control rules on species (e.g., dolphin and wahoo) which are not overfished, implementing extensive gear area closures which in most cases eliminate the impact of fishing gear on Essential Fish Habitat and use of other spatial management including Special Management Zones. Pursuant to the development of the Comprehensive Ecosystem-Based Amendment, the Council is taking an ecosystem approach to protect deepwater ecosystems while providing for traditional fisheries for the Golden Crab and Royal Red shrimp in areas where they do not impact deepwater coral habitat. The stakeholder based process taps in on an extensive regional Habitat and Ecosystem network. Support tools facilitate Council deliberations and with the help of regional partners, are being refined to address long-term ecosystem management needs.

One of the greatest challenges to the long-term move to EBM in the region is funding high priority research, including but not limited to, comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat impacts and for Council use of place based management measures. Additional resources need to be dedicated to expand regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP and SEFIS) which are linking directly to addressing high priority management needs. Development of ecosystem information systems to support Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term Council needs.

The FEP and CE-BA 1 complement, but do not replace, existing FMPs. In addition, the FEP serves as source document to the CE-BAs. NOAA should support and build on regional coordination efforts of the Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update and refine our FEP and support future fishery actions including but not limited to completing one of the highest priority needs to support EBM, the completion of mapping of near-shore, mid-shelf, shelf edge and deepwater habitats in the South Atlantic region. In developing future FEPs, the Council will draw on SAFEs (Stock Assessment and Fishery Evaluation reports) which NMFS is required to provide the Council for all FMPs implemented under the Magnuson-Stevens Act. The FEP, serving as the source document for CE-BAs, could also meet NMFS SAFE requirements if information is provided to the Council to update necessary sections.

**EFH and EFH-HAPC Designations Translated to Cooperative Habitat Policy Development and Protection** The Council actively comments on non-fishing projects or policies that may impact fish habitat. Appendix A of the Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (SAFMC 1998b) outlines the Council's comment and policy development process and the establishment of a four-state Habitat Advisory Panel. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. AP members bring projects to the Council's attention, draft comment letters, and attend public meetings. With guidance from the Advisory Panel, the Council has developed and approved policies on:

1. Energy exploration, development, transportation and hydropower re-licensing;
2. Beach dredging and filling and large-scale coastal engineering;
3. Protection and enhancement of submerged aquatic vegetation;
4. Alterations to riverine, estuarine and nearshore flows; and
5. Marine aquaculture.
6. Marine Ecosystems and Non-Native and Invasive Species
7. Estuarine Ecosystems and Non-Native and Invasive Species

NOAA Fisheries, State and other Federal agencies apply EFH and EFH-HAPC designations and protection policies in the day-to-day permit review process. In addition to the workshop process described above the revision and updating of existing habitat policies and the development of new policies is being coordinated with core agency representatives on the Habitat and Coral Advisory Panels. Existing policies are included at the end of this Appendix.

**South Atlantic Bight Ecopath Model**

The Council worked cooperatively the University of British Columbia and the Sea Around Us project to

develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the Council. This effort was envisioned to help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provides a vehicle to identify research necessary to better define populations, fisheries and their interrelationships. While individual efforts are still underway in

the South Atlantic (e.g., Biscayne Bay) only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

**Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern**
Following is a summary of the current South Atlantic Council's EFH and EFH-HAPCs. Information supporting their designation is being updated (pursuant to the EFH Final Rule) in the Council's Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment:

**Snapper Grouper FMP**
Essential fish habitat for snapper-grouper species includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (but to at least 2000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine dependent and nearshore snapper-grouper species, essential fish habitat includes areas inshore of the 100-foot contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom.

Areas which meet the criteria for EFH-HAPCs for species in the snapper-grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary
Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). In addition, the Council through CEBA 2 (SAFMC 2011) is
proposing the deepwater snapper grouper MPAs and golden tilefish and blueline tilefish habitat as
EFH-HAPCs under the Snapper Grouper FMP as follows:

EFH-HAPCs for golden tilefish to include irregular bottom comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom. Mud-clay bottoms in depths of 150-300 meters are HAPC. Golden tilefish are generally found in 80-540 meters, but most commonly

found in 200-meter depths.

EFH-HAPC for blueline tilefish to include irregular bottom habitats along the shelf edge in 45-65 meters depth; shelf break; or upper slope along the 100-fathom contour (150-225 meters); hardbottom habitats characterized as rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, or rocky reefs in the South Atlantic Bight; and the Georgetown Hole (Charleston Lumps) off Georgetown, SC.

EFH-HAPCs for the snapper grouper complex to include the following deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14; Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA and East Hump MPA.

