Appendix A. Considered But Rejected Alternatives

Annual Catch Limit

Alternative 4. Separate blueline tilefish from the deep-water complex and establish annual catch limits for blueline tilefish. The blueline tilefish ACL = OY = 80%ABC. Specify commercial and recreational ACLs based on existing sector allocations (50.07% commercial and 49.93% recreational). The Deepwater Complex ACL would remain at current levels with the current blueline tilefish portion removed.

Discussion: This alternative was removed from Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 32) because the South Atlantic Fishery Management Council (Council) has consistently set Annual Catch Limits (ACLs) at a level above 80% of the Acceptable Biological Catch (ABC). Hence, this alternative was not within the range that the South Atlantic Council has considered in the past and was therefore excluded from further analysis.

Annual Catch Target

Alternative 4. The recreational ACT for blueline tilefish equals 75% of the recreational ACL. Adjust the recreational ACT for the Deepwater Complex to exclude blueline tilefish.

Discussion: This alternative was removed from Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 32) because the Council has consistently set Annual Catch Targets (ACTs) at ACT = (1-PSE)*ACL or ACT = 0.5*ACL. Hence, this alternative was not within the range that the Council has considered in the past and was therefore excluded from further analysis.

Accountability Measures

Commercial Sector

Alternative 3. If blueline tilefish commercial landings as estimated by the Science and Research Director reach or are projected to reach the commercial ACL, the Regional Administrator shall publish a notice to close the commercial sector for the remainder of the fishing year. On and after the effective date of such a notification, all sale or purchase is prohibited and harvest or possession of this species in or from the South Atlantic EEZ is limited to the bag and possession limit. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper, dolphin wahoo, or golden crab has been issued as appropriate, without regard to where such species were harvested, i.e., in state or Federal waters. Additionally, if the commercial ACL is

exceeded, the Regional Administrator shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage.

Recreational Sector

Alternative 3. If blueline tilefish recreational landings, as estimated by the Science and Research Director, exceed the recreational ACL, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings. If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational ACL in the following fishing year by the amount of the recreational overage. The length of the recreational season and recreational ACL will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.

Discussion: These alternatives were removed from Amendment 32 because the Council is attempting to standardize accountability measures (AMs) for all snapper grouper species. AMs for blueline tilefish and the Deepwater Complex being considered in Amendment 32 are the same as those pertaining to snapper grouper species in Amendment 34 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

Management Measures

Alternative 5. Modify the recreational bag limit as shown above and modify the AM for the blueline tilefish recreational sector, such that NMFS will annually announce the recreational fishing season start and end dates in the *Federal Register* and by other methods, as deemed appropriate. The fishing season will start on _____ (Council to specify) and end on the date NMFS projects the recreational ACL will be met.

Discussion: This alternative was removed from Amendment 32 because the Council felt that establishing a recreational fishing season for a species that is undergoing overfishing would be biologically unadvisable without in-season measures to constrain harvest to the ACL. This would increase the likelihood of an overage taking place during the time the recreational season is open and no mechanism would be in place to compensate for it.

Alternative 2. Establish a commercial trip limit for blueline tilefish from January through April of 100 pounds whole weight (lbs ww).

Sub-alternative 2a. Establish a commercial trip limit from May onwards of 1,500 lbs ww until 80% of the ACL is projected to be met. Then reduce the trip limit to 100 lbs ww for the remainder of the fishing year until the ACL is met or is projected to be met.

Sub-alternative 2b. Establish a commercial trip limit from May onwards of 2,000 lbs ww until 80% of the ACL is projected to be met. Then reduce the trip limit to 100 lbs ww for the remainder of the fishing year until the ACL is met or is projected to be met.

Sub-alternative 2c. Establish a commercial trip limit from May onwards of 2,500 lbs ww until 80% of the ACL is projected to be met. Then reduce the trip

limit to 100 lbs ww for the remainder of the fishing year until the ACL is met or is projected to be met.

Discussion: This alternative was removed from Amendment 32 because the recommended ABC is too low to support any of the proposed commercial trip limits. The alternative was included in Amendment 32 prior to the Council obtaining the projections at the recommended P* level. Subsequent to obtaining the projections, the Council requested that trip limits of 100-300 pounds gutted weight be analyzed instead.

Appendix B. Glossary

Acceptable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

ALS: Accumulative Landings System. NMFS database which contains commercial landings reported by dealers.

Biomass: Amount or mass of some organism, such as fish.

B_{MSY}: Biomass of population achieved in long-term by fishing at F_{MSY}.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Caribbean Fishery Management Council (CFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The CFMC develops fishery management plans for fisheries off the coast of the U.S. Virgin Islands and the Commonwealth of Puerto Rico.

Catch Per Unit Effort (CPUE): The amount of fish captured with an amount of effort. CPUE can be expressed as weight of fish captured per fishing trip, per hour spent at sea, or through other standardized measures.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Cohort: Fish born in a given year. (See year class.)

Control Date: Date established for defining the pool of potential participants in a given management program. Control dates can establish a range of years during which a potential participant must have been active in a fishery to qualify for a quota share.

Constant Catch Rebuilding Strategy: A rebuilding strategy where the allowable biological catch of an overfished species is held constant until stock biomass reaches B_{MSY} at the end of the rebuilding period.

Constant F Rebuilding Strategy: A rebuilding strategy where the fishing mortality of an overfished species is held constant until stock biomass reached BMSY at the end of the rebuilding period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Discard Mortality Rate: The percent of total fish discarded that do not survive being captured and released at sea.

Derby: Fishery in which the TAC is fixed and participants in the fishery do not have individual quotas. The fishery is closed once the TAC is reached, and participants attempt to maximize their harvests as quickly as possible. Derby fisheries can result in capital stuffing and a race for fish.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Exploitation Rate: Amount of fish harvested from a stock relative to the size of the stock, often expressed as a percentage.

F: Fishing mortality.

Fecundity: A measurement of the egg-producing ability of fish at certain sizes and ages.

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in federal waters produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fishing Mortality: A measurement of the rate at which fish are removed from a population by fishing. Fishing mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Fishing Power: Measure of the relative ability of a fishing vessel, its gear, and its crew to catch fishes, in reference to some standard vessel, given both vessels are under identical conditions.

$F_{30\%SPR}$: Fishing mortality that will produce a static SPR = 30%.

$F_{45\%SPR}$: Fishing mortality that will produce a static SPR = 45%.

F_{OY}: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of B_{OY}. Usually expressed as the yield at 85% of F_{MSY}, yield at 75% of F_{MSY}, or yield at 65% of F_{MSY}.

F_{MSY}: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Growth Overfishing: When fishing pressure on small fish prevents the fishery from producing the maximum poundage. Condition in which the total weight of the harvest from a fishery is improved when fishing effort is reduced, due to an increase in the average weight of fishes.

Gulf of Mexico Fishery Management Council (GFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Individual Fishing Quota (IFQ): Fishery management tool that allocates a certain portion of the TAC to individual vessels, fishermen, or other eligible recipients.

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column.

Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Fisheries Statistics Survey (MRFSS): Survey operated by NMFS in cooperation with states that collects marine recreational fisheries data.

Marine Recreational Information Program (MRIP): Survey operated by NMFS in cooperation with states that collects marine recreational fisheries data. It replaced the MRFSS survey.

Maximum Fishing Mortality Threshold (MFMT): The rate of fishing mortality above which a stock's capacity to produce MSY would be jeopardized.

Maximum Sustainable Yield (MSY): The largest long-term average catch that can be taken continuously (sustained) from a stock or stock complex under average environmental conditions.

Median: The midpoint of a frequency distribution of observed values or quantities, such that there is an equal probability of falling above or below it.

Minimum Stock Size Threshold (MSST): The biomass level below which a stock would be considered overfished.

Modified F Rebuilding Strategy: A rebuilding strategy where fishing mortality is changed as stock biomass increases during the rebuilding period.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Natural Mortality (M): A measurement of the rate at which fish are removed from a population by natural causes. Natural mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Optimum Yield (OY): The amount of catch that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).

Quota: Percent or annual amount of fish that can be harvested.

Recruitment (R): Number or percentage of fish that survives from hatching to a specific size or age.

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advice to a fishery management council.

Selectivity: The ability of a type of gear to catch a certain size or species of fish.

South Atlantic Fishery Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

% Spawning Per Recruit (Static SPR): Formerly used in overfishing determination. The maximum spawning per recruit produced in a fished stock divided by the maximum spawning per recruit, which occurs under the conditions of no fishing. Commonly abbreviated as %SPR.

Spawning Stock Biomass (SSB): The total weight of those fish in a stock which are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR): The spawning stock biomass divided by the number of recruits to the stock or how much spawning biomass an average recruit would be expected to produce.

Total Allowable Catch (TAC): The total amount of fish to be taken annually from a stock or stock complex. This may be a portion of the Allowable Biological Catch (ABC) that takes into consideration factors such as bycatch.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.

Appendix C. Other Applicable Law

1.1 Administrative Procedure Act (APA)

All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, with some exceptions. Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 32) complies with the provisions of the APA through the South Atlantic Fishery Management Council's (Council) extensive use of public meetings, requests for comments and consideration of comments. The proposed rule associated with this amendment will have a request for public comments, which complies with the APA, and upon publication of the final rule, there will be a 30-day wait period before the regulations are effective.

1.2 Information Quality Act (IQA)

The IQA (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-443)) which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the IQA. Amendment 32 has used the best available information and made a broad presentation thereof. The information contained in this document was developed using best available scientific information. Therefore, this document is in compliance with the IQA.

1.3 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the federal CZMA of 1972 requires that all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the Council to have management measures that complement those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. The Council believes this document is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. This determination was submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina on January 7, 2014. Letters of concurrence were received from Georgia Department of Natural Resources (January 9, 2014) and Florida Department of Environmental Protection (January 8, 2014).

1.4 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat. NMFS completed a biological opinion (NMFS 2006) in 2006 evaluating the impacts of the continued authorization of the South Atlantic snapper grouper fishery under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) and Amendment 13C to the Snapper Grouper FMP on ESA-listed species (see **Chapter 3**). The opinion stated the fishery was not likely to adversely affect North Atlantic right whale critical habitat, seabirds, 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, but would not jeopardize their continued existence. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, as well as smalltooth sawfish. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them. See NMFS (2006) for a full discussion of impacts to smalltooth sawfish.

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. The magnitude of the interactions between sea turtles and the South Atlantic snapper grouper fishery was evaluated in NMFS (2006) using data from the Supplementary Discard Data Program (SDDP). Three loggerheads and three unidentified sea turtles were caught on vertical lines; one leatherback and one loggerhead were caught on bottom longlines, all were released alive. The effort reported in the program represented between approximately 5% and 14% of all South Atlantic snapper grouper fishing effort. These data were extrapolated in NMFS (2006) to better estimate the number of interactions between the entire snapper-grouper fishery and ESA-listed sea turtles. The extrapolated estimate was used to project future interactions (**Table C-1**).

Table C-1. Three-year South Atlantic anticipated takes sea turtles in the snapper grouper fishery.

Species	Amount of Take	Total
Green	Total Take	39
	Lethal Take	14
Hawksbill	Total Take	4
	Lethal Take	3
Kemp's Ridley	Total Take	19
	Lethal Take	8
Leatherback	Total Take	25
	Lethal Take	15
Loggerhead	Total Take	202
	Lethal Take	67

Source: NMFS 2006. NMFS (National Marine Fisheries Service). 2006. Endangered Species Act Section 7 consultation on the continued authorization of snapper grouper fishing under the Snapper Grouper FMP and Proposed Amendment 13C. Biological Opinion. June 7.

The SDDP does not provide data on recreational fishing interactions with ESA-listed sea turtle species. However, anecdotal information indicates that recreational fishermen occasionally take sea turtles with hook-and-line gear. The biological opinion also used the extrapolated data from the SDDP to estimate the magnitude of recreational fishing on sea turtles (**Table C-1**).

Regulations implemented through Amendment 15B to the Snapper Grouper FMP (74 FR 31225; June 30, 2009) required all commercial or charter/headboat vessels with a South Atlantic snapper grouper permit, carrying hook-and-line gear on board, to possess required literature and release gear to aid in the safe release of incidentally caught sea turtles and smalltooth sawfish. Comprehensive Ecosystem-Based Amendment 2 modified these requirements (76 FR 82183; December 30, 2011) by requiring different gear for vessels with different freeboard heights, mirroring the requirements in the Gulf of Mexico. These regulations are thought to decrease the mortality associated with accidental interactions with sea turtles and smalltooth sawfish.

Subsequent to the June 7, 2006, biological opinion, elkhorn and staghorn coral (*Acropora cervicornis* and *Acropora palmata*) were listed as threatened. In a consultation memorandum dated July 9, 2007, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect these *Acropora* species. On November 26, 2008, an *Acropora* critical habitat was designated. In a consultation memorandum dated December 2, 2008, NMFS concluded the continued authorization of the snapper grouper fishery is not likely to adversely affect *Acropora* critical habitat. On September 10, 2014, NMFS listed 20 new coral species under the ESA, five of those species occur in the Caribbean (including Florida) and all of these are listed as threatened. The 2 previously listed *Acropora* coral species remain protected as threatened. In a memorandum dated September 11, 2014, NMFS indicated that the previous determination remains valid and the South Atlantic snapper grouper fishery is still not likely to adversely affect *Acropora* corals.

The September 10, 2014, final listing rule provided some new information on the threats facing *Acropora*; however, none of the information suggested that previous determinations were no longer valid. For this reason, a memo dated September 11, 2014, indicates that previous determination

remains valid and the South Atlantic snapper grouper fishery is still not likely to adversely affect *Acropora* corals. For the remaining 5 species of coral (*Mycetophyllia ferox, Dendrogyra cylindrus, Orbicella annularis, O.faveolata, and O.franksi*), the threats to corals from fishing identified in the status review for these species (SSR) include (1) trophic effects, (2) human- induced physical damage, and (3) destructive fishing practices. The September 11, 2014, memo indicates South Atlantic snapper grouper fishery will not cause trophic effects because it does not capture herbivorous fish.

Additionally, on September 22, 2011, NMFS and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine distinct population segments (DPSs) (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper grouper fishery interacts with loggerhead sea turtles from what is now considered the Northwest Atlantic (NWA) DPS, which remains listed as threatened. Five DPSs of Atlantic sturgeon were also listed since the completion of the 2006 biological opinion. In a consultation memorandum dated February 15, 2012, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect the Atlantic sturgeon. The February 15, 2012, memorandum also stated that because the 2006 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

On July 10, 2014, NMFS published a final rule designating critical habitat for the Northwest Atlantic Ocean (NWA) Loggerhead Sea Turtle DPS in the *Federal Register* (79 FR 39856). The final rule, effective August 11, 2014, designates 38 marine areas within the Atlantic Ocean and Gulf of Mexico, which contain the physical or biological features essential for the conservation of the loggerhead sea turtle. A memorandum dated September 16, 2014, evaluated the effects of continued authorization of federal fisheries, including snapper grouper, on the newly-designated critical habitat. The memo concluded that activities associated with the snapper grouper fishery would not adversely affect any of the NWA loggerhead DPS critical habitat units.

1.5 Executive Order 12612: Federalism

E.O. 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the states, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this document and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 13132 is not necessary.

1.6 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that implement a new fishery management plan (FMP) or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits

to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act. A regulation is significant if it is likely to result in an annual effect on the economy of at least $100,000,000 or if it has other major economic effects.

In accordance with E.O. 12866, the following is set forth by the Council: (1) this rule is not likely to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) this rule is not likely to create any serious inconsistencies or otherwise interfere with any action taken or planned by another agency; (3) this rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) this rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order; and (5) this rule is not controversial.