**Shrimp FMP**

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine
habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non- vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy
sand, or white calcareous mud. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Areas which meet the criteria for EFH-HAPCs for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

**Coastal Migratory Pelagics FMP**

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf stream shoreward, including *Sargassum*. In addition, all

coastal inlets, all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.
For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

Areas which meet the criteria for EFH-HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the ELMR Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River, North Carolina; Bogue Sound, North Carolina (Adults May-September salinity >30 ppt); and New River, North Carolina (Adults May-October salinity >30 ppt). For Cobia they include Broad River, South Carolina; and Broad River, South Carolina (Adults & juveniles May-July salinity >25ppt).

**Golden Crab FMP**
Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven essential fish habitat types (a flat foraminferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and
soft-bioturbated habitat) for golden crab is provided in Wenner et al. (1987). There is insufficient knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify
HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate through the framework

**Spiny Lobster FMP**
Essential fish habitat for spiny lobster includes nearshore shelf/oceanic waters; shallow subtidal bottom; seagrass habitat; unconsolidated bottom (soft sediments); coral and live/hard bottom habitat; sponges; algal communities (*Laurencia*); and mangrove habitat (prop roots). In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse spiny lobster larvae.

Areas which meet the criteria for EFH-HAPCs for spiny lobster include Florida Bay, Biscayne

Bay, Card Sound, and coral/hard bottom habitat from Jupiter Inlet, Florida through the Dry Tortugas, Florida.

**Coral, Coral Reefs, and Live/Hard Bottom Habitats FMP**
Essential fish habitat for corals (stony corals, octocorals, and black corals) must incorporate habitat for over 200 species. EFH for corals include the following:

A. Essential fish habitat for hermatypic stony corals includes rough, hard, exposed, stable substrate from Palm Beach County south through the Florida reef tract in subtidal to 30 m depth, subtropical (15°-35° C), oligotrophic waters with high (30-35$^{o}/_{oo}$) salinity and turbidity levels sufficiently low enough to provide algal symbionts adequate sunlight penetration for photosynthesis. Ahermatypic stony corals are not light restricted and their essential fish habitat includes defined hard substrate in subtidal to outer shelf depths throughout the management area.

B. Essential fish habitat for *Antipatharia* (black corals) includes rough, hard, exposed, stable substrate, offshore in high (30-35$^{o}/_{oo}$) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the management area.

C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.

D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Areas which meet the criteria for EFH-HAPCs for coral, coral reefs, and live/hard bottom include: The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary. In addition, the Council through CEBA 2 (SAFMC 2011) is proposing the Deepwater Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, Pourtalés Terrace Coral HAPC.

**Dolphin and Wahoo FMP**
EFH for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic

*Sargassum*. This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC, 1998b) (dolphin was included within the Coastal Migratory Pelagics FMP).

Areas which meet the criteria for EFH-HAPCs for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic *Sargassum*. This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (dolphin was included within the Coastal Migratory Pelagics FMP).

**Pelagic *Sargassum* Habitat FMP**

The Council through CEBA 2 (SAFMC 2011) is proposing to designate the top 10 meters of the water column in the South Atlantic EEZ bounded by the Gulfstream, as EFH for pelagic Sargassum.

**Actions Implemented That Protect EFH and EFH-HAPCs**

**Snapper Grouper FMP**

- Prohibited the use of the following gears to protect habitat: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet Florida, fish traps, bottom tending (roller- rig) trawls on live bottom habitat, and entanglement gear.
- Established the *Oculina* Experimental Closed Area where the harvest or possession of all species in the snapper grouper complex is prohibited

**Shrimp FMP**

- Prohibition of rock shrimp trawling in a designated area around the *Oculina* Bank,
- Mandatory use of bycatch reduction devices in the penaeid shrimp fishery,
- Mandatory Vessel Monitoring System (VMS) in the Rock Shrimp Fishery.
- A mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

***Pelagic Sargassum* Habitat FMP**

- Prohibited all harvest and possession of *Sargassum* from the South Atlantic EEZ south of the latitude line representing the North Carolina/South Carolina border (34° North Latitude).
- Prohibited all harvest of *Sargassum* from the South Atlantic EEZ within 100 miles of shore between the 34° North Latitude line and the Latitude line representing the North Carolina/Virginia border.
- Harvest of *Sargassum* from the South Atlantic EEZ is limited to the months of November through June.
- Established an annual Total Allowable Catch (TAC) of 5,000 pounds landed wet weight.
- Required that an official observer be present on each *Sargassum* harvesting trip. Require that nets used to harvest *Sargassum* be constructed of four inch stretch mesh or larger fitted to a frame no larger than 4 feet by 6 feet.

**Coastal Migratory Pelagics FMP**

- Prohibited of the use of drift gill nets in the coastal migratory pelagic fishery;

**Golden Crab FMP**

- In the northern zone golden crab traps can only be deployed in waters deeper than 900 feet; in the middle and southern zones traps can only be deployed in waters deeper than 700 feet.

Northern zone - north of the 28°N. latitude to the North Carolina/Virginia border;
Middle zone - 28°N. latitude to 25°N. latitude; and
Southern zone - south of 25°N. latitude to the border between the South Atlantic and Gulf of Mexico
Fishery Management Councils.

**Coral, Coral Reefs and Live/Hard Bottom FMP**

- Established an optimum yield of zero and prohibiting all harvest or possession of these resources which serve as essential fish habitat to many managed species.
- Designated of the *Oculina* Bank Habitat Area of Particular Concern
- Expanded the *Oculina* Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W. longitude, to the north by 28°30' N. latitude, to the south by 27°30' N. latitude, and to the east by the 100 fathom (600 feet) depth contour.
- Established the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. latitude, on the south by 28°29'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude, and (2) Satellite *Oculina* HAPC #2 is bounded on the north by 28°17'N. latitude, on the south by 28°16'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude.
- Prohibited the use of all bottom tending fishing gear and fishing vessels from anchoring or using grapples in the *Oculina* Bank HAPC.
- Established a framework procedure to modify or establish Coral HAPCs.
- Established the following six deepwater CHAPCs: Cape Lookout Lophelia Banks, Cape Fear Lophelia Banks, Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace), Pourtales Terrace, and Blake Ridge Diapir Methane Seep.
- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear is prohibited including bottom longline, trawl (bottom and mid-water), dredge, pot or trap, or the use of an anchor, anchor and chain, or grapple and chain by all fishing vessels.

**South Atlantic Council Policies for Protection and Restoration of Essential Fish Habitat.**

**SAFMC Habitat and Environmental Protection Policy**

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the SAFMC to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, "habitat" is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the SAFMC policy will be accomplished through the recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of productive habitats where increased fishery production is probable. The SAFMC will pursue these goals at state, Federal, and local levels. The Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal, decision- making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

**SAFMC EFH Policy Statements**

In addition to implementing regulations to protect habitat from fishing related degradation, the Council in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. With guidance from the Advisory Panel, the Council has developed and approved the following habitat policy statements which are available on the Habitat and Ecosystem section of the Council website:

*Protection and Restoration of EFH from Marine Aquaculture*
http://www.safmc.net/Portals/0/HabitatPolicies/SAFMCAquaPolicyFinalJune07.pdf

*Protection and Enhancement of Marine Submerged Aquatic Vegetation*
http://www.safmc.net/Portals/0/HabitatPolicies/SAFMCSAVPol.pdf

*Protection and Restoration of EFH from Beach Dredging and Filling*
http://www.safmc.net/Portals/0/HabitatPolicies/BeachPolicy.pdf

*Protection and Restoration of EFH from Energy Exploration, Development, Transportation and Hydropower Re-Licensing*
http://www.safmc.net/Portals/0/HabitatPolicies/SAFMCEnergyPolicyFinal05.pdf

*Protection and Restoration of EFH from Alterations to Riverine, Estuarine and Nearshore Flows*
http://www.safmc.net/Portals/0/HabitatPolicies/FlowsPolicy.pdf

*Policies for the Protection of South Atlantic Estuarine Ecosystems from Non-Native and Invasive Species*
http://www.safmc.net/LinkClick.aspx?fileticket=Qn%2baT%2blNjZM%3d&tabid=245

*Policies for the Protection of South Atlantic Marine Ecosystems from No-Native and Invasive Species*
http://www.safmc.net/LinkClick.aspx?fileticket=bNFKO%2fIcvHQ%3d&tabid=245

**Finding of No Significant Impact (FONSI) for:**
**Amendment 20A to the Fishery Management Plan (FMP) or the Snapper-Grouper Fishery of the South Atlantic Region (Amendment 20A)**

**National Marine Fisheries Service**

Actions in Amendment 20A include measures to: (1) Define and revert inactive wreckfish shares; (2) redistribute reverted shares to remaining shareholders; (3) establish a cap on the number of shares one shareholder may own; and (4) establish an appeals process for share redistribution. The actions are necessary to achieve the optimum yield (OY) for wreckfish in the commercial sector of the snapper-grouper fishery in accordance with National Standard (NS) 1 of the Reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), and ensure a more efficient use of the resource as supported by NS 5. Establishment of a share cap is necessary to comply with requirements for limited access privilege programs under Section 303A of the Magnuson-Stevens Act. Furthermore, establishment of an appeals process, with a percentage of shares as a set-aside, will allow shareholders to dispute share reversion or redistribution, if necessary.