This amendment includes the RIR as **Appendix G**.

1.7 Executive Order 12898: Environmental Justice

E.O. 12898 requires that "to the greatest extent practicable and permitted by law…each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States and its territories and possessions…"

The alternatives being considered in this document are not expected to result in any disproportionate adverse human health or environmental effects to minority populations or low-income populations of Florida, North Carolina, South Carolina, or Georgia, rather the impacts would be spread across all participants in the blueline tilefish portion of the snapper grouper fishery regardless of race or income. A detailed description of the communities impacted by the actions contained in this document and potential socioeconomic impacts of those actions are contained in **Sections 3.0** and **4.0** of this document.

1.8 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The National

Recreational Fisheries Coordination Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan - to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The alternatives considered in this document are consistent with the directives of E.O. 12962.

1.9 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that Federal agencies are protecting these ecosystems. More specifically, the Order requires federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

The alternatives considered in this document are consistent with the directives of E.O. 13089.

1.10 Executive Order 13158: Marine Protected Areas

E.O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of Marine Protected Areas (MPAs). The E.O. defined MPAs as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein". It directs federal agencies to work closely with state, local and non- governmental partners to create a comprehensive network of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources".

The alternatives considered in this document are consistent with the directives of E.O. 13158.

1.11 Marine Mammal Protection Act (MMPA)

The MMPA established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs. Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted". A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-

reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. Each year NMFS publishes a List of Fisheries (LOF) that lists a number of fisheries and the categories under which they fall.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans. The commercial hook-and-line components of the South Atlantic snapper grouper fishery (i.e., bottom longline, bandit gear, and handline), which targets blueline tilefish are listed as part of a Category III fishery (79 FR 14418; March 14, 2014) in the 2014 LOF because there have been no documented interactions between these gear and marine mammals. The black sea bass pot component of the South Atlantic snapper grouper fishery is part of the Atlantic mixed species trap/pot fishery, a Category II fishery, in the 2014 proposed LOF. The Atlantic mixed species trap/pot fishery designation was created in 2003 (68 FR 41725, July 15, 2003), by combining several separately listed trap/pot fisheries into a single group. This group was designated Category II as a precaution because of known interactions between marine mammals and gears similar to those included in this group. Prior to this consolidation, the black sea bass pot fishery in the South Atlantic was a part of the "U.S. Mid-Atlantic and Southeast U.S. Atlantic Black Sea Bass Trap/Pot" fishery (Category III). There has never been a documented interaction between marine mammals and black sea bass trap/pot gear in the South Atlantic. The actions in this EA are not expected to negatively impact the provisions of the MMPA

1.12 National Environmental Policy Act (NEPA)

This document has been written and organized in a manner that meets NEPA requirements, and thus is a consolidated NEPA document, including an EA, as described in NOAA Administrative Order (NAO) 216- 6, Section 6.03.a.2.

Purpose and Need for Action

The purpose and need for this action are described in **Section 1.0.**

Alternatives

The alternatives for this action are described in **Section 2.0.**

Affected Environment

The affected environment is described in **Section 3.0**.

Impacts of the Alternatives

The impacts of the alternatives on the environment are described in **Section 4.0.**

1.13 National Marine Sanctuaries Act (NMSA)

Under the NMSA (also known as Title III of the Marine Protection, Research and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of NOAA. The NMSA provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The two main sanctuaries in the South Atlantic exclusive economic zone are Gray's Reef and Florida Keys National Marine Sanctuaries.

The alternatives considered in this document are not expected to have any adverse impacts on the resources managed by the Gray's Reef and Florida Keys National Marine Sanctuaries.

1.14 Paperwork Reduction Act (PRA)

The purpose of the PRA is to minimize the burden on the public. The PRA is intended to ensure that the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501 (1)). The authority to manage information collection and record keeping requirements is vested with the Director of OMB. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications. The PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public. Actions in this document are not expected to affect PRA.

1.15 Small Business Act (SBA)

Enacted in 1953, the SBA requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the SBA are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training, and counseling, and access to sole source and limited competition federal contract opportunities, to help firms achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

1.16 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions. No vessel would be forced to participate in South Atlantic fisheries under adverse weather or ocean conditions as a result of the imposition of management regulations proposed in this amendment. No concerns have been raised by South Atlantic fishermen or by the U.S. Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions.

References

NMFS (National Marine Fisheries Service). 2006. Endangered Species Act section 7 consultation on the Continued Authorization of Snapper grouper Fishing under the South Atlantic Snapper grouper Fishery Management Plan (RFFMP) and Proposed Amendment 13C. Biological Opinion. June 7.

Appendix D. History of Management

History of Management of the South Atlantic Snapper Grouper Fishery

The snapper grouper fishery is highly regulated; some of the species included in this amendment have been regulated since 1983. The following table summarizes actions in each of the amendments to the original FMP, as well as some events not covered in amendment actions.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" total length (TL) limit – red snapper, yellowtail snapper, red grouper, Nassau grouper -8" limit – black sea bass -4" trawl mesh size -Gear limitations – poisons, explosives, fish traps, trawls -Designated modified habitats or artificial reefs as Special Management Zones (SMZs)
Regulatory Amendment #1 (1987)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear. -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (1988a)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL. -Directed fishery defined as vessel with trawl gear and ≥200 lbs s-g on board. -Established rebuttable assumption that vessel with s-g on board had harvested such fish in the exclusive economic zone (EEZ).
Regulatory Amendment #2 (1988b)	03/30/89	PR: 53 FR 32412 FR: 54 FR 8342	-Established 2 artificial reefs off Ft. Pierce, FL as SMZs.
Notice of Control Date	09/24/90	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.
Regulatory Amendment #3 (1989)	11/02/90	PR: 55 FR 28066 FR: 55 FR 40394	-Established artificial reef at Key Biscayne, FL as SMZ. Fish trapping, bottom longlining, spear fishing, and harvesting of Goliath grouper prohibited in SMZ.
Amendment #2 (1990a)	10/30/90	PR: 55 FR 31406 FR: 55 FR 46213	-Prohibited harvest/possession of goliath grouper in or from the EEZ -Defined overfishing for goliath grouper and other species

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Emergency Rule	8/3/90	55 FR 32257	-Added wreckfish to the fishery management unit (FMU) -Fishing year beginning 4/16/90 -Commercial quota of 2 million pounds -Commercial trip limit of 10,000 pounds per trip
Fishery Closure Notice	8/8/90	55 FR 32635	- 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 (1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added wreckfish to the FMU -Defined optimum yield and overfishing -Required permit to fish for, land or sell wreckfish -Required catch and effort reports from selected, permitted vessel; -Established control date of 03/28/90 -Established a fishing year for wreckfish starting April 16 -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure -Established 10,000 pound trip limit -Established a spawning season closure for wreckfish from January 15 to April 15 -Provided for annual adjustments of wreckfish management measures
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #4 (1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish; powerheads and bangsticks in designated SMZs off S. Carolina -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) -Required permits (commercial & for-hire) and specified data collection regulations -Established an assessment group and annual adjustment procedure (framework) -Permit, gear, and vessel id requirements specified for black sea bass traps -No retention of snapper grouper spp. caught in other fisheries with gear prohibited in snapper grouper fishery if captured snapper grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit -8" TL limit – lane snapper -10" TL limit – vermilion snapper (recreational only) -12" TL limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers -20" TL limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers. -28" fork length (FL) limit – greater amberjack (recreational only) -36" FL or 28" core length – greater amberjack (commercial only) -bag limits – 10 vermilion snapper, 3 greater amberjack -aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers -aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed -spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April south of Cape Canaveral, FL -spawning season closure – commercial harvest mutton snapper >snapper aggregate prohibited during May and June -charter/headboats and excursion boat possession limits extended

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #5 (1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	-Wreckfish: established limited entry system with individual transferable quotas (ITQs); required dealer to have permit; rescinded 10,000 lb. trip limit; required off-loading between 8 am and 5 pm; reduced occasions when 24-hour advance notice of offloading required for off-loading; established procedure for initial distribution of percentage shares of total allowable catch (TAC)
Emergency Rule	8/31/92	57 FR 39365	-Black Sea Bass (bsb): modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Emergency Rule Extension	11/30/92	57 FR 56522	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #4 (1992b)	07/06/93	FR: 58 FR 36155	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #5 (1992c)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off S. Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed
Amendment #6 (1993)	07/27/94	PR: 59 FR 9721 FR: 59 FR 27242	-Set up separate commercial TAC levels for golden tilefish and snowy grouper -Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper -Included golden tilefish in grouper recreational aggregate bag limits -Prohibited sale of warsaw grouper and speckled hind -100% logbook coverage upon renewal of permit -Creation of the *Oculina* Experimental Closed Area -Data collection needs specified for evaluation of possible future individual fishing quota system
Amendment #7 (1994a)	01/23/95	PR: 59 FR 47833 FR: 59 FR 66270	-12" FL – hogfish -16" TL – mutton snapper -Required dealer, charter and headboat federal permits -Allowed sale under specified conditions -Specified allowable gear and made allowance for experimental gear -Allowed multi-gear trips in NC -Added localized overfishing to list of problems and objectives -Adjusted bag limit and crew specs. for charter and head boats -Modified management unit for scup to apply south of Cape Hatteras, NC -Modified framework procedure
Regulatory Amendment #6 (1994b)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	-Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal bsb pot fishery off S. Atlantic states after 04/23/97 was not assured of future access if limited entry program developed

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #8 (1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-Established program to limit initial eligibility for snapper grouper fishery: Must demonstrate landings of any species in the snapper grouper (SG) FMU in 1993, 1994, 1995 or 1996; and have held valid SG permit between 02/11/96 and 02/11/97 -Granted transferable permit with unlimited landings if vessel landed ≥ 1,000 pounds (lbs) of snapper grouper species in any of the years -Granted non-transferable permit with 225 lb trip limit to all other vessels -Modified problems, objectives, optimum yield (OY), and overfishing definitions -Expanded Council's habitat responsibility -Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board -Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Regulatory Amendment #7 (1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Interim Rule Request	1/16/98		-Council requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under the Magnuson-Stevens Act
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #9 (1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	-Red porgy: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April -Black sea bass: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots -Greater amberjack: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lbs; began fishing year May 1; prohibited coring -Specified size limits for several snapper grouper species (indicated in parentheses in inches TL): including yellowtail snapper (12), mutton snapper (16), red snapper (20); red grouper, yellowfin grouper, yellowmouth grouper, and scamp (20) -Vermilion snapper: 11" TL (recreational), 12" TL commercial -Gag: 24" TL (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April -Black grouper: 24" TL (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April -Gag and Black grouper: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination) -All snapper grouper without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner -Vessels with longline gear aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish
Amendment #9 (1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack
Emergency Interim Rule	09/08/99, expired 08/28/00	64 FR 48324 and 65 FR 10040	-Prohibited harvest or possession of red porgy
Emergency Action	9/3/99	64 FR 48326	-Reopened the Amendment 8 permit application process
Amendment #10 (1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #11 (1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (MFMT)=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%). Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = F_{MSY}
Regulatory Amendment #8 (2000a)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs
Amendment #12 (2000b)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	-Red porgy: MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); no sale of red porgy during Jan-April; 1 fish bag limit; 50 lb. bycatch comm. trip limit May-December; modified management options and list of possible framework actions
Amendment #13A (2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper spp. within the *Oculina* Experimental Closed Area
Notice of Control Date	10/14/05	70 FR 60058	-The Council is considering management measures to further limit participation or effort in the commercial fishery for snapper grouper species (excluding wreckfish)
Amendment #13C (2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	- End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006. 1. Snowy Grouper Commercial: Quota = 151,000 lbs

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
			gutted weight (gw) in year 1, 118,000 lbs gw in year 2, and 84,000 lbs gw in year 3 onwards. Trip limit = 275 lbs gw in year 1, 175 lbs gw in year 2, and 100 lbs gw in year 3 onwards Recreational: Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit. 2. Golden Tilefish Commercial: Quota of 295,000 lbs gw, 4,000 lbs gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lbs gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1. Recreational: Limit possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit. 3. Vermilion Snapper Commercial: Quota of 1,100,000 lbs gw. Recreational: 12" TL size limit. 4. Black Sea Bass Commercial: Commercial quota of 477,000 lbs gw in year 1, 423,000 lbs gw in year 2, and 309,000 lbs gw in year 3 onwards. Require use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule. Require black sea bass pots be removed from the water when the quota is met. Change fishing year from calendar year to June 1 – May 31. Recreational: Recreational allocation of 633,000 lbs gw in year 1, 560,000 lbs gw in year 2, and 409,000 lbs gw in year 3 onwards. Increase minimum size limit from 10" to 11" in year 1 and to 12" in year 2. Reduce recreational bag limit from 20 to 15 per person per day. Change fishing year from the calendar year to June 1 through May 31. 5. Red Porgy Commercial and recreational: 1. Retain 14" TL size limit and seasonal closure (retention limited to the bag limit); 2. Specify a commercial quota of 127,000 lbs gw and prohibit sale/purchase and prohibit harvest and/or possession beyond the bag limit when quota is taken and/or during January through April; 3. Increase commercial trip limit from 50 lbs ww to 120 red porgy (210 lbs gw) during May through December; 4. Increase recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-The Council may consider measures to limit participation in the snapper grouper for-hire sector
Amendment #14 (2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Establish 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 #15A (2008a)	3/14/08	73 FR 14942	- Establish rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy
Amendment #15B (2008b)	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-Prohibit the sale of bag-limit caught snapper grouper species -Reduce the effects of incidental hooking on sea turtles