National Oceanic and Atmospheric Administration (NOAA) Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. On July 22, 2005, NOAA Fisheries Service published Instruction 30-124-1 with guidelines for the preparation of a FONSI. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. Section 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria, the Instruction from NOAA Fisheries Service, and CEQ's context and intensity criteria. These include:

**1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?**

Response: No. None of the actions contained within Amendment 20A are expected to jeopardize the sustainability of the target species (wreckfish). Actions in Amendment 20A are intended to maximize harvest potential in the commercial sector of the wreckfish component of the snapper-grouper fishery within the constraints of the annual catch limit (ACL) of 223,250 pounds whole weight (ww), in the Comprehensive ACL Amendment (SAFMC 2011), which becomes effective April 16, 2012.

Actions in Amendment 20A (see Section 4 of Amendment 20A for detailed analysis) are largely administrative in nature, and would not significantly increase or decrease the current level of fishing effort, or modify the gear types used in the fishery. The preferred alternative in Action 2 (Section 4.2 of Amendment 20A) would redistribute reverted wreckfish shares to currently active shareholders based on each active shareholder's total landings history for the last five fishing years. This could cause a slight increase (by very few currently active fishers) in fishing effort due to previously inactive shares being fished. However, overall harvest would be constrained

by: The number of shares and coupons held by each shareholder; the commercial ACL of 223,250 pounds ww; and the accountability measures (AMs) also in the Comprehensive ACL Amendment (SAFMC 2011), which are designed to prevent ACL overages and correct for any ACL overages if they occur.

Furthermore, wreckfish occur throughout the North Atlantic and fisheries for wreckfish occur in other areas such as Portugal and the Azores. The exact source of pelagic juveniles, extent of wreckfish stocks in other parts of the world, and the size of the wreckfish stock in U.S. waters is unknown, which makes estimating the magnitude of the current wreckfish population extremely difficult (Sedberry et al. 1999). Given this information, the actions to define and redistribute inactive shares, establish a share cap, and establishing an appeals process, are not likely to significantly add or detract from the current management and biological uncertainties that surround wreckfish portion of the snapper-grouper fishery. Therefore, the actions in Amendment 20A are not likely to jeopardize the sustainability of the South Atlantic wreckfish population.

**2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?**

Response: No. Actions in the approved portions of the subject amendment are not likely to jeopardize the sustainability of any non-target species. As discussed in Section 3.2.1.2 and the Bycatch Practicability Analysis (Appendix D) of Amendment 20A, barrelfish *(Hyperoglyphe perciformes)* and red bream *(Beryx decadactylus)* are incidentally caught in small amounts when targeting wreckfish (Goldman and Sedberry 2010). Sea turtles are vulnerable to capture in the vertical line gear used in the wreckfish sector. The effects of the wreckfish portion of the snapper-grouper fishery on sea turtles were evaluated in the previous biological opinion on the entire South Atlantic snapper-grouper fishery (NMFS 2006). The biological opinion concluded the entire South Atlantic snapper-grouper fishery (including the wreckfish sector) was likely to adversely affect sea turtles, but not jeopardize their continued existence. The new commercial ACL of 223,250 pounds ww, effective April 16, 2012, reduced from the previous total allowable catch of two million pounds ww, would further reduce the probability of fishing mortality on non-target species, including the sustainability of protected species.

**3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?**

Response: No, the proposed actions are not reasonably expected to cause substantial damage to the ocean and coastal habitats and/or EFH in the U.S. waters of the South Atlantic as described in Section 3.1.1.1 of Amendment 20A. The actions in Amendment 20A should have minimal overall impacts to EFH because effort would be constrained by the number of shares and coupons, the approved commercial ACL, as well as effort-limiting accountability measures as per the Comprehensive ACL Amendment (SAFMC 2011). The proposed actions in Amendment 20A are not expected to cause any damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Act and identified in the FMPs. Furthermore, no changes in fishing technique or behavior are expected. Therefore, impacts to coastal habitats and/or essential fish habitat would not be significantly different from the status quo. This determination

may be found in a memorandum to the file, dated October 18, 2011, from the Habitat Conservation Division of NOAA Fisheries Service's Southeast Regional Office.

**4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?**

Response: No, the proposed actions are not reasonably expected to have a substantial adverse impact on public safety or health. The commercial sector of the wreckfish portion of the snapper-grouper fishery operates under an individual transferable quota (ITQ) system (see Section 3 of Amendment 5 to the Snapper-Grouper FMP (SAFMC 1991)), which allows fishermen to better choose when and how they want to fish. Amendment 20A does not modify the ITQ system; would not significantly increase or decrease the current level of fishing effort; or modify the gear types used in the wreckfish component of the snapper-grouper fishery. Therefore, no safety at sea issues are expected to result from any of the actions in the subject amendment.

**5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?**

Response: No. The actions contained in Amendment 20A are not expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species. The southeastern U.S. Atlantic snapper-grouper fishery is classified as a Category III fishery, according to the 2012 List of Fisheries (76 FR 73912, November 29, 2011), meaning the annual mortality and serious injury of a marine mammal resulting from the fishery is less than or equal to one percent of the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The actions of Amendment 20A and the continued authorization of the fishery under it, is not likely to change the number of interactions with marine mammals. Additionally, the commercial sector of the wreckfish portion of the snapper-grouper fishery is not expected to adversely modify northern right whale critical habitat. Listed sea bird species such as the Bermuda petrel would not be adversely affected by actions contained within Amendment 20A due to their rare occurrence off the Atlantic coast.

The impacts of the South Atlantic snapper-grouper fishery on Endangered Species Act (ESA)-listed species have been evaluated in a biological opinion on the continued authorization of snapper-grouper fishing under the Snapper-Grouper FMP and Amendment 13C (NMFS 2006), and during subsequent informal ESA section 7 consultations. The biological opinion states the fishery was not likely to adversely affect any critical habitat or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper-grouper fishery would adversely affect sea turtles and smalltooth sawfish. There are no actions in Amendment 20A that would substantially increase fishing effort or modify the gear types used in the snapper-grouper fishery over the status quo; therefore, the implementation of Amendment 20A and the continued authorization of the fishery under it is not anticipated to adversely affect sea turtles and smalltooth sawfish. This determination is documented in an ESA section 7 determination memoranda dated February 15, 2012, and March 6, 2012.

NOAA Fisheries Service conducted an informal section 7 consultation on July 9, 2007, evaluating the impacts of the South Atlantic snapper-grouper fishery on ESA-listed *Acropora* species. The consultation concluded that the continued operation of the snapper-grouper fishery was not likely to adversely affect newly listed *Acropora* species. On November 26, 2008, a final rule designating *Acropora* critical habitat was published in the *Federal Register*. A memo dated December 2, 2008, evaluated the effects of the continued authorization of the South Atlantic snapper-grouper fishery on *Acropora* critical habitat pursuant to section 7 of the ESA. The consultation concluded the proposed actions are not likely to adversely affect *Acropora* critical habitat. Wreckfish are harvested in deepwater (450-600 m; 1,476-1,969 ft), and hence, beyond the distribution of *Acropora* and their designated critical habitat. Thus, the actions proposed in Amendment 20A and the continued authorization of the wreckfish portion of the snapper-grouper fishery are not likely to change these previous determinations.

On February 15, 2012, and March 6, 2012, NOAA Fisheries Service determined the continued authorization of the snapper-grouper fishery is not likely to adversely affect Atlantic sturgeon. The current allowable gear types in the South Atlantic snapper-grouper fishery include: longlines, rod-and-reel gear, bandit gear, handlines, spears, powerheads, and black sea bass pots (50 C.F.R. § 600.725). Hook-and-line gear (i.e., longlines, rod-and-reel gear, bandit gear, handlines) is not likely to adversely affect Atlantic sturgeon because of their diets and feeding mechanism. Atlantic sturgeons are described generally as being omnivorous benthic feeders that filter large quantities of substrate when they suction food into their protrusible mouth. In the marine environment, Atlantic sturgeon feed on mollusks, polychaete worms, gastropods, shrimps, amphipods, isopods, and fish.' These species are not used as bait when targeting snapper-grouper species, including wreckfish. Since Atlantic sturgeon are unlikely to be attracted to the baits used for snapper-grouper species and are unlikely to feed on baited hooks, any adverse effects from snapper-grouper hook-and-line gear are extremely unlikely to occur and are discountable.

**6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?**

Response: No. The proposed actions are not expected to substantially impact the biodiversity and/or ecosystem function within the affected area. The affected area includes the federal 200-mile limit of the Atlantic ocean off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West. The biological range of wreckfish is described in Section 3 of Amendment 20A.