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
			and smalltooth sawfish -Adjust commercial renewal periods and transferability requirements -Implement plan to monitor and assess bycatch -Establish reference points for golden tilefish -Establish allocations for snowy grouper (95% com & 5% rec) and red porgy (50% com & 50% rec)
Amendment #16 (SAFMC 2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specify status determination criteria for gag and vermilion snapper -For gag: Specify interim allocations 51% com & 49% rec; rec & com shallow water grouper spawning closure January through April; directed com quota= 352,940 lbs gw; -reduce 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate -For vermilion snapper: Specify interim allocations 68% com & 32% rec; directed com quota split Jan-June=315,523 lbs gw and 302,523 lbs gw July-Dec; reduce bag limit from 10 to 5 and a rec closed season November through March -Require dehooking tools
Amendment #19 (Comprehensive Ecosystem-Based Amendment 1; SAFMC 2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Provide presentation of spatial information for EFH and EFH-HAPC designations under the Snapper Grouper FMP - Designation of deepwater coral HAPCs
Amendment #17A (SAFMC 2010a)	12/3/10 red snapper closure; circle hooks March 3, 2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ -Specify an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL -Specify a rebuilding plan for red snapper -Specify status determination criteria for red snapper -Specify a monitoring program for red snapper
Emergency Rule	12/3/10	75 FR 76890	- Delay the effective date of the area closure for snapper grouper species implemented through Amendment 17A
Amendment #17B (SAFMC 2010b)	January 31, 2011	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing -Modify management measures as needed to limit harvest to the ACL or ACT -Update the framework procedure for specification of total allowable catch -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Notice of Control Date	12/4/08	74 FR 7849	-Establishes a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic
Notice of Control Date	12/4/08	74 FR 7849	-Establishes control date for black sea bass pot sector in the South Atlantic
Regulatory Amendment #10 (SAFMC 2010c)	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminate closed area for snapper grouper species approved in Amendment 17A
Regulatory Amendment #9 (SAFMC 2011a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	- Establish trip limits for vermilion snapper and gag, increase trip limit for greater amberjack, and reduce bag limit for black sea bass
Regulatory Amendment #11 (2011b)	5/10/12	PR: 76 FR 78879 FR: 77 FR 27374	- Eliminate 240 ft harvest prohibition for six deepwater species
Amendment # 25 (Comprehensive ACL Amendment) (SAFMC 2011c)	4/16/12	PR: 76 FR 74757 Amended PR: 76 FR 82264 FR: 77 FR 15916	-Establish acceptable biological catch (ABC) control rules, establish ABCs, annual catch limits (ACLs), and accountability measures (AMs) for species not undergoing overfishing -Remove some species from South Atlantic FMU and designate others as ecosystem component species -Specify allocations between the commercial and, recreational sectors for species not undergoing overfishing -Limit the total mortality for federally managed species in the South Atlantic to the ACLs
Amendment #24 (SAFMC 2011d)	7/11/12	PR: 77 FR 19169 FR: 77 FR 34254	-Specify MSY, rebuilding plan (including ACLs, AMs, and OY), and allocations for red grouper
Amendment #23 (Comprehensive Ecosystem-based Amendment 2; SAFMC 2011e)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	- Designate the Deepwater MPAs as EFH-HAPCs - Limit harvest of snapper grouper species in SC SMZs to the bag limit - Modify sea turtle release gear
Amendment #18A (SAFMC 2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	- Limit participation and effort in the black sea bass sector - Modifications to management of the black sea bass pot sector - Improve the accuracy, timing, and quantity of fisheries statistics
Amendment #20A (SAFMC 2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	-Redistribute latent shares for the wreckfish ITQ program.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Regulatory Amendment #12 (SAFMC 2012c)	10/9/12	FR: 77 FR 61295	-Adjust the ACL and OY for golden tilefish -Consider specifying a commercial Annual Catch Target (ACT) -Revise recreational AMs for golden tilefish
Amendment #18B (SAFMC 2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	-Limit participation and effort in the golden tilefish commercial sector through establishment of a longline endorsement -Modify trip limits -Specify allocations for gear groups (longline and hook and line)
Regulatory Amendment #13 (SAFMC 2013b)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revise the ABCs, ACLs (including sector ACLs), and ACTs implemented by the Comprehensive ACL Amendment (SAFMC 2011c). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered.
Regulatory Amendment #15 (SAFMC 2013c)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modify the existing specification of OY and ACL for yellowtail snapper in the South Atlantic -Modify the existing gag commercial ACL and AM for gag that requires a closure of all other shallow water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) in the South Atlantic when the gag commercial ACL is met or projected to be met
Amendment #28 (SAFMC 2013d)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Establish regulations to allow harvest of red snapper in the South Atlantic
Regulatory Amendment #18 (SAFMC 2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Adjust ACLs for vermilion snapper and red porgy, and remove the 4-month recreational closure for vermilion snapper
Regulatory Amendment #19 (SAFMC 2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Adjust the ACL for black sea bass and implement an annual closure on the use of black sea bass pots from November 1 to April 30
Amendment #27 (SAFMC 2013g)	1/27/14	FR: 78 FR 78770	-Establish the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico -Modify the crew member limit on dual-permitted snapper grouper vessels -Modify the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels -Minimize regulatory delay when adjustments to snapper

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
			grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments -Address harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit
Amendment #20B	TBD	TBD	-Update wreckfish ITQ according to reauthorized Magnuson-Stevens Act
Regulatory Amendment #14 (SAFMC 2014a)	12/8/14	PR: 79 FR 22936 FR: 79 FR 66316	-Modify the fishing year for greater amberjack -Modify the fishing year for black sea bass -Revise the AMs for vermilion snapper and black sea bass -Modify the trip limit for gag
Amendment # 26 (Comprehensive Ecosystem-Based Amendment 3)	TBD	TBD	-Modify bycatch and discard reporting for commercial and for-hire vessels
Regulatory Amendment #16	TBD	TBD	-Consider removal of the November-April prohibition on the use of black sea bass pots
Regulatory Amendment #21 (SAFMC 2014b)	11/6/14	FR: 79 FR 60379	-Change the definition of MSST for species with low natural mortality (red snapper, blueline tilefish, gag, black grouper, yellowtail snapper, vermilion snapper, red porgy, and greater amberjack).
Amendment #36	TBD	TBD	-Establish special management zones to enhance protection for snapper grouper species in spawning condition including speckled hind and warsaw grouper
Amendment #22	TBD	TBD	-Establish a recreational tagging program for snapper grouper species with small ACLs
Amendment #32	TBD	TBD	-Adjust management measures and ACLs for blueline tilefish
Amendment # 29 (SAFMC 2014c)	TBD	TBD	-Update the ABC Control Rule; update ABC/ACL/OY for select unassessed snapper grouper species; and revise commercial and recreational management measures for gray triggerfish.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Regulatory Amendment #20 (SAFMC 2014d)	TBD	TBD	-Adjust management measures and ACLs for snowy grouper
Regulatory Amendment #22	TBD	TBD	-Adjust management measures and ACLs for gag and wreckfish
Amendment #35	TBD	TBD	-Remove four species from the Snapper Grouper FMP and address golden tilefish longline endorsement issue.

References:

SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1987. Regulatory Amendment 1 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1988a. Amendment Number 1 and Environmental Assessment and Regulatory Impact Review to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 63 pp.

SAFMC (South Atlantic Fishery Management Council). 1988b. Regulatory Amendment 2 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1989. Regulatory Amendment 3 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990a. Amendment Number 2, to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990b. Amendment Number 3, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1991. Amendment Number 4, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 200 pp.

SAFMC (South Atlantic Fishery Management Council). 1992a. Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992b. Regulatory Amendment 4 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992c. Regulatory Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1993. Amendment Number 6, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 155 pp.

SAFMC (South Atlantic Fishery Management Council). 1994a. Amendment Number 7, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 110 pp.

SAFMC (South Atlantic Fishery Management Council). 1994b. Regulatory Amendment 6 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1997. Amendment Number 8, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 124 pp.

SAFMC (South Atlantic Fishery Management Council). 1998a. Regulatory Amendment 7 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998b. Amendment 9, Final Supplemental Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 246 pp.

SAFMC (South Atlantic Fishery Management Council). 1998c. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (Amendment 10 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998d. Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region (Amendment 11 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 151 pp.

SAFMC (South Atlantic Fishery Management Council). 2000a. Regulatory Amendment 8 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2000b. Amendment Number 12, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2003. Amendment Number 13A, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C, Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.

SAFMC (South Atlantic Fishery Management Council). 2007. Amendment 14, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008a. Amendment 15A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management

Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008b. Amendment 15B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009a. Amendment 16, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Comprehensive Ecosystem Based Amendment 1, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for South Atlantic Region (Amendment 19 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 286 pp.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010c. Regulatory Amendment 10, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011a. Regulatory Amendment 9, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011c. Regulatory Amendment 11, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011c. Comprehensive Annual Catch Limit (ACL) Amendment (Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011d. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011e. Comprehensive Ecosystem Based Amendment 2, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. (Amendment 23 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012a. Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012b. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012c. Regulatory Amendment 12, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013a. Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013b. Regulatory Amendment 13 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013c. Regulatory Amendment 15 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013d. Amendment 28 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013e. Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013f. Regulatory Amendment 19 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013g. Amendment 27 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014a. Regulatory Amendment 14 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014b. Regulatory Amendment 21 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014c. Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014d. Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

Appendix E. Blueline Tilefish Interpolated Projections

At their April 2014 meeting, the South Atlantic SSC reviewed landings projections for blueline tilefish from SEDAR 32. They were presented with projections using 2013 general recreational landings provided from the Science Center and 2013 landings that were an imputed average of landings from 2010 and 2012 (**Tables 1-2**). This was due to the fact that the landings in 2013 were an order of magnitude higher in 2013 than they were in previous recent years. Also, the landings of blueline tilefish are typically driven by landings north of Cape Hatteras, NC. However, the spike in recreational landings in 2013 is driven by landings in FL. These factors indicate there may be an issue with the 2013 landings provided by the Science Center, so the imputed average of 2010 and 2012 was used for comparison.

After much deliberation, the SSC decided to use the landings estimate for the general recreational fleet generated by MRIP in the projections for ABC and OFL (**Tables 1-2**). It was determined that the trend line of the new projections would fall between the two projections already available since all other landings and discards would remain constant, and since the MRIP landings are intermediary between the Science Center estimate and the imputed average. In the essence of time, and since all other data is unchanged, it was decided to simply interpolate the new projections using the new level of landings from MRIP and the already available projections presented to the SSC during the April 2014 meeting. The methodology for this interpolation is described below.

Methodology for Interpolation of Projections

Originally, the interpolation was to be kept simple and the mean or median value between the projections using the Science Center provided landings and the imputed average was going to be used as the interpolated projections. However, we had an estimate of landings from MRIP in 2013, which could help scale the interpolated projections within the space between the Science Center projections and the imputed average projections. Therefore, it was decided to use this piece of information that was available to give a more informative interpolation of the projected landings.

The first approach was to take the percentage that the MRIP landings are of the Science Center landings and then carry that through the projections. So I first determined the percentage that the MRIP landings were of the Science Center landings (~79%). Then, when interpolating the projections, I made the MRIP projections ~121% of the Center projections. This is because lower initial landings in 2013 lead to higher projected landings during the projection period. However, this caused the trend in the interpolated projections to change from the trend in both the Science Center and the imputed average projections (**Figure 1**).

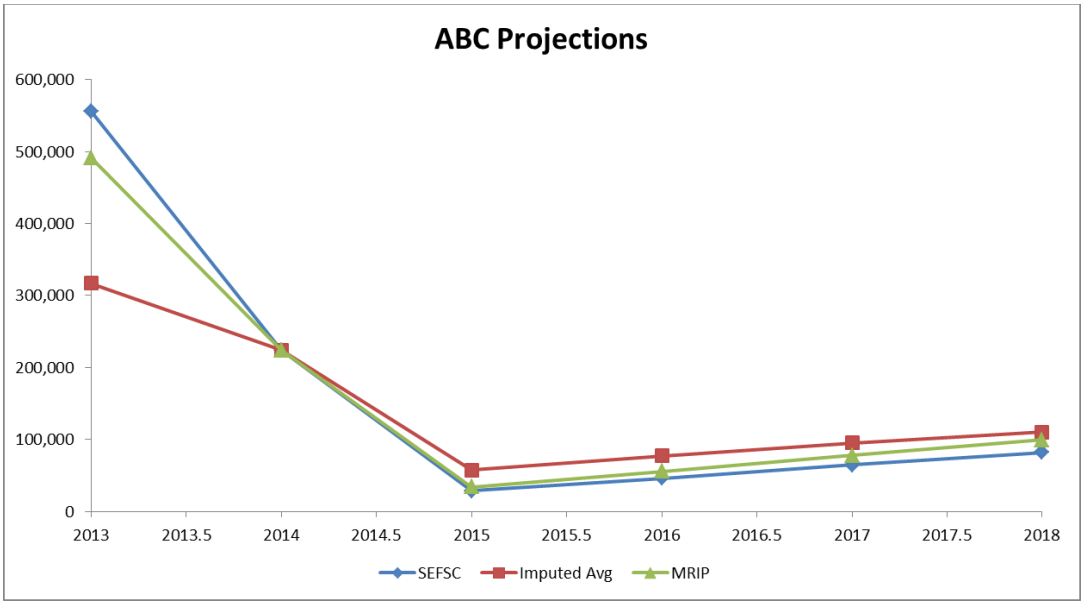
In order to remedy this issue, I decided to hold the percent difference between the MRIP landings and the Center landings, as a percentage of the difference between the Center landings and the imputed average, constant through the projections. This preserved the trend in the projection line, causing it to follow the same trend in the Center projection and the imputed average projection (**Figure 2**). **Tables 1** and **2** have the landings used for projections in 2013 and 2014, and the projected values for landings and discards from 2015-2018 in both lbs. whole weight and numbers of fish.

Table 1. Projections for the ABC at P*=0.3. 2013 and 2014 were input landings and 2015-2018 are projection years. SEFSC are the projections using the general recreational landings estimates provided from the Southeast Fisheries Science Center, Imputed Avg are the projections using the imputed average general recreational landings from 2010 and 2012, and MRIP are the projections using general recreational landings estimates from the MRIP website. The SSC's recommendation for ABC are the MRIP values.

ABC Landings lb ww				ABC Discards lb ww			ABC Landings num fish			ABC Discards num fish		
Year	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP
2013	556,018	317,116	491,642	8,277	8,277	8,277						
2014	224,100	224,100	224,100									
2015	28,546	57,541	36,359	31	62	39	6,355	11,474	7,734	7	12	8
2016	46,238	77,075	54,548	50	83	59	9,530	14,698	10,923	10	16	12
2017	64,768	95,051	72,928	70	102	79	12,593	17,419	13,893	14	19	15
2018	82,189	110,317	89,769	89	119	97	15,249	19,576	16,415	16	21	17

Table 2. Projections for the OFL at P*=0.5. 2013 and 2014 were input landings and 2015-2018 are projection years. SEFSC are the projections using the general recreational landings estimates provided from the Southeast Fisheries Science Center, Imputed Avg are the projections using the imputed average general recreational landings from 2010 and 2012, and MRIP are the projections using general recreational landings estimates from the MRIP website. The SSC's recommendation for OFL are the MRIP values.

OFL Landings lb ww				OFL Discards lb ww			OFL Landings num fish			OFL Discards num fish		
Year	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP	SEFSC	Imputed Avg	MRIP
2013	556,018	317,116	491,642	8,277	8,277	8,277						
2014	224,100	224,100	224,100								18	
2015	44,271	82,648	54,612	48	89	59	9,885	16,549	11,681	11	22	13
2016	67,118	104,862	77,289	73	113	84	13,943	20,189	15,626	15		17
2017	89,598	124,378	98,970	97	134	107	17,627	23,161	19,118	19	25	21
2018	109,542	140,423	117,863	118	152	127	20,642	25,414	21,928	22	27	23



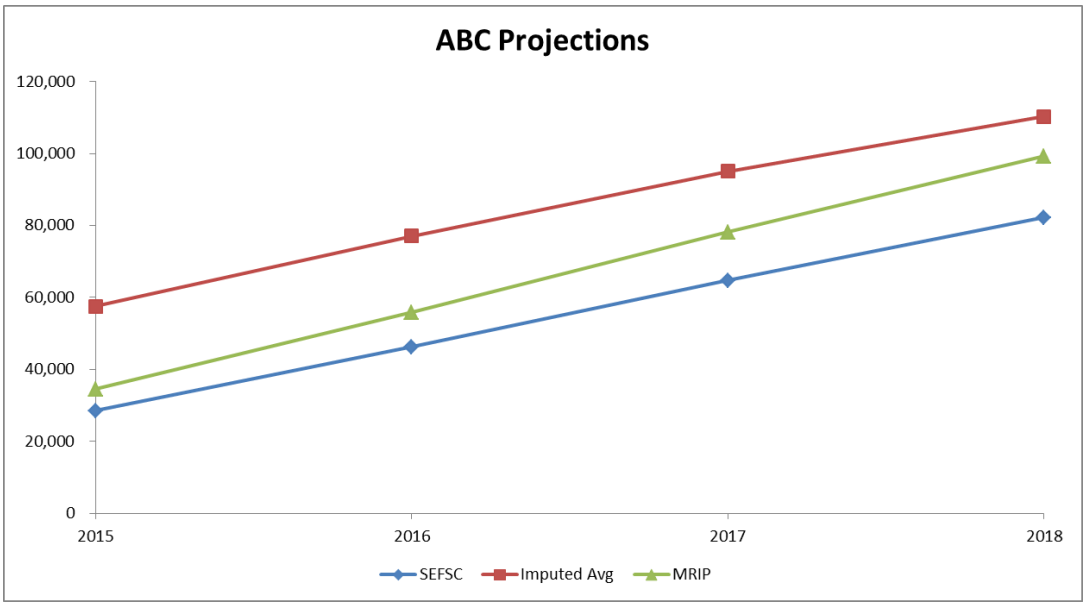


Figure 1. Blueline tilefish landings projections for the ABC. SEFSC are the projections using the general recreational landings estimates provided from the Southeast Fisheries Science Center, Imputed Avg are the projections using the imputed average general recreational landings from 2010 and 2012, and MRIP are the projections using general recreational landings estimates from the MRIP website. Methodology for interpolation holds the MRIP line at a constant percentage of the SEFSC line based on the percentage the MRIP landings are of the SEFSC landings (~121%). The lower panel is a close-up of the projection years, showing that the MRIP line does not have the same trend as the other two projections.

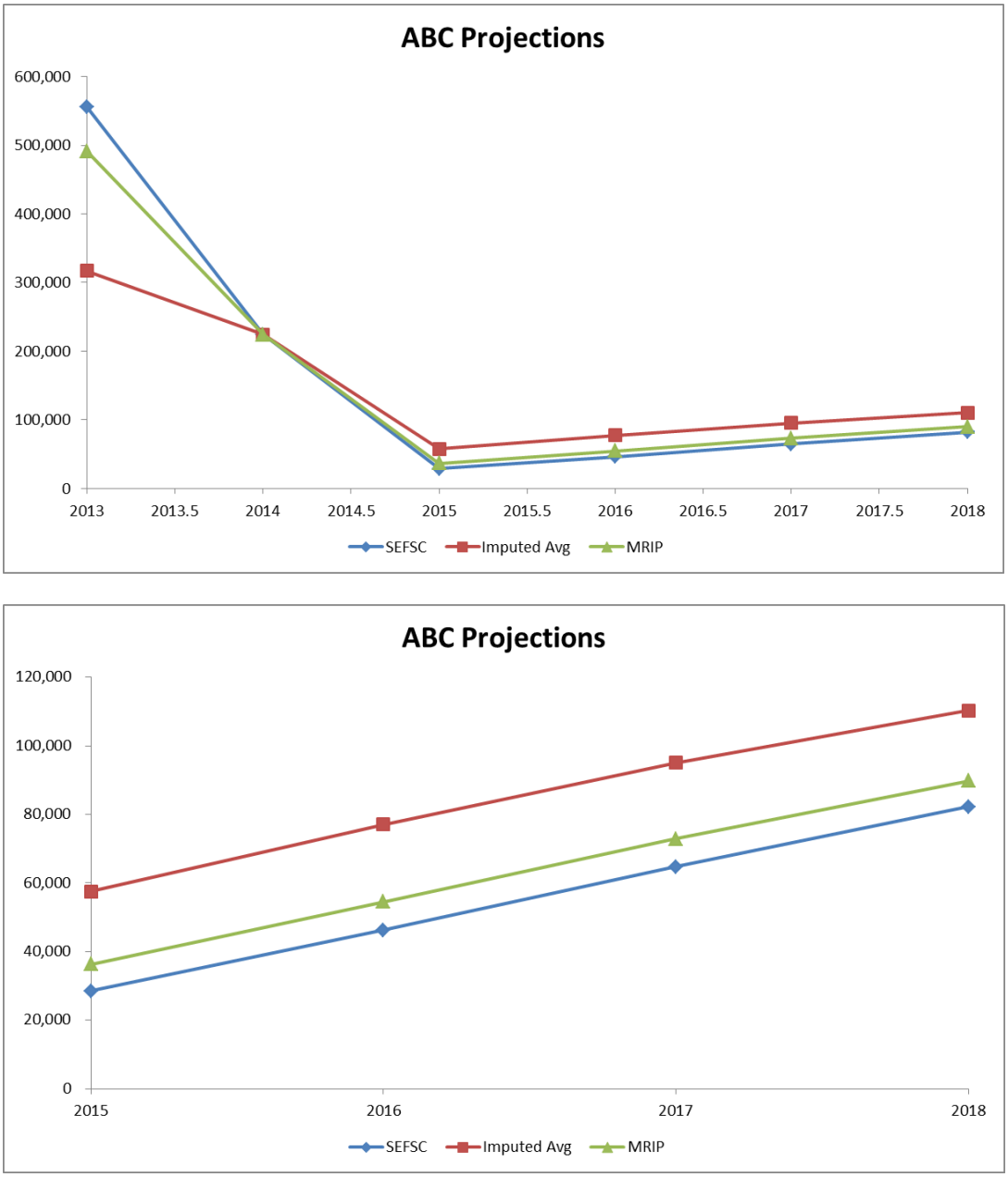


Figure 2. Blueline tilefish landings projections for the ABC. SEFSC are the projections using the general recreational landings estimates provided from the Southeast Fisheries Science Center, Imputed Avg are the projections using the imputed average general recreational landings from 2010 and 2012, and MRIP are the projections using general recreational landings estimates from the MRIP website. Methodology for interpolation holds the difference between the MRIP line and the SEFSC line as a percent of the difference between the SEFSC line and the Imputed Avg line constant over the projections (~27%). The lower panel is a close-up of the projection years, showing that the MRIP line does have the same trend as the other two projections using this methodology.

Appendix F. Bycatch Practicability Analysis

1.1 Population Effects for the Bycatch Species

Background

The South Atlantic Fishery Management Council (Council) and National Marine Fisheries Service (NMFS) are proposing changes to the blueline tilefish and Deepwater Complex regulations by means of Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 32). These changes include implementing annual catch limits (ACL) and accountability measures (AM) for blueline tilefish and revising ACLs and AMs for the Deepwater Complex.

A stock assessment completed in October 2013 determined that the blueline tilefish stock in the South Atlantic is experiencing overfishing and is overfished. NMFS notified the South Atlantic Fishery Management Council (Council) of the stock status in a letter dated December 6, 2013. As mandated by Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), NMFS and the Council must prepare and implement a plan amendment and regulations to rebuild the stock and end overfishing immediately by December 6, 2015. Following the Scientific and Statistical Committee (SSC)'s recommendation, the Council also initiated development of Regulatory Amendment 21 (SAFMC 2014b) to change the definition of the Minimum Stock Size Threshold (MSST) for snapper grouper species with low natural mortality (red snapper, blueline tilefish, gag, black grouper, yellowtail snapper, vermilion snapper, red porgy, and greater amberjack). The Council determined that re-defining MSST for these species would help to prevent unnecessary overfished designations when small drops in biomass are due to natural variation in recruitment or other environmental variables, and ensure that rebuilding plans are applied to stocks when truly appropriate. Regulatory Amendment 21 was effective on November 6, 2014.

At their December 2013 meeting, the Council initiated the development of Amendment 32 to end overfishing and rebuild the blueline tilefish stock. At that same meeting, the Council determined that reducing overfishing of the stock while Amendment 32 is being developed was in the best interest of the fish stock and fishermen. As such, the Council requested emergency action to reduce overfishing of blueline tilefish in a December 10, 2013, letter addressed to the NMFS.

The emergency rule temporarily removed blueline tilefish from the Deepwater Complex. When the temporary rule expires, the Deepwater Complex will contain blueline tilefish along with yellowedge grouper, silk snapper, misty grouper, queen snapper, sand tilefish, black snapper, and blackfin snapper. In Amendment 32, the Council is considering alternatives to separate blueline tilefish from the complex when the temporary rule expires, and specify ACLs and AMs for the blueline tilefish and the Deepwater Complex.

1.2 Finfish Bycatch Mortality

Release mortality rates are unknown for most managed species. Recent Southeast Data, Assessment, and Review (SEDAR) assessments include estimates of release mortality rates based on published studies. Stock assessment reports can be found at http://www.sefsc.noaa.gov/sedar/.

SEDAR 32 (2013) estimates release mortality rates of 100% for blueline tilefish. SEDAR 17 (2008) recommended a release mortality rate for vermilion snapper of 41% for the commercial sector and 38% for the recreational sector. The recent stock assessment for yellowtail snapper chose a rate of 10% release mortality as an approximation for the lower bound on release mortality for yellowtail snapper (FWRI 2012). SEDAR 10 (2006) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. SEDAR 24 (2010) used release mortality rates of 48% commercial; 41% for-hire, and 39% private recreational for red snapper. Commercial and recreational release mortality rates were estimated as 20% for black grouper and red grouper in SEDAR 19 (2010). SEDAR 15 (2008) estimated a 20% release mortality rate for greater amberjack. SEDAR 32, which is under development, assumes a 12.5% release mortality rate for gray triggerfish. Snowy grouper are primarily caught in water deeper than 300 feet and golden tilefish are taken at depths greater than 540 feet; therefore, release mortality of the species are probably near 100% (SEDAR 4 2004, SEDAR 25 2011). Release mortality of black sea bass is considered to be low (7% for the recreational sector and 1% for the commercial sector) (SEDAR 25; 2011) indicating minimum size limits are probably an effective management tool for black sea bass. Commercial sector discard mortality for red porgy is 35%, and 8% for the recreational sector (SEDAR Update 2012). SEDAR 32 (2013), estimates discard mortality for blueline tilefish is 100%, consistent with other deep-water species (i.e., snowy grouper, and golden tilefish); however, if new management is implemented to reduce the discard mortality rate, it might be appropriate for population projections to consider something lower than 100% (SEDAR 32 2013).

1.3 Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Expected Impacts on Bycatch for the Proposed Action

The Council and NMFS are proposing the implementation of ACLs and AMs for blueline tilefish and a revision to the ACLs and AMs for the Deepwater Complex. For the commercial and recreational sectors, there would be an in-season prohibition in harvest if the ACL for a sector is met or is projected to be met. For the commercial sector, if the total ACL is exceeded and the stock is overfished, the ACL the following year would be reduced by the overage. For the recreational sector, if the total ACL is exceeded and the stock is overfished, the length of fishing season and the recreational ACL in the following fishing year would be reduced by the amount of the recreational overage.

These actions may increase the level of bycatch if harvest of blueline tilefish or the Deepwater Complex is prohibited in-season and if regulations force fishermen to return fish to the water. In addition, if NMFS implements separate blueline tilefish and Deepwater Complex ACLs and AMs, bycatch would increase if one ACL is closed and another open and fishermen are forced to discard fish. However, any increase in bycatch of blueline tilefish or other species in the Deepwater Complex is not expected to be substantial for several reasons. First, in 2012, blueline tilefish represented 96% of the landings in the Deepwater Complex; therefore, fishing effort towards the other species in the complex would likely be greatly reduced if blueline tilefish is prohibited because the other species in the complex are likely not targeted. Second, commercial fishermen may still retain the recreational bag limit if the commercial sector is closed and the recreational sector is open; the ability to retain the fish, even at low levels, would reduce the adverse effects of bycatch if the recreational sector is still open. Finally, blueline tilefish is largely caught separately from other deepwater species such as snowy grouper; therefore, incidental catch of blueline tilefish is not expected.

The low association between blueline tilefish and other deepwater species, including snowy grouper, may be attributable to the unique habitat preferences of deepwater species compared to blueline tilefish. For example, blueline tilefish inhabit irregular bottoms comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom where they live in burrows (Parker and Ross 1986; Parker and Mays 1998); whereas, snowy grouper inhabit the upper continental slope, between depths of 240 and 330 feet, in habitats characterized by rocky ledges and swift currents (Matheson and Huntsman 1984) (from NMFS-SERO 2011). A study completed in North Carolina, which monitored fishing trips that targeted blueline tilefish with longline gear, supports the low association between the harvest of blueline tilefish and other deepwater species. In all the trips monitored (100 trips), anglers did not catch any speckled hind, warsaw grouper, misty grouper, queen snapper, silk snapper, or yellowedge grouper (NC DMF 2011) and less than 400 pounds whole weight of snowy grouper were caught. In conclusion, if the proposed actions in Amendment 32 are implemented, adverse effects from an increase in bycatch are not likely to be substantial.

Past, Current, and Future Actions to Prevent Bycatch and Improve Monitoring of Harvest, Discards, and Discard Mortality.

The Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2; SAFMC 2011a) included actions that removed harvest of octocorals off Florida from the Coral, Coral Reefs, and Live/Hard Bottom Habitat Fishery Management Plan (Coral FMP); set the octocoral ACL for Georgia, South Carolina, and North Carolina equal to 0; modified management of special management zones (SMZs) off South Carolina; revised sea turtle release gear requirements for the snapper grouper fishery that were established in Amendment 15B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2008); and designated new essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern in the South Atlantic. There is no bycatch associated with octocoral harvest within the management area of the Coral FMP since harvest is prohibited. CE-BA 2 also included an action that limited harvest and possession of snapper grouper and coastal migratory

pelagics (CMP) species to the bag limit in SMZs off South Carolina. This action could reduce bycatch of regulatory discards around SMZs by restricting commercial harvest in the area, but it would probably have very little effect on the magnitude of overall bycatch of snapper grouper species in the South Atlantic.

Other actions have been taken in recently implemented amendments that could reduce bycatch of and bycatch mortality of federally-managed species in the South Atlantic. Amendment 13C to Snapper Grouper FMP (SAFMC 2006) required the use of 2 inch mesh in the back panel of black sea bass pots, which has likely reduced the magnitude of regulatory discards. Amendment 16 to the Snapper Grouper FMP (SAFMC 2009) required the use of dehooking devices, which could help reduce bycatch mortality of vermilion snapper, black sea bass, gag, red grouper, black grouper, and red snapper. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly from snapper grouper species without removing the fish from the water. If a fish does need to be removed from the water, dehookers could still reduce handling time in removing hooks, thus increasing survival (Cooke et al. 2001). Furthermore, Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) required circle hooks for snapper grouper species north of 28 degrees latitude, which is expected to reduce bycatch mortality of snapper grouper species. Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) established ACLs and AMs and address overfishing for eight species in the snapper grouper management complex: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, black grouper, and vermilion snapper. Overfishing is no longer occurring for golden tilefish, black sea bass, snowy grouper, red grouper, black grouper, and vermilion snapper.

The Comprehensive ACL Amendment (SAFMC 2011b) implemented ACLs and AMs for species not undergoing overfishing in the Fishery Management Plans for snapper grouper, dolphin and wahoo, golden crab and *Sargassum*, in addition to other actions such as allocations and establishing annual catch targets for the recreational sector. The Comprehensive ACL Amendment (SAFMC 2011b) also established additional measures to reduce bycatch in the snapper grouper fishery with the establishment of species complexes based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. ACLs were assigned to these species complexes, and when the ACL for the complex is met or projected to be met, fishing for species included in the entire species complex is prohibited for the fishing year. ACLs and AMs will likely reduce bycatch of target species and species complexes as well as incidentally caught species.

Amendment 18A to the Snapper Grouper FMP (SAFMC 2012a), included actions that could reduce bycatch of black sea bass and the potential for interactions with protected species. Actions in Amendment 18A limited the number of participants in the black sea bass pot sector, required fishermen bring pots back to port at the completion of a trip, and limited the number of pots a fishermen can deploy. Amendment 24 to the Snapper Grouper FMP (SAFMC 2011c) established a rebuilding plan for red grouper, which was overfished and undergoing overfishing. Red grouper is no longer undergoing overfishing or overfished. Amendment 24 (SAFMC 2011c) also established ACLs and AMs for red grouper, which could help to reduce bycatch of red grouper and co-occurring species.