Amendment 20A directly affects one species (wreckfish) and may indirectly affect two co-occurring fish species (barrelfish and red bream), which are incidentally caught in small amounts (see Section 3.2.1.2 and Appendix D), and are not subject to federal management. Increases in directed fishing effort, as a result of Amendment 20A are unlikely. Overall harvest would not dramatically deviate from the status quo, particularly since the commercial ACL (and AMs) to be implemented by the Comprehensive ACL Amendment, would not allow harvest of wreckfish to exceed the ACL. Therefore, NOAA Fisheries Service has concluded there would be no substantial impact on biodiversity or ecosystem function.

7) **Are significant social or economic impacts interrelated with natural or physical environmental effects?**

Response: No. There are no significant social or economic impacts that are interrelated with natural or physical environmental effects (see Section 4 of Amendment 20A). At the time Amendment 20A was under development, 28.18% of the quota shares were defined as inactive and would be redistributed to active shareholders. It was estimated that the combination of Actions 1 and 2 in Amendment 20A would be expected to increase annual gross revenue by approximately $186,220, assuming active shareholders harvest all of their annual wreckfish allocation. This increase in gross revenue would in turn generate economic impacts for seafood dealers, restaurants, and other onshore businesses. The estimated economic impacts, based on the active and inactive share distribution at the time, are presented in Table B-1 of Section 1.4.5 in the Regulatory Impact Review (RIR, Appendix B). The expected increase in annual gross revenue is expected to increase employment, income, and output by 35 jobs, $1.045 million, and $2.452 million, respectively. The 13 shareholders who were defined as being inactive, at the time Amendment 20A was developed, would not incur any losses in wreckfish landings or gross revenue from their shares being revoked. Most of these shareholders (11) have not been active in any commercial fisheries and thus appear not to be involved in commercial fishing at all. However, two of these inactive shareholders did have commercial landings and gross revenue from other fisheries during 2006 and 2010. The extent to which these shareholders were involved in other fisheries differs greatly, as one was only minimally involved and the other significantly involved in other commercial fisheries. The loss of wreckfish shares is not expected to affect the current operations of these two shareholders' vessels, though it would take away the option of fishing for wreckfish in the future. Technically, the loss of shares would also prevent these shareholders from leasing their coupons. However, as no coupons have been leased by any shareholder since 1995, this loss is not considered to be real economically and is therefore discounted. Based on the average market value of a 1% share, the total loss of quota share to these 13 shareholders is estimated to be valued at approximately $180,582, or about $13,890 per shareholder. If the median quota share per shareholder is used, then the average loss per shareholder would be approximately $11,494. These losses represent a loss in asset value or wealth as opposed to profits or income. Because information on these shareholders' wealth is not available, it is not possible to determine the economic significance of these losses to them.

After Amendment 20A was approved for Secretarial review by the Council for Secretarial review at their December 2011 meeting, significant consolidation of the inactive ITQ shares have occurred. Since development of the analysis of the expected economic effects of the proposed actions to define inactive wreckfish Individual Fishing Quota (IFQ) shares and revert inactive shares for redistribution among active IFQ shareholders in South Atlantic Snapper Grouper Amendment 20A (Amendment 20A), the number of shareholders holding inactive shares has declined from 13 to 5 and the proportion of inactive shares has declined from 28.18 percent to 2.6 percent.

As a result, if the preferred actions in Amendment 20A are implemented, assuming an estimated share value of $1,816 to $6,407 per one-percent share[1], the total value of the inactive shares that would be reverted has declined from approximately $51,200 to $180,600 (approximately $3,940 to $13,890 per shareholder) to approximately $4,740 to $16,700 (approximately $950 to $3,340 per shareholder).

Despite these changes, all determinations with respect to the expected economic effects of the proposed actions remain unaffected. All entities whose shares would be expected to be defined as inactive would not be expected to lose any revenue from the loss of their shares because these shares have not been fished since April 16, 2006. Some of these shares have been inactive for a longer period of time than since April 16, 2006. This date, however, was used because it was used to define a share as "active" or "inactive" by the South Atlantic Fishery Management Council's in Amendment 20A. Active shareholders who would receive the reverted shares would have the opportunity to increase fishing revenue. Based on a commercial quota of 223,250 pounds (whole weight; Amendment 20A) and a price of $2.96 per pound (Amendment 20A), the annual total ex-vessel value associated with these reverted shares is estimated to be approximately $17,300. As a result, these actions, if implemented, would not be economically significant for the purposes of Executive Order 12866, nor be expected to have a significant direct adverse economic effect on the profits of the small entities expected to be impacted.