The final rule (78 FR 23858; April 23, 2013) for Amendment 18B to the Snapper Grouper FMP (SAFMC 2012b), established an endorsement program for the commercial golden tilefish longline sector, which could have positive effects for habitat and protected species. Regulatory Amendment 14 to the Snapper Grouper FMP, which has been approved by the Council, includes actions that could adjust management measures for a number of snapper grouper species, some of which could reduce the magnitude of discards. The final rule (78 FR 49183; September 12, 2013) for Regulatory Amendment 15 to the Snapper Grouper FMP included actions for yellowtail snapper and gag that are expected to reduce bycatch of snapper grouper species. Amendment 36 to the Snapper Grouper FMP, which is under development, includes actions to establish Spawning Special Management Zones, and could reduce bycatch of many snapper grouper species, especially speckled hind and warsaw grouper.

The Council's For-Hire Reporting Amendment, which went into effect on January 27, 2014, has changed the reporting frequency for landings by headboats from monthly to weekly, and requires that reports be submitted electronically. The action is expected to provide more timely information on landings and discards. Improved information on landings would help ensure ACLs are not exceeded. Furthermore, more timely and accurate information would be expected to provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

The Council will develop a joint amendment with the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) to require that all federally-permitted charter vessels reporting landings information to the Southeast Fisheries Science Center (SEFSC) electronically. Additionally, the Gulf of Mexico and Councils will also begin development of a joint amendment to require that all federally-permitted commercial fishing vessels in the southeast also report their logbook landings information electronically. These future actions will help to improve estimates on the composition and magnitude of catch and bycatch of snapper grouper species, as well as all other federally-managed species in the southeast region.

Based on the outcome of the new 2013 SEDAR stock assessment for blueline tilefish, and the subsequent determination that the stock is undergoing overfishing, the Council requested an emergency rule to remove blueline tilefish from the Deepwater Complex and modify the commercial and recreational ACLs consistent with the equilibrium yield at $75\%F_{MSY}$. Additionally, long-term management measures to end overfishing and rebuild blueline tilefish are being developed in Amendment 32. These actions may reduce harvest of blueline tilefish and; therefore, may reduce bycatch of non-target species most often harvested with blueline tilefish. As stated previously (See **Section 1.1**), implementation of Regulatory Amendment 21 (effective 11/6/14) has changed the definition of MSST for snapper grouper species with low natural mortality, including blueline tilefish. Under the new definition, the South Atlantic stock of blueline tilefish is not considered overfished.

Additional information on fishery related actions from the past, present, and future considerations can be found in **Chapter 6** (Cumulative effects) of the environmental assessment.

1.4 Ecological Effects Due to Changes in the Bycatch

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level. As mentioned in the above section, actions have been taken, and are underway to reduce bycatch and enhance data reporting for snapper grouper species. Better bycatch and discard data would provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures to reduce bycatch. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

Fishery managers are proposing the implementation of ACLs for blueline tilefish and a revision to the ACLs for the Deepwater Complex to reflect the removal of blueline tilefish. The Council and NMFS are also proposing the implementation of commercial and recreational AMs that would prohibit retention when the ACLs are reached or projected to be reached. For the commercial sector, if the total ACL is exceeded and the stock is overfished, the ACL the following year would be reduced by the overage. For the recreational sector, if the total ACL is exceeded and the stock is overfished, the length of fishing season and the recreational ACL in the following fishing year would be reduced by the amount of the recreational overage.

These actions may increase the level of bycatch if harvest of blueline tilefish or the deepwater species is prohibited in-season and if commercial trip limits and recreational bag limits force fishermen to return fish to the water. In addition, if fishery managers implement separate blueline tilefish and Deepwater Complex ACLs and AMs, bycatch would increase if one ACL is closed and another open and fishermen are forced to discard fish. However, any increase in bycatch of blueline tilefish or other species in the deepwater complex is not expected to be substantial for several reasons. First, in 2012, blueline tilefish represented 96% of the landings in the Deepwater Complex; therefore, fishing effort towards the other species in the complex would likely be greatly reduced if blueline tilefish is prohibited because the other species in the complex are likely not targeted. Second, commercial fishermen may still retain the recreational bag limit if the commercial sector is closed and the recreational sector is open. The ability to retain the fish, even at low levels, would reduce the adverse effects of bycatch if the recreational sector is still open. Finally, blueline tilefish is largely caught separately from other deepwater species such as snowy grouper; therefore, incidental catch of blueline tilefish is not expected.

The low association between blueline tilefish and other deepwater species, including snowy grouper, may be attributable to the unique habitat preferences of deep-water species compared to blueline tilefish. For example, blueline tilefish inhabit irregular bottoms comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom where they live in burrows

(Parker and Ross 1986; Parker and Mays 1998), whereas snowy grouper inhabit the upper continental slope, between 240 and 330 ft of depth, in habitats characterized by rocky ledges and swift currents (Matheson and Huntsman 1984) (from NMFS-SERO 2011). A study completed in North Carolina, which monitored fishing trips that targeted blueline tilefish with longline gear, supports the low association between the harvest of blueline tilefish and other deepwater species. In all the trips monitored (100 trips), anglers did not catch any speckled hind, warsaw grouper, misty grouper, queen snapper, silk snapper, or yellowedge grouper (NC DMF 2013) and less than 400 pounds whole weight of snowy grouper were caught. In conclusion, if the proposed actions in Amendment 32 are implemented, adverse effects from an increase in bycatch are not likely to be substantial.

1.5 Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

The proposed actions are not expected to result in major changes in bycatch of other fish species. The discard mortality rates of various snapper grouper species are discussed in **Section 1.2** of this bycatch practicability analysis. The Council and NMFS are proposing to remove blueline tilefish from the Deepwater Complex, implement ACLs and AMs for blueline tilefish, and revise ACLs and AMs for the Deepwater Complex. The proposed commercial and recreational AMs would prohibit harvest when the ACLs are met or projected to be met. For the commercial sector, if the total ACL is exceeded and the stock is overfished, the ACL the following year would be reduced by the overage. For the recreational sector, if the total ACL is exceeded and the stock is overfished, the length of fishing season and the recreational ACL in the following fishing year would be reduced by the amount of the recreational overage. As previously explained, these proposed actions alternatives would not be expected to have significant changes in bycatch of other fish species and result in population and ecosystem effects.

1.6 Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. Of the gear utilized within the snapper grouper fishery, only the black sea bass pot is considered to pose an entanglement risk to marine mammals. The southeast U.S. Atlantic black sea bass pot sector is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2014 LOF classifies as a Category II (79 FR 14418, March 14, 2014). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the South Atlantic snapper grouper fishery, the best available data on protected species interactions are from the SEFSC Supplementary Discard Data Program (SDDP) initiated in July of 2000. The SDDP sub-samples 20% of the vessels with an active permit. Since August 2001, only three interactions with marine mammals have been documented; each was taken by handline gear and each released alive (McCarthy SEFSC

database). The longline and hook-and-line gear components of the snapper grouper in the South Atlantic are classified in the 2014 LOF as Category III fisheries.

Although the black sea bass pot sector can pose an entanglement risk to large whales due to their distribution and occurrence, sperm, fin, sei, and blue whales are unlikely to overlap with the black sea bass pot sector operated within the snapper grouper fishery since it is executed primarily off North Carolina and South Carolina in waters ranging from 70-120 feet deep (21.3-36.6 meters). There are no known interactions between the black sea bass pot sector and large whales. NMFS' biological opinion on the continued operation of the South Atlantic snapper grouper fishery determined the possible adverse effects resulting from the fishery are extremely unlikely. Thus, the continued operation of the snapper grouper fishery in the southeast U.S. Atlantic exclusive economic zone is not likely to adversely affect sperm, fin, sei, and blue whales (NMFS 2006).

North Atlantic right and humpback whales may overlap both spatially and temporally with the black sea bass pot sector. 2007 Revisions to the Atlantic Large Whale Take Reduction Plan folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 193; October 5, 2007). The new requirements (78 FR 58249; September 23, 2013) to prohibit the use of black sea bass pots during November through April each year will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear.

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished US Fish and Wildlife Service data). Interaction with fisheries has not been reported as a concern for either of these species.

Fishing effort reductions have the potential to reduce the amount of interactions between the fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the snapper grouper fishery. Thus, it is believed that the snapper grouper fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

1.7 Changes in Fishing, Processing, Disposal, and Marketing Costs

Fishery managers are proposing the implementation of ACLs for blueline tilefish and a revision to the ACLs for the Deepwater Complex to reflect the removal of blueline tilefish. The Council and NMFS are also proposing the implementation of commercial and recreational AMs that would prohibit retention when the ACLs are reached or projected to be reached. For the commercial sector, if the total ACL is exceeded and the stock is overfished, the ACL the following year would be reduced by the overage. For the recreational sector, if the total ACL is

exceeded and the stock is overfished, the length of fishing season and the recreational ACL in the following fishing year would be reduced by the amount of the recreational overage. The Council is also proposing the implementation of commercial trip limits and recreational bag limits for blueline tilefish.

These proposed actions are not expected to significantly alter fishing practices, processing, disposal, or marketing costs in the short term. In the long-term, it is more likely that current fishing, processing, disposal, and marketing costs would be maintained at their status quo levels, since the proposed actions may reduce the instances where blueline tilefish is determined to be overfished. When an overfished determination is made, the Magnuson-Stevens Act requires that a rebuilding plan be implemented within two years of the determination. Rebuilding plans are often associated with reduced harvest levels, and more stringent management measures that could affect fishing, processing, disposal, and marketing costs. The action in this amendment may help to avert such effects on those key elements of the snapper grouper fishery.

1.8 Changes in Fishing Practices and Behavior of Fishermen

In 2012, blueline tilefish represented 96% of the landings in the Deepwater Complex; therefore, fishing effort towards the other species in the deep-water complex would likely be greatly reduced if blueline tilefish is prohibited as the other species are likely not targeted.

Social effects of the proposed actions are addressed in **Chapter 4** of the amendment.

1.9 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

Research and monitoring is ongoing to understand the effectiveness of proposed management measure and their effect on bycatch. In 1990, the SEFSC initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. In 1999, logbook reporting was initiated for vessels catching king and Spanish mackerel (Gulf of Mexico and South Atlantic Fishery Management Councils). Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and CMP fisheries are asked to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on individuals that dominate landings. Recreational discards are obtained from the MRIP and logbooks from the NMFS headboat program.

Additional data collection activities for the recreational sector of the snapper grouper, dolphin wahoo, and CMP fisheries are being considered by the Council that could allow for a better monitoring of bycatch in the future. The Council is also developing an amendment to improve commercial logbook reporting for these fisheries. Some observer information for the snapper grouper fishery has been provided by the SEFSC, Marine Fisheries Initiative, and Cooperative Research Programs (CRP), but more is desired for the snapper grouper, dolphin wahoo, and CMP fisheries. Currently, for the snapper grouper fishery, headboats are required to carry observers, if selected.

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on the snapper grouper fishery in the South Atlantic. For example, Harris and Stephen (2005) characterized the entire (retained and discarded) catch of reef fishes from a selected commercial fisherman in the South Atlantic including total catch composition and disposition of fishes that were released. The Gulf and South Atlantic Fisheries Foundation, Inc. (Foundation) conducted a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors they randomly placed observers on cooperating vessels to collect a variety of data quantifying the participation, gear, effort, catch, and discards within the fishery.

In the spring 2010, Archipelago Marine Research Ltd. worked with North Carolina Sea Grant and several South Atlantic Unlimited Snapper Grouper Permit holders to test the effectiveness of electronic video monitoring to measure catch and bycatch. A total of 93 trips were monitored with video monitoring, 34 by self-reported fishing logbooks, and 5 by observers. Comparisons between electronic video monitoring data and observer data showed that video monitoring was a reliable source of catch and bycatch data.

Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Foundation, Marine Fisheries Initiative, Saltonstall-Kennedy program, and the CRP. Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NMFS upon completion of a study.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal strandings throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass strandings and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS Southeast Regional Office issues public announcements, Southeast Fishery Bulletins, or News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed out to various organizations, government entities, commercial interests and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional

fishery management councils. Announcements and news released are also available on the internet and broadcasted over NOAA weather radio.

NMFS established the South East Fishery-Independent Survey in 2010 to strengthen fishery-independent sampling efforts in southeast U.S. waters, addressing both immediate and long-term fishery-independent data needs, with an overarching goal of improving fishery-independent data utility for stock assessments. Meeting these data needs is critical to improving scientific advice to the management process, ensuring overfishing does not occur, and successfully rebuilding overfished stocks on schedule.

1.10 Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

Any changes in economic, social, or cultural values from the proposed actions are discussed in **Chapter 4** of the environmental assessment.

1.11 Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from proposed actions in the environmental assessment are discussed in **Chapter 3**. Economic and social effects of the proposed actions are addressed in **Chapter 4** of this document.

1.12 Social Effects

The social effects of all the measures are described in **Chapter 4** of the environmental assessment.

1.13 Conclusion

This section evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality using the ten factors provided at 50 CFR section 600.350(d)(3)(i). In summary, the proposed actions in the environmental assessment are not likely to significantly contribute or detract from the current level of bycatch in the snapper grouper fishery. The Council, NMFS, and the SEFSC have implemented and plan to implement numerous management measures and reporting requirements that have improved, or are likely to improve monitoring efforts of discards and discard mortality. Furthermore, if the proposed measures in Amendment 32 are implemented, adverse effects from an increase in bycatch are not likely to be

substantial. Therefore, no additional action is needed to minimize bycatch or bycatch mortality within the snapper grouper fishery.

References

Alsop, III, F. J. 2001. Smithsonian Handbooks: Birds of North America eastern region. DK Publishing, Inc. New York, NY.

Cooke, S.J., Philipp, D.P., Dunmall, K.M., Schreer, J.F., 2001. The influence of terminal tackle on injury, handling time, and cardiac disturbance of rock bass. N. Am. J. Fish. Manage. 21, 333–342.

FWRI (Fish and Wildlife Research Institute). 2012. The 2012 Stock Assessment Report for Yellowtail Snapper in the South Atlantic and Gulf of Mexico. Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute, 100 Eighth Ave Southeast, St. Petersburg, Florida 33701.

Harris and Stephen 2005. Final Report Characterization of commercial reef fish catch and bycatch off the southeast coast of the United States. CRP Grant No. NA03NMF4540416. 31 pp.

NMFS-SERO (National Marine Fisheries Service-Southeast Regional Office. 2011. Regulatory Amendment 11: Warsaw Grouper and Speckled Hind Catches in the U.S. South Atlantic NOAA Fisheries Service Southeast Regional Office, June 1, 2011 (revised August 23, 2011), SERO-LAPP-2011-06.

NC DMF (North Carolina Division of Marine Fisheries). 2011. Blueline Tilefish Exempted Fishing Permit (EFP) Final Report. 6 pp.

NMFS. 2006. Endangered Species Act section 7 consultation on the continued authorization of snapper-grouper fishing in the U.S. South Atlantic Exclusive Economic Zone (EEZ) as managed under the snapper-grouper fishery management plan (SGFMP) of the South Atlantic Region, including Amendment 13C to the SGFMP . Biological Opinion, June 7.

Parker, R.O., Jr., and S.W. Ross. 1986. Observing reef fishes from submersibles off North Carolina. Northeast Gulf Sci. 8:31-49.

Parker, Jr., R.O. and R.W. Mays. 1998. Southeastern U.S. deepwater reef fish assemblages, habitat characteristics, catches, and life history summaries. NOAA Tech. Report, National Marine Fisheries Service 138.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C, Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.

SAFMC (South Atlantic Fishery Management Council). 2008. Amendment 15B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Biological Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 324 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2009. Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 608 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011a. Comprehensive Ecosystem-Based Amendment 2. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011b. Comprehensive Annual Catch Limit Amendment for the South Atlantic Region with Final Environmental Impact Statement, Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 755 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2011c. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Assessment, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405. 256 pp. plus appendices.

SAFMC (South Atlantic Fishery Management Council). 2012a. Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012b. Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SEDAR 4. 2004. Stock Assessment Report 1. Stock assessment of the deep-water snapper-grouper complex in the South Atlantic. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 10. 2006. Stock assessment of gag in the South Atlantic. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment, and Review) 15. 2008. South Atlantic Red Snapper and Greater Amberjack. Southeast Data, Assessment and Review, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. Available from the SEDAR website: http://www.sefsc.noaa.gov/sedar/

SEDAR (Southeast Data, Assessment, and Review) 17. 2008. South Atlantic Vermilion Snapper. Southeast Data, Assessment and Review, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. Available from the SEDAR website: http://www.sefsc.noaa.gov/sedar/

SEDAR 17 Update Assessment. 2012. Stock Assessment of Vermilion Snapper off the southeastern U.S. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 19. 2010. Stock Assessment Report 1 (South Atlantic and Gulf of Mexico Black Grouper); and Stock Assessment Report 2 (South Atlantic Red Grouper). Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 24. 2010. Stock Assessment Report. South Atlantic Red Snapper. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 25. 2011. Stock Assessment Report. South Atlantic Black Sea Bass. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR Update. 2012. Stock Assessment Update Report. South Atlantic Red Porgy. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

SEDAR 32. 2013. Stock Assessment Report. South Atlantic Blueline Tilefish. Available from the SEDAR website: www.sefsc.noaa.gov/sedar/

Appendix G. Regulatory Impact Review

Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) it provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; (2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and (3) it 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 any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 (E.O. 12866) and whether the approved regulations will have a "significant economic impact on a substantial number of small business entities" in compliance with the Regulatory Flexibility Act of 1980.

Problems and Objectives

The purpose and need, issues, problems, and objectives of the action are presented in **Section 1.4** and are incorporated herein by reference.

Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects of the actions for an existing fishery can be stated in terms of producer and consumer surplus, changes in profits, and employment in the direct and support industries. However, data limitations prevent such a depth of analysis.

Description of the Fishery

A description of the fishery is contained in **Chapter 3** and incorporated here by reference.

Economic Impacts of Management Measures

South Atlantic Snapper Grouper Amendment 32 proposes eight actions that, taken together, revise management of the blueline tilefish stock. Amendment 32 proposes measures to immediately end overfishing of the blueline tilefish stock in the South

Atlantic through a revision of annual catch limits (ACL), management reference points, accountability measures (AM), and management measures that include commercial trip limits and modifications to recreational bag limit. The most recent stock assessment is the basis for the changes. The health of the blueline tilefish stock in the South Atlantic was assessed in 2013. The results of the assessment indicate that the blueline tilefish stock in the South Atlantic is experiencing overfishing.

The baseline used for the analysis in this amendment is a situation where blueline tilefish has been temporarily removed from the Deepwater Complex. The temporary rule, implemented on April 17, 2014, would expire 180 days from that date. However, an extension will maintain the temporary regulations in place until April 2015. The baseline also assumes that Snapper Grouper Amendment 29 is implemented. The actions in Amendment 29 would change the acceptable biological catch (ABC) for silk snapper and yellowedge grouper, which are contained within the Deepwater Complex.

The following is an explanation of economic effects of the various proposed alternatives for each of the actions with a discussion of the costs and benefits to society. Due to lack of data for quantitative analysis, in some cases, much of the discussion is based upon qualitative analysis.

Action 1. Revise the Composition of the Deepwater Complex and Adjust the Deepwater Complex Annual Catch Limits, Optimum Yield, and Annual Catch Targets

The following table shows the total ACL, commercial ACL, recreational ACL and ACT for the Deepwater Complex under each of the proposed alternatives. **Alternatives 2 (Preferred)-5** propose removal of blueline tilefish from the Deepwater Complex. Therefore, the values in this table reflect that removal with decreased ACLs and Recreational ACT.

Alternative	Deepwater Complex ACL, OY, and Recreational ACT (lbs whole weight)			
	Total ACL	**Commercial ACL**	**Recreational ACL**	**Recreational ACT**
Alternative 1 (no action) --Current: Temporary rule --When temporary rule expires --If Amendment 29 implemented	 79,684 711,025 801,619	 60,371 376,469 447,732	 19,313 334,556 353,887	 197,100[1] 197,100 200,577
Alternative 2 (Preferred) (ACL=OY=ABC)	**170,278**	**131,634**	**38,644**	**13,134**
Alternative 3 (ACL=OY=95%ABC)	161,764	125,052	36,712	12,477
Alternative 4 (ACL=OY=90%ABC)	153,250	118,471	34,780	11,821
Alternative 5 (ACL=OY=80%ABC)	136,222	105,307	30,915	10,507

Note: The Deepwater Complex recreational annual catch targets were not temporarily changed through the emergency rule.

In 2013, the recreational catch was predicted to exceed the recreational ACL (using preliminary data). Since there is no in-season recreational AM in place to close the season when recreational landings for the Deepwater Complex reach or are projected to reach the recreational ACL, 2013 annual landings for this sector could have exceeded the ACL. A similar occurrence could continue for future years. **Alternative 1 (No Action)** would allow recreational landings of the Deepwater Complex to exceed the recreational ACLs specified in **Alternatives 2 (Preferred)-5**, which could reduce future recreational landings and associated long-term economic benefits.

Blueline tilefish is the most harvested species within the Deepwater Complex in recent years and the commercial ACL was exceeded in 2012. A recent stock assessment indicates current harvest is at unsustainable levels. **Alternative 1 (No Action)** would not remove blueline tilefish from the Deepwater Complex after the temporary rule expires, which would allow for high landings of the species to continue and, in the long run, there would be diminished commercial landings of blueline tilefish and thus diminished economic benefits.

Commercial sector

Under **Alternative 2 (Preferred)**, the Deepwater Complex commercial ACL would increase by 114% (about 91,000 lbs ww) compared to **Alternative 1 (No Action)**. **Alternatives 3**, **4**, and **5** would result in increases in the Deepwater Complex commercial ACL of 103%, 92%, and 71%, respectively, compared to the **Alternative 1 (No Action)** temporary rule. Because the Deepwater Complex ACL is a combination of species, ex-vessel revenue gains and losses cannot be quantified. While **Alternative 2 (Preferred)**

offers the highest commercial ACL, it is only about 26,000 lbs ww different from the lowest commercial ACL alternative (**Alternative 5**). Still, **Alternatives 3-5** offer a buffer between the ABC and the ACL, which could reduce the risk of exceeding the ACL. However, the reader should keep in mind that while blueline tilefish are targeted, the other species included in the Deepwater Complex under the status quo management are not. Therefore, the importance of having a buffer in place is uncertain.

Recreational sector

Alternative 1 (No Action) would not remove blueline tilefish from the Deepwater Complex after the temporary rule expires, which would allow recreational landings of blueline tilefish to exceed the catch level recommendations of the SSC, which could reduce long-run recreational landings and associated economic benefits. Although **Alternative 2 (Preferred)** would reduce the recreational ACL for the Deepwater Complex, it would not be expected to result in reduced recreational landings in 2014 unless additional action to establish an in-season recreational AM for the Complex is taken (**Action 6**).

Similar to the discussion above for the commercial sector, **Alternatives 3-5** offer a buffer between the ABC and ACL for the recreational sector, theoretically reducing the likelihood of an overage of the ACL. A buffer is beneficial for the long-term economic benefits to the recreational sector although the Deepwater Complex species (once blueline tilefish are removed) are not likely typical targets among recreational fishermen. The differences in economic effects between **Alternatives 2 (Preferred)-5** are minimal. However, the differences between these alternatives and **Alternative 1 (No Action)** are relatively large, although these differences cannot be quantified at this time due to lack of an estimate for the recreational value of blueline tilefish.

In summary, it is expected that **Alternative 2 (Preferred)** would result in the greatest economic benefits for commercial and recreational fishermen by providing the highest short-term landings and ex-vessel revenues. **Alternative 2 (Preferred)** removes blueline tilefish from the Deepwater Complex. Biological benefits would be expected as AMs would be triggered when the blueline tilefish ACL is met rather than the Deepwater Complex ACL is met. These biological benefits would result in long-term economic benefits through higher future landings due to greater stock health. At the same time, **Alternative 2 (Preferred)** provides for higher ACL levels than **Alternative 3-5** without expected negative biological effects.

Action 2. Re-define Maximum Sustainable Yield for Blueline Tilefish

Action 2 contains the **No Action** alternative and **Alternative 2 (Preferred)** which would redefine MSY for the blueline tilefish stock based on the recommendation of the SEDAR 32 (2013) Review Panel and the Council's SSC to equal the value associated with the yield at F_{MSY} (226,500 lbs ww). Defining MSY for blueline tilefish does not alter the current harvest or use of the resource. Specification of this metric merely establishes a benchmark for a species and resource evaluation on which additional

management actions for the species would be based on if management adjustments were necessary. Specifying MSY, however, establishes the platform for future management, specifically from the perspective of bounding allowable harvest levels. In this sense, MSY may be considered to have indirect effects on fishery participants. As a benchmark, MSY establishes a parameter that condition subsequent management actions, and as such, defining MSY takes special significance. Of the alternatives considered in this action, **Alternative 2 (Preferred)**, which is recommended in the most recent SEDAR stock assessment and by the SSC, has a better scientific basis. Hence, it provides a more solid ground for management actions that have economic implications.

Action 3. Establish Annual Catch Limits and Optimum Yield for Blueline Tilefish

Alternative 1 is the **No Action** alternative with total ACL = 224,100 pounds whole weight (lbs ww); commercial ACL = 112,207 lbs ww; and recreational ACL = 111,893 lbs ww under the temporary rule. **Alternative 1 (No Action)** does not specify individual ACLs or OY for blueline tilefish when the temporary rule expires. In addition, **Alternative 1 (No Action)** does not incorporate the latest stock assessment information indicating that the blueline tilefish stock is undergoing overfishing. Therefore, under **Alternative 1 (No Action)**, overfishing would continue to result in long-term negative economic benefits.

Alternative 2, **Alternative 3 (Preferred)**, and **Alternative 4** would be expected to reduce harvest of blueline tilefish relative to **Alternative 1 (No Action)** and could result in short-term economic losses. However, **Alternative 2**, **Alternative 3 (Preferred)**, and **Alternative 4** would potentially result in long-term economic benefits once the stock is rebuilt through higher landings and ex-vessel revenues for the commercial sector and higher total consumer surplus and net operating revenues over time for the recreational sector. **Alternative 2** proposes the least conservative ACL (ranging from approximately 36,000 to 90,000 lbs ww from 2015 to 2018 and beyond) while **Alternative 4** proposes the most conservative ACL (ranging from approximately 33,000 to 81,000 lbs ww from 2015 to 2018 and beyond) for blueline tilefish.

Alternative 2 could result in commercial annual ex-vessel losses ranging from approximately $196,000 to $141,000 from 2015 to 2018 (in 2012 U.S. dollars). The recreational sector would suffer similar losses (94,000 to 67,000 lbs ww) but these cannot be quantified in lost consumer surplus or net operating revenues at this time due to lack of data regarding the willingness-to-pay for blueline tilefish. **Alternative 3 (Preferred)** could result in commercial annual ex-vessel losses ranging from approximately $197,000 to $143,000 from 2015 to 2018, and recreational annual losses from 96,000 to 68,000 lbs over the same time period. **Alternative 4** would result in commercial annual ex-vessel losses of approximately $200,000 to $150,000 from 2015 to 2018 and recreational annual losses of 96,000 to 72,000 lbs ww.

While these values show the difference between the status quo ACL and the proposed ACLs, actual losses would be greater since the status quo ACL has been exceeded in

recent years. Therefore, the actual commercial annual ex-vessel revenue losses and recreational consumer surplus and net operating revenue losses could be three times the amount calculated here.

Alternative 4 would likely have the greatest overall economic benefits in the long-term by establishing the lowest allowable catch levels because of expected higher landings in the future, higher ex-vessel revenues for the commercial sector, and higher consumer surpluses and net operating revenues for the recreational sector.

Action 4. Establish a Recreational Annual Catch Target for Blueline Tilefish

Alternative	Detail
Alternative 1 (No Action)	Do not establish an individual annual catch target for blueline tilefish for the recreational sector.
Alternative 2 (Preferred)	Establish an annual catch target for blueline tilefish for the recreational sector that equals the recreational ACL*(1-PSE) or ACL*0.5, whichever is greater.
Alternative 3	Establish an annual catch target for blueline tilefish for the recreational sector that equals 85% of the recreational annual catch limit.

If the ACT were used to trigger AMs for the recreational sector, economic effects would be similar in nature to those under **Action 3**, although not necessarily in magnitude. Under that scenario, **Alternative 1 (No Action)** would have the same economic effects as any of the ACL alternatives under **Action 3**.

If ACTs were used to trigger control measures, they would serve as "cushions" to effectively limit harvests and thus contribute to rebuilding of the stock. Long-term economic benefits would then ensue from a healthy stock. As long as long-term economic benefits outweigh short-term costs, the fishing industry and society in general would be better off. Realization of long-term economic benefits depends on a host of factors, including the type of management regime adopted. These factors render the long-term economic outcome of ACTs as relatively uncertain, at least from the standpoint of their magnitude. It appears that a prudent action to take would be to properly manage short-term costs. Relatively large short-term costs, such as those that may occur under more restrictive ACTs, may not be totally outweighed by long-term benefits. There is therefore weak economic rationale for adopting such type of restrictive control measures.

Action 5. Specify Accountability Measures for Blueline Tilefish and the Deepwater Complex for the Commercial Sector

Alternative	Detail
Alternative 1 (No Action)	Accountability measures are temporarily in place for blueline tilefish for the commercial sector. The National Marine Fisheries Service has temporarily removed blueline tilefish from the Deepwater Complex and established an in-season accountability measure for blueline tilefish for the commercial sector. The accountability measure is as follows: If commercial landings for blueline tilefish reach or are projected to reach the commercial annual catch limit, National Marine Fisheries Service will file a notification with the Office of the Federal Register to close the commercial sector for blueline tilefish for the remainder of the fishing year. The temporary measures will be in place for 180 days (through October 14, 2014) and may be extended for 186 additional days. Accountability measures are in place for the Deepwater Complex for the commercial sector. The accountability measures are as follows: In-season: If commercial landings for the Deepwater Complex, as estimated by the Science and Research Director, reach or are projected to reach the commercial annual catch limit, the Assistant Administrator for Fisheries will file a notification with the Office of the Federal Register to close the commercial sector for this complex for the remainder of the fishing year. Post-season: If commercial landings exceed the ACL and at least one species overfished, reduce the ACL in following year by overage amount.
Alternative 2 (Preferred)	If commercial landings for blueline tilefish and the Deepwater Complex as estimated by the Science and Research Director reach or are projected to reach the commercial annual catch limit, the Regional Administrator shall publish a notice to close the commercial sector for the remainder of the fishing year. On and after the effective date of such a notification, all sale or purchase is prohibited and harvest or possession of this species in or from the South Atlantic exclusive economic zone is limited to the bag and possession limit. This bag and possession limit applies in the South Atlantic on board a vessel for which a valid Federal commercial or charter vessel/headboat permit for South Atlantic snapper grouper has been issued as appropriate, without regard to where such species were harvested, i.e., in state or Federal waters.
- Sub-alternative 2a	If the commercial annual catch limit is exceeded, the

	Regional Administrator shall publish a notice to reduce the commercial annual catch limit in the following fishing year by the amount of the commercial overage, only if the species* is overfished.
- Sub-alternative 2b	If the commercial annual catch limit is exceeded, the Regional Administrator shall publish a notice to reduce the commercial annual catch limit in the following fishing year by the amount of the commercial overage, only if the total annual catch limit (commercial annual catch limit and recreational annual catch limit) is exceeded.
- **Sub-alternative 2c (Preferred)**	If the commercial annual catch limit is exceeded, the Regional Administrator shall publish a notice to reduce the commercial ACL in the following fishing year by the amount of the commercial overage, only if the species* is overfished **and** the total annual catch limit (commercial annual catch limit and recreational annual catch limit) is exceeded.