Action 3 in Amendment 20A would establish a 49% share cap. Since the maximum amount of shares owned by a single individual is 41.54% under the combination of Action 1 and Action 2, no individuals would exceed the share cap and thus no individual would possess excess shares that could be subject to further redistribution. As such, Action 3 does not currently affect any shareholder and thus is not expected to generate any direct economic effects on active shareholders at the present time. However, it does preclude active shareholders from purchasing additional shares greater than the difference between their final shares, as determined under the combination of Action 1 and Action 2, and the 49% share cap. For example, the individual with the maximum amount of shares could only purchase an additional 7.46% of the shares, even if he wanted to purchase more in order to maintain his recent level of wreckfish landings and gross revenue. Thus, Action 3 may generate some indirect economic effects on active shareholders who want to own shares above the share cap. However, due to the small number of active participants, the indirect effects would be minimal (see Section 4.3.2 of Amendment 20A for more details).

Action 4 in Amendment 20A would establish an appeals process. Under the preferred alternative, the Regional Administrator would have sole authority with respect to reviewing, evaluating, and rendering final decisions on appeals. Allowing the Regional Administrator to

[1] The lower end of the range is based on transactions by inactive shareholders, compiled on April 4, 2012, and the upper end is based on share transfer price data compiled on August 24, 2011, reflecting transfer activity between the 2009/2010 and 2011/2012 fishing years. Analysis of transactions of inactive shares did not include family transfers or transfers to self-owned corporations because the transfer price for these transfers were reported as $0. The higher transfer value was used in Snapper Grouper Amendment 20A. The lower estimate may be more reflective of the expected value of these shares to inactive shareholders. It can also be argued that the share value to inactive shareholders who have not divested their shares despite the expectation that these shares will be designated as inactive and distributed to active shareholders is zero.

determine the outcome of appeals is the most administratively streamlined process for considering appeals, when compared to the other alternative, which would require the convening of a review panel. Gathering a group of individuals to review appeals applications would require more time and money than if the Regional Administrator is granted the authority to perform the reviews himself. Thus, under the preferred alternative adverse economic effects are expected to be minimal (see Section 4.4.2 of Amendment 20A for more details).

Furthermore, the Regulatory Flexibility Analysis (RFA, Appendix C of Amendment 20A) conducted for Amendment 20A concluded that the actions in this amendment would not be expected to have a significant direct adverse economic effect on the profits of a substantial number of small entities.

**8) Are the effects on the quality of the human environment likely to be highly controversial?**

Response: No. There are no foreseen adverse effects on the quality of the human environment that may be highly controversial as a result of any of the actions contained in Amendment 20A. This amendment is intended to promote the management provisions of the Snapper-Grouper FMP and to allow the commercial sector of the wreckfish portion of the snapper-grouper fishery to maximize harvest potential within the constraints of the ACL. Through the implementation of these actions, it is expected that the human environment may benefit from fishing opportunities that would otherwise be lost (see Section 4.2.3 of Amendment 20A and discussion in Criterion #7 in this FONSI).

**9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?**

Response: No. The proposed actions are not expected to result in substantial impacts to unique or ecologically critical areas. In the South Atlantic, areas of unique habitat exist such as the *Oculina* Bank and large expanses of deepwater coral; however, regulations are currently in place to protect such known areas (see Section 3 in Amendment 20A). Additionally, there are several notable shipwrecks along the southeast coast in state and federal waters including Lofthus (eastern Florda), SS Copenhagen (southeast Florida), Half Moon (southeast Florida), Hebe (Myrtle Beach, North Carolina), Georgiana (Charleston, South Carolina), Monitor (Cape Hatteras, North Carolina), which is also a National Marine Sanctuary, Huron (Nags Head, North Carolina), and Metropolis (Corolla, North Carolina). The southeastern coastline is also home to numerous marshes and wetland ecosystems; however, these sensitive ecological environments do not extend into federal waters of the South Atlantic. Actions within this amendment would not affect any of the above listed habitats or historic resources, nor would they alter any regulations intended to protect them.

**10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?**

Response: No. The effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks. Actions in Amendment 20A are largely administrative in nature. A thorough biological, economic, and social analysis of the potential impacts of the actions contained within Amendment 20A (see Section 4) has been completed and revealed predictable short-term and long-term impacts based on projections using landings data and economic information from previous years.

The level of fishing for wreckfish would not increase significantly beyond previously implemented harvest limits as a result of the amendment actions; therefore no significant biological or economic impacts are anticipated.