Note: For the Deepwater Complex, at least one of the species would need to be overfished.

Under **Alternative 1 (No Action)**, an in-season closure is temporarily in place for the blueline tilefish commercial sector. When the temporary rule expires, there will be no AM for blueline tilefish. **Alternative 1 (No Action)** would not economically benefit the blueline tilefish commercial sector in the long-term because it would not help to prevent overfishing. Overfishing leads to long-term economic losses in ex-vessel revenues due to decreases in available harvest from decreased stock health.

All sub-alternatives under **Alternative 2 (Preferred)** would result in short-term ex-vessel revenue losses to the commercial sector compared to recent landings. Over the long-term, however, these alternatives would provide a beneficial economic scenario for the commercial sector by addressing issues related to overfishing of the stock. The alternatives differ in the conditions that must occur for an overage to be subtracted from the following year's ACL. **Sub-alternative 2c (Preferred)** is the least restrictive and requires a reduction in the following year's ACL only if the total ACL is exceeded and the stock is overfished. **Sub-alternatives 2a** and **2b** are more restrictive than **Sub-alternative 2c (Preferred)**. **Sub-alternative 2c (Preferred)** allows for a larger catch than might otherwise be allowed under the other sub-alternatives but still protects the biological stocks. There are short-term economic benefits associated with the less restrictive sub-alternatives as a result of higher ex-vessel revenues that would occur.

Action 6. Specify Accountability Measures for Blueline Tilefish and the Deepwater Complex for the Recreational Sector

Alternative	Detail
Alternative 1 (No Action)	Accountability measures are temporarily in place for blueline tilefish for the recreational sector. -The National Marine Fisheries Service has temporarily removed blueline tilefish from the Deepwater Complex and established an in-season accountability measure for blueline tilefish for the recreational sector. The accountability measure is as follows: If recreational landings for blueline tilefish reach or are projected to reach the recreational annual catch limit, National Marine Fisheries Service will file a notification with the Office of the Federal Register to close the recreational sector for blueline tilefish for the remainder of the fishing year. The temporary measures will be in place for 180 days (through October 14, 2014) and may be extended for 186 additional days. Accountability measures are in place for the Deepwater Complex for the recreational sector. The accountability measures are as follows: **In-season:** none. **Post-season:** If recreational landings for the Deepwater Complex exceed the recreational annual catch limit then during the following fishing year, recreational landings will be monitored for a persistence in increased landings and, if necessary, the National Marine Fisheries Service will reduce the length of the following recreational fishing season by the amount necessary to ensure recreational landings do not exceed the recreational annual catch limit in the following fishing year.
Alternative 2 (Preferred)	Specify the following post-season accountability measures for blueline tilefish and the Deepwater Complex for the recreational sector: If recreational landings, as estimated by the Science and Research Director, exceed the recreational annual catch limit, then during the following fishing year, recreational landings will be monitored for a persistence in increased landings.
- Sub-alternative 2a	If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational annual catch limit in the following fishing year by the amount of the recreational overage, only if the species* is overfished. The length of the recreational season and recreational annual catch limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is

	unnecessary.
- Sub-alternative 2b	If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational annual catch limit in the following fishing year by the amount of the recreational overage, only if the total annual catch limit (commercial annual catch limit and recreational annual catch limit) is exceeded. The length of the recreational season and recreational annual catch limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.
- Sub-alternative 2c (Preferred)	If necessary, the Regional Administrator shall publish a notice to reduce the length of fishing season and the recreational annual catch limit in the following fishing year by the amount of the recreational overage, only if the species* is overfished **and** the total annual catch limit (commercial annual catch limit and recreational annual catch limit) is exceeded. The length of the recreational season and recreational annual catch limit will not be reduced if the Regional Administrator determines, using the best scientific information available, that a reduction is unnecessary.
Alternative 3	Specify the following in-season accountability measures for blueline tilefish and the Deepwater Complex for the recreational sector: If recreational landings for blueline tilefish and the Deepwater Complex reach or are projected to reach the recreational annual catch limit, National Marine Fisheries Service will file a notification with the Office of the Federal Register to close the recreational sector for blueline tilefish and the Deepwater Complex for the remainder of the fishing year.
Alternative 4 (Preferred)	If recreational landings reach or are projected to reach the recreational annual catch limit for blueline tilefish and the Deepwater Complex, National Marine Fisheries Service will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year, unless, using the best scientific information available, the Regional Administrator determines that a closure is unnecessary.
- Sub-alternative 4a	If the species* is overfished.
- Sub-alternative 4b (Preferred)	Regardless of stock status.

Note: For the Deepwater Complex, at least one of the species would need to be overfished.

Under **Alternative 1 (No Action),** an in-season closure is temporarily in place for the blueline tilefish recreational sector. When the temporary rule expires, there will be no AM for blueline tilefish. **Alternative 1 (No Action)** would not economically benefit the blueline tilefish recreational sector in the long-term because the AM for blueline tilefish would go away and therefore increase the chance of overfishing for blueline tilefish. The post season AM for the Deepwater Complex would remain. Overfishing leads to long-term economic losses in terms of consumer surplus and revenues for headboat and charter operations due to decreases in available harvest as a result of decreased stock health.

The alternatives differ in the conditions that must occur for an overage to be subtracted from the following year's ACL. For the Deepwater Complex and blueline tilefish, the most restrictive option would be a combination of the in-season closure proposed in **Alternatives 3** and **4 (Preferred)**, and the payback provisions proposed in the **Alternative 2 (Preferred)** sub-alternatives. The **Alternative 2 (Preferred)** sub-alternatives reduce the season length only if certain additional conditions are met. **Sub-alternative 2c (Preferred)** is the least restrictive option among the sub-alternatives, and requires a reduction in the following year's ACL only if the total ACL is exceeded *and* the stock is overfished. **Sub-alternatives 2a** and **2b** are more restrictive than **Sub-alternative 2c (Preferred)** because only one of these triggers is required for a reduction in the following year's ACL. **Sub-alternative 2c (Preferred)** allows for a larger catch than might otherwise be allowed under the other sub-alternatives but still protects the biological stocks. The combined effects of **Sub-alternative 2c (Preferred)** and **Sub-alternative 4b (Preferred)** would be the most economically beneficial approach. The economic benefits are as a result of expected future long-term increased access to the resource, higher consumer surpluses, and increased revenues for for-hire vessels as a result of biological benefits.

Action 7. Establish a Trip Limit for Blueline Tilefish for the Commercial Sector

Alternative	Detail
Alternative 1 (No Action)	Do not establish a trip limit for blueline tilefish for the commercial sector.
Alternative 2 (Preferred)	Establish a commercial trip limit for blueline tilefish of 100 pounds gutted weight (lbs gw).
Alternative 3	Establish a commercial trip limit for blueline tilefish of 200 pounds gutted weight (lbs gw).
Alternative 4	Establish a commercial trip limit for blueline tilefish of 300 pounds gutted weight (lbs gw).

Under **Alternative 1 (No Action),** no trip limit would be imposed on the harvest of blueline tilefish and the pace of fishing is not expected to be altered. Therefore, it is expected the commercial ACL would be met very quickly (13-22 days).

In general, a larger trip limit is expected to result in a shorter season for commercial fishermen, which would likely result in an increase in regulatory discards. A smaller trip limit could result in a longer season for commercial fishermen and decrease the chances of exceeding the ACL and contributing to overfishing. However, a larger trip limit could result in more profitable trips because fishermen would be able to take larger amounts of fish for similar operating costs. However, these potential short-term economic benefits depend on geographic location and would likely lead to long-term adverse economic effects. Distance to fishing grounds for blueline tilefish is likely to differ depending on port. Therefore, lower trip limits would likely be more appealing to fishermen located closer to fishing grounds while higher trip limits would likely appeal more to fishermen located further away from fishing grounds where blueline tilefish can be accessed.

For **Action 7**, **Preferred Alternative 2** proposes a 100 lbs gw trip limit under the three possible ACL scenarios identified in **Action 3**. Based on 2013 logbook landings data, the results of imposing a 100-lb gw trip limit indicate that the blueline tilefish commercial fishing season that starts January 1 could last until June 10th, June 5th, and May 29th based on the scenario where ACL = ABC, ACL = 98% of ABC, and ACL = 90% of ABC. **Alternative 3** proposes a 200-lb gw trip limit, which indicates a commercial season closure of April 28th for the scenario where ACL=ABC and April 26th for the scenario where ACL=98% of ABC. Under the scenario where ACL=90% of ABC, the season is expected to close April 18th. Under the same analysis and scenarios, a 300 lb gw trip limit (**Alternative 4**) would result in an April 12th, April 11th, and March 27th closure date.

These results indicate that the lower trip limits imply a longer season while the higher trip limits imply a shorter season. As mentioned above, the lower trip limit could indicate lower profits and, for some, the inability to make a trip at all. A higher trip limit would indicate the opposite. The different alternatives provide different trade-offs between access to the resource (number of days available for fishing) and expected profitability. There is no clear aggregate economic benefit of one alternative over another without further economic analysis that includes aggregating the profitability of individual vessels under different trip limit scenarios, for which the vessel level economic data necessary to conduct this analysis is not available.

Action 8. Adjust the Bag Limit for Blueline Tilefish for the Recreational Sector

Alternative	Detail
Alternative 1 (No Action)	Retain blueline tilefish in the aggregate grouper bag limit of 3/person/day. The aggregate group contains the following species: gag, black grouper, snowy grouper, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, golden tilefish, sand tilefish, coney, graysby, red hind, and rock hind.
Alternative 2	Remove blueline tilefish from the aggregate grouper bag limit.
Alternative 3	Establish a bag limit of blueline tilefish of 1/person/day.
Alternative 4	Establish a vessel limit of blueline tilefish of 1/vessel/day.
Alternative 5 (Preferred)	Establish a vessel limit of blueline tilefish of 1/vessel/day May through August and no retention during the remainder of the year.
Alternative 6	Establish a vessel limit of blueline tilefish of 1/vessel/day year during May and June with no retention during the remainder of the year.
Alternative 7	Establish a vessel limit of blueline tilefish of 1/vessel/day during May with no retention during the remainder of the year.
Alternative 8	Establish a vessel limit of blueline tilefish of 1/vessel/day during June with no retention during the remainder of the year.

In general, the short-term economic effects of bag limit changes for the recreational sector depend on the change in access to the resource. **Alternative 1 (No Action)** allows the recreational sector the greatest access to retain blueline tilefish with up to three blueline tilefish kept per trip. While this may result in higher catch rates by the recreational sector, it does not directly affect long-term economic benefits, which are largely ruled by the ACL and the ability of AMs to be enforced. **Alternative 2** would likely have negative long-term economic effects associated with the biological effects of no bag limit for blueline tilefish, such as lower ACLs or limited access to the resource. This is the least economically beneficial alternative for the recreational fishery in the short-term.

Bag limit analysis results show that **Alternative 1 (No Action)** could result in a January 5th closure data with a recreational fishing season of four days. The remaining alternatives (other than **Alternative 2**) have projected season lengths of 25 days (**Alternative 3**), approximately 30 days (**Alternatives 7** and **8**), 61 days (**Alternative 6**), 123 days (**Preferred Alternative 5**), and 195 days (**Alternative 4**). Season lengths would be extended based on a sensitivity analysis that substitutes 2014 data for data from Waves 1 and 2 in 2013. **Alternative 4**, which proposes 1 fish per vessel per day is expected to result in the greatest number of days available for recreational fishermen to access the resource. **Alternative 4** is also expected to result in the greatest capture of the recreational ACL. Therefore, **Alternative 4** is expected to result in the largest short-term economic benefits to the recreational sector. **Alternatives 6**, **7**, and **8** offer the least amount the ACL to be taken (3.3%, 1.6%, and 1.6%, respectively). These last three

alternatives are among the least economically beneficial for the recreational sector after **Alternative 2**.

Private and Public Costs

The preparation, implementation, enforcement, and monitoring of this, or any Federal action, involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs associated with this action include, but are not limited to, Council costs of document preparation, meeting, and other costs; and NMFS administration costs of document preparation, meetings and review, and annual law enforcement costs. A preliminary estimate cannot be quantified due to the lack of economic data available for quantitative analysis with regard to blueline tilefish.

Determination of Significant Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is expected to: 1) result in an annual effect of $100 million or more or adversely effect 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.

This action is not expected to have an adverse effect of $100 million or more, create a serious inconsistency or otherwise interfere with an action taken by another agency, materially alter the budgetary impact of programs or rights or obligations of recipients, or raise novel legal or policy issues.

Appendix H. Regulatory Flexibility Analysis

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 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 that 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 the alternatives contained in the FMP or amendment (including framework management measures and other regulatory actions) and to ensure that 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 a regulatory flexibility analysis for each proposed rule. The regulatory flexibility analysis 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. In addition to analyses conducted for the RIR, the initial regulatory flexibility analysis (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) an identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; (4) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; (5) a description of the projected reporting, record-keeping, and other compliance requirements of the final rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; and (6) a description of significant alternatives to the proposed rule which accomplish the stated objectives of applicable statues and which minimize any significant economic impact of the proposed rule on small entities.

Statement of need for, objectives of, and legal basis for the proposed rule

The purpose and need, issues, problems, and objectives of the proposed action are presented in **Section 1.4** and are incorporated herein by reference.

Identification of federal rules which may duplicate, overlap or conflict with the proposed rule

No federal rules have been identified that duplicate, overlap or conflict with the proposed rule.

Description and estimate of the number of small entities to which the proposed rule will apply

This action will directly apply to anglers and commercial fishing businesses that harvest species of the Deepwater Complex and especially blueline tilefish in the South Atlantic Exclusive Economic Zone (EEZ). Anglers are not considered small entities as that term is defined in 5 U.S.C. 601(6), whether aboard a for-hire fishing or private and leased vessel.

Commercial fishing vessels must have a valid federal commercial snapper grouper permit, which is a limited access permit for either an unlimited quantity of pounds per trip or no more than 225 pounds (lbs) per trip. The number of both valid unlimited and 225-lb permits has declined annually since 2008, resulting in increased concentration of the commercial sector of the fishery (**Table H-1**). As of July 3, 2014, there were 551 valid (and 18 renewable/transferrable) unlimited pounds permits and 113 valid (and 10 renewable/transferrable) 225-lb permits. More recently, as of September 24, 2014, there were 552 valid unlimited pounds permits and 110 valid 225-lb permits.

Table H-1. Numbers of valid South Atlantic commercial snapper grouper permits, 2007 - 2014. Sources: SAFMC May 22, 2013 (S-G Regulatory Amendment 19) for 2007 – 2013 and NMFS SERO PIMS for 2014 as of July 3 and September 24, 2014.

Year	Valid permits		Change		% Change	
	Unlimited	225-lb	Unlimited	225-lb	Unlimited	225-lb
2007	695	165				
2008	665	151	-30	-14	-4.32%	-8.48%
2009	640	144	-25	-7	-3.76%	-4.64%
2010	624	139	-16	-5	-2.50%	-3.47%
2011	569	126	-55	-13	-8.81%	-9.35%
2012	558	123	-11	-3	-1.93%	-2.38%
2013	551	121	-7	-2	-1.25%	-1.63%
2014	552	110	1	-11	0.18%	-9.09%

The largest drop in the number of valid unlimited permits occurred in 2011. A partial explanation for that drop is that by 2011, there were many in-season closures for snapper-grouper species, such as vermilion snapper, golden tilefish and black sea bass, and longer seasonal closures for grouper species. Another partial explanation is the 2-for-1 permit transfer requirement. A firm intending to obtain a commercial snapper grouper unlimited permit from a current permit holder who is not in the vessel owner's immediate family must obtain and exchange two such permits for one permit to be issued. NMFS will transfer a single snapper grouper unlimited permit only to the permit holder's immediate family (e.g. mother, father, brother, sister, son, daughter, or spouse). The 225-lb permit is transferable to a vessel owned or leased by the same permit holder. There search for a transferrable unlimited permit is complicated by the fact that not all unlimited pound permits are equal. A transferred permit's catch history follows it to the new holder/vessel with that permit, which can affect the perceived value of a permit, especially if the permit's catch history is low to zero and there is perceived risk of future allocation based on the permit's catch history.

The largest percentages of unlimited and 225-lb permit holders reside in Florida (**Table H-2**). Entities that reside outside the South Atlantic States hold less than 2% of the permits.

Table H-2. Number and percent of valid and renewable/transferable commercial snapper-grouper permits by state of residence of permit holder as of February 16, 2014. Source: NMFS SERO PIMS.

State	Unlimited lb permits		225-lb permits	
	Number	%	Number	%
FL	394	69.2%	112	90.3%
GA	5	0.9%	0	0.0%
NC	114	20.0%	8	6.5%
SC	49	8.6%	2	1.6%
Other	7	1.2%	2	1.6%
Total	*569*	*100.0%*	*124*	*100.0%*

This proposed rule would directly affect up to 693 commercial fishing vessels. Approximately 22% (124) of the vessels with an unlimited permit are owned by 45 permit holders and two of the vessels with a 225-lb permit are owned by one permit holder. Hence, it is estimated that 490 businesses have an unlimited permit and 123 businesses with a 225-lb permit could be affected by the proposed rule.

These 613 businesses operate in the commercial finfish fishing industry (NAICS 114111). A business primarily involved in finfish 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 $20.5 million for all its affiliated operations worldwide.

Southeast Fisheries Science Center (SEFSC) coastal fisheries logbook and NMFS accumulated landings system (ALS) data indicate an annual average of 124 commercial fishing vessels landed blueline tilefish from 2008 through 2012 (**Table H-3**). These 124 vessels represent approximately 18% of the 693 vessels with a commercial snapper grouper permit. Fewer vessels landed a different specific Deepwater Complex species. As shown in **Table H-3**, average annual dockside revenue per vessel that landed blueline tilefish or another Deepwater Complex species during the year is substantially less that the $20.5 million small business size standard. The highest average annual dockside revenue per vessel is less than $86,000.

If all of the commercial vessels that landed a Deepwater Complex species landed only one of the species, with the exception of black snapper, an average of 277 vessels landed Deepwater Complex species from 2008 through 2012. From that, it is estimated that up to 277 commercial fishing vessels and up to 277 commercial fishing businesses would be directly affected by the proposed rule. That represents up to approximately 45% of the 613 businesses with a snapper grouper permit. Also, based on the average annual dockside revenue per vessel (**Table H-3**), it is concluded that a substantial number of these 277 commercial fishing businesses are small businesses.

Table H-3. Average annual number of commercial vessels with landings of a Deepwater Complex species or blueline tilefish, 2008 – 2012. Source: SEFSC Coastal Fisheries Logbook and NMFS ALS.

Complex/Species	Species	Average Annual Number of Vessels that Landed Species	Average Annual Dockside Revenue Per Vessel from Species (2012 $)	Average Dockside Revenue Per Vessel from All Species (2012 $)
Deepwater Complex	Black snapper	D	D	D
	Blackfin snapper	20	$244	$67,584
	Misty grouper	8	$808	$55,154
	Queen snapper	12	$1,765	$58,352
	Sand tilefish	9	$30	$64,239
	Silk snapper	64	$1,777	$68,284
	Yellowedge grouper	40	$1,131	$85,933
Blueline Tilefish		124	$5,460	$74,264

Description of compliance requirements and estimates of economic impacts of the proposed rule

Action 1:

Prior to an emergency rule that was implemented on April 17, 2014, and extended through April 18, 2015, the Deepwater Complex has been composed of black snapper, blackfin snapper, misty grouper, queen snapper, sand tilefish, silk snapper, yellowedge grouper and blueline tilefish. The emergency rule temporarily removed blueline tilefish from the Deepwater Complex because an assessment in 2013 indicated the stock is experiencing overfishing.

The preferred alternative would permanently remove blueline tilefish from the Deepwater Complex. It would also establish the maximum sustainable yield (MSY), optimum yield (OY) and annual catch limit (ACL) for the revised (blueline tilefish-less) Deepwater Complex. Of particular importance for this analysis, is Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SG 29), which is expected to be implemented prior to this rule (SG32). SG 29 would increase the allowable biological catch (ABC) for silk snapper and yellowedge grouper and total ABC for the Deepwater Complex. The commercial ACL for the (revised) Deepwater Complex would increase by 71,263 lbs whole weight (ww) due to increases in the commercial ACLs of silk snapper and yellowedge grouper species ACLs of 48,230 and 23,033 lbs ww, respectively.

The increase of the Complex's commercial ACL represents potential increases in annual commercial landings of the Deepwater Complex and dockside revenues from those landings. However, the actual increase is dependent on baseline landings relative to the current and revised commercial ACL and accountability measures (AMs). For example, if baseline landings were less than the current ACL, an increase of the ACL would not be expected to generate increases in landings or associated revenues. Also, for example, if there were no AMs in place, the commercial fishing season would remain open even after annual landings exceeded or greatly

exceeded the commercial ACL. However, those examples are presently not the case for the Deepwater Complex; on July 10, 2014, the commercial fishing season for the (blueline-tilefish-less) Deepwater Complex was closed because landings were projected to reach or exceed the current commercial ACL of 60,371 lbs ww. That suggests the increase of the Complex's commercial ACL could have a beneficial economic impact, which could be as much as an additional 71,262 lbs ww of Deepwater Complex species landed annually. The average dockside prices of yellowedge grouper and silk snapper in 2012 were $3.50 and $3.39 per lb ww, respectively (NMFS SERO ACL). At those prices, if up to 48,230 lbs ww of silk snapper and 23,033 lbs ww of yellowedge grouper were added to annual landings, the commercial fishing businesses would have combined additional annual dockside revenue up to $244,116 (2012 $).

Action 2:

This action is an administrative action that would redefine maximum sustainable yield (MSY) for blueline tilefish. It would not have a direct economic impact. Any indirect economic impact is dependent on additional actions.

Action 3:

This action would establish annual catch limits (ACLs) and optimal yield (OY) for blueline tilefish. Presently, the temporary commercial ACL for blueline tilefish is 112,207 lbs ww. The preferred alternative would lower the commercial ACL to 17,841 lbs ww in 2015 then increase it incrementally up to 44,048 lbs ww by 2018 and beyond (**Table H-4**). The preferred alternative would not establish corresponding AMs, and without corresponding AMs, the commercial ACL would not cap annual commercial landings of blueline tilefish. Therefore, **Action 3** would not have a direct economic impact, and any indirect economic impact is dependent on establishing a corresponding in-season accountability measure. Indirect impacts are discussed under Action 5.

Table H-4. Comparison of current and preferred commercial ACL for blueline tilefish.

Alternative	Temporary Rule Status	Year	Blueline Tilefish Commercial ACL (lbs ww)
No Action	Effective	2014	112,207
	Expires 4/19	2015	112,207 until expires on April 19
	Expired	2016	Expired
		2017	
		2018 and beyond	
Preferred	Effective	2014	112,207
	Expired	2015	17,841
		2016	26,766
		2017	35,785
		2018 and beyond	44,048

Action 4:

This action would establish a recreational annual catch target for blueline tilefish. It would not directly affect any small business or other small entity.

Action 5:

This action would establish in-season and post-season AMs for blueline tilefish for the commercial sector and revise the in-season and post-season AMs for the Deepwater Complex for the commercial sector. The temporary rule established an in-season AM for blueline tilefish for the commercial sector, which resulted in the 2014 commercial season for blueline tilefish closing on June 23rd. This AM, however, expires with the temporary rule. At present, the *in*-season AM for the Deepwater Complex results in the commercial season closing for the remainder of the year when commercial landings reach or are projected to reach the commercial ACL. The current *post*-season AM is if commercial landings exceed the commercial ACL and at least one of the species of the Complex is overfished, the commercial ACL is reduced the following year by the amount of the overage.

The preferred alternative would establish in-season AMs for both blueline tilefish and the Deepwater Complex that would close the commercial season when landings reach or are projected to reach the commercial ACL and would add a post-season AM that would lower the commercial ACL in the following year by the amount of the overage if blueline tilefish or one of the species within the Complex is overfished and the total ACL (commercial ACL plus recreational ACL) is exceeded.

Actions 3 and 5:

Combined, **Actions 3** and **5** are expected to reduce annual commercial landings of blueline tilefish and dockside revenues that derive from these landings. The following estimated range of adverse economic impacts of these combined actions is based on two estimates of baseline landings that provide a range of impacts. The first uses the average of 2008 through 2012 commercial landings of 357,124 lbs ww, which is before the temporary commercial ACL and in-season AM. The second uses the temporary commercial ACL that was extended through April 18, 2015, to limit 2015 landings of blueline tilefish to the temporary ACL of 112,207 lbs ww, but from 2016 through 2018 is back to 357,124 lbs ww (**Table H-5**). Together, **Actions 3** and **5** are expected to produce a combined average annual loss of commercial landings of blueline tilefish that would range from 142,300 to 323,426 lbs ww and $576,330 to $679,195 (2012 $) (**Table H-6**). The average annual cost for one of the 124 small businesses that land blueline tilefish would range from $4,648 to $5,477. That range of annual cost represents from approximately 6% to 7% of the average annual receipts ($74,264) from all species of a vessel with blueline tilefish landings.

Table H-5. Estimates of annual commercial blueline tilefish landings by weight and dockside revenue before and after Actions 3 and 5.

Year	Landings (lbs ww)			Dockside Revenue (2012 $)		
	Baseline 1	**Baseline 2**	**Preferred ACL & AMs**	**Baseline 1**	**Baseline 2**	**Preferred ACL & AMs**
2015	357,124	112,207	17,841	$749,960	$235,635	$37,466
2016	357, 124	357, 124	26,766	$749,960	$749,960	$56,209
2017	357,124	357,124	35,785	$749,960	$749,960	$75,149
2018	357,124	357,124	44,048	$749,960	$749,960	$92,501
2019	357,124	357,124	44,048	$749,960	$749,960	$92,501
Total	*1,428,496*	*1,183,579*	*168,488*	*$3,749,802*	*$3,235,476*	*$353,825*
Average	*357,124*	*295,895*	*33,698*	*$749,960*	*$647,095*	*$70,765*

Table H-6. Estimates of annual losses of landings by weight and dollars.

Year	Losses of Lbs ww		Losses of Dollars (2012)	
	Baseline 1	**Baseline 2**	**Baseline 1**	**Baseline 2**
2015	339,283	94,366	$712,494	$198,169
2016	330,358	330,358	$693,751	$693,751
2017	321,339	321,339	$674,812	$674,812
2018	313,076	313,076	$657,460	$657,460
2019	313,076	313,076	$657,460	$657,460
Total	1,617,132	711,499	$3,395,977	$2,881,651
Average	*323,426*	*142,300*	*$679,195*	*$576,330*

Action 5 does not affect the in-season AM for the Deepwater Complex species, which is implicit in the discussion of the economic impact of Action 1. None of the species within the Complex are overfished, so the post-season AM is not expected to trigger a reduction in the annual landings.

Blueline tilefish has been assessed as overfished; however, Snapper Grouper Regulatory Amendment 21, effective on November 6, 2014 (79 FR 60379), will change the overfished definition of the Minimum Stock Size Threshold (MSST) for species with very low natural mortality, such as blueline tilefish. Under the new definition, blueline tilefish will not be overfished and the post-season AM is not expected to be triggered.

Action 6:

This action would establish AMs for blueline tilefish and the Deepwater Complex for the recreational sector. It would not directly affect any small business or any other small entity.

Action 7:

This action would establish a commercial trip limit for blueline tilefish. Presently, there is no commercial trip limit for the species. The preferred alternative would set the limit at 100 lbs gutted weight (gw). Over the 5-year period from 2008 through 2012, an average of 525 lbs gw of blueline tilefish with a dockside value of $1,111 were landed per trip; however, the annual average ranged from 366 to 563 lbs gw and $955 to $1,305 (**Table H-7**). Those figures indicate the preferred alternative would reduce both landings and dockside revenues of trips.

Table H-7. Blueline tilefish landings (by weight and value) by trips, 2008—2012. Source: SEFSC coastal logbook data and NMFS ALS.

Year	Number of vessels that landed blueline tilefish	Number of trips that landed blueline tilefish	Blueline tilefish landings (lbs gw)	Dockside revenue from blueline tilefish (2012 $)	Average lbs gw per trip	Average Dockside revenue from blueline tilefish landings per trip (2012 $)	Average dockside price per lb gw of blueline tilefish (2012 $)	Average trips per vessel with blueline tilefish landings
2008	119	714	362,562	$711,302	508	$996	$1.96	6
2009	149	795	435,104	$817,298	547	$1,028	$1.88	5
2010	131	705	397,165	$879,655	563	$1,248	$2.21	5
2011	98	320	117,102	$305,491	366	$955	$2.61	3
2012	125	523	294,254	$682,699	563	$1,305	$2.32	4
Total		*3,057*	*1,606,187*	*$3,396,444*	*525*	*$1,111*	*$2.11*	

The 100-lb gw trip limit would represent an approximately 81% reduction in the above average landings (by weight and value) per trip. A vessel that on average currently lands 525 lbs gw of blueline tilefish per trip would lose up to $897 per trip and with an average of five trips per year, the annual loss would be $4,485. It is important to note that the average of 525 lbs gw per trip is not representative of all vessels in the snapper grouper fishery. Vessels with 225-lb ww trip-limit permits cannot have landings of blueline tilefish greater than the 225 lbs ww per trip, which is equivalent to 201 lbs gw of blueline tilefish. Consequently, the 100-lb gw trip limit would represent at most a loss of 101 lbs gw of blueline tilefish per trip for those vessels with

225-lb ww permits. Those small businesses would lose up to $213 in dockside revenue per trip and, over five trips, that would be up to $1,065.

Vessels that land blueline tilefish also differ by the gears used to harvest the species. Vertical hook-and-line gear and longlines account for almost all commercial landings. The percent of landings from use of longlines has steadily increased since 2007, peaking in 2011 to account for approximately 81% of annual