**11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?**

Response: No. The proposed actions are not related to other actions with individually insignificant, but cumulatively significant impacts (see Section 5). Actions in Amendment 20A, combined with past, present, and future actions as applied to the wreckfish sector, are not expected to result in any significant cumulative impacts on the biophysical environment. The majority of actions contained in this and other wreckfish amendments are largely administrative in nature with socioeconomic implications rather than biological impacts. Therefore, the magnitude and/or significance of actions contained within this amendment are considered extremely small, and would not result in cumulative modifications to the biological environment. Furthermore, with the commercial ACL for wreckfish to be implemented by the Comprehensive ACL Amendment, it is likely that taking no action could result in the decline of wreckfish harvest and potential negative impacts on active fishermen, dealers, and seafood restaurants. Actions in Amendment 20A are intended to promote the management provisions of the Snapper-Grouper FMP and to allow the commercial sector of the wreckfish portion of the snapper-grouper fishery to maximize harvest potential within the constraints of the ACL, and to maximize the probability of achieving OY for wreckfish.

**12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?**

Response: No. The proposed actions are not likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places nor will it cause loss or destruction of significant scientific, cultural, or historical resources. The commercial sector of the wreckfish portion of the snapper-grouper fishery is prosecuted 130-160 km offshore the southeastern U.S., in depths of 450-600 m (1,476-1,969 ft) (Sedberry et al. 2001). None of the shipwrecks mentioned in the response to Criterion #9 in this FONSI are found in the area where wreckfish are commercially harvested. Section 3 in Amendment 20A discusses the affected environment in detail, including sections on essential fish habitat.

**13) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?**

Response: No. The proposed actions are not expected to result in the introduction or spread of any non-indigenous species including lionfish. Amendment 20A addresses the commercial sector of the wreckfish component of the snapper-grouper fishery, which occurs in federal waters of the U.S. As discussed in the response to Criterion #3 in this FONSI, barrelfish *(Hyperoglyphe perciformes)* and red bream *(Beryx decadactylus)* are incidentally caught in small amounts when targeting wreckfish (Goldman and Sedberry 2010). The vessels and fishing gear, in addition to the species encountered with the commercial harvest of wreckfish, are used or found in U.S. federal waters. Therefore, the introduction or spread of a non-indigenous species is not expected from the actions in Amendment 20A. See Section 3 in Amendment 20A for more details.

**14) Is the proposed action likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?**

Response: No. None of the proposed actions are likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration. Actions in Amendment 20A are largely administrative in nature and are not considered precedent setting. Furthermore, the actions do not represent a novel approach to managing fisheries in the South Atlantic, nor do they represent a decision in principle about a future consideration. This is supported by detailed analysis in Section 4 (environmental effects), Section 5 (cumulative effects), Appendix B (RIR), and Appendix C (RFA) of Amendment 20A.

**15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?**

Response: No, the proposed actions are not expected to threaten or violate federal, state, or local environmental laws. All actions contained in Amendment 20A comply with federal laws governing U.S. fisheries, including the Magnuson-Stevens Act, the ESA, and the Marine Mammal Protection Act. Wreckfish are not harvested in state or local waters, and therefore, state and local environmental laws would not be threatened or violated.

**16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?**

Response: No. The proposed actions are not expected to result in any cumulative adverse effects that could have a substantial effect on the target species or non-target species. A cumulative effects analysis (see Section 5 of Amendment 20A) was conducted for Amendment 20A and revealed no cumulative adverse effects on the biological environment, which includes all target and non-target species. None of the actions contained within Amendment 20A are expected to jeopardize the sustainability of wreckfish. The intent of actions in Amendment 20A is to maximize harvest potential of wreckfish within the constraints of the commercial ACL to be implemented by the Comprehensive ACL Amendment (SAFMC 2011). Actions in Amendment 20A (see Section 4 of Amendment 20A) are largely administrative in nature, and would not significantly increase or decrease the current level of fishing effort, or modify the gear types used

in the wreckfish portion of the snapper-grouper fishery. Additionally, combined effects of past, present, and future actions associated with the wreckfish component of the snapper-grouper fishery are not expected to result in significant impacts on target or non-target species.

**DETERMINATION**

In view of the information presented in this document and the analysis contained in the supporting environmental assessment (EA) prepared for Amendment 20A, it is hereby determined that the proposed actions to define and revert inactive wreckfish shares; redistribute reverted shares to active shareholders; define a cap on the number of shares one entity may own; and establish an appeals process for share status and redistribution, would not significantly affect the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an environmental impact statement is not necessary for this action.

Roy E. Crabtree, Ph.D.
Regional Administrator

4/6/2012
Date

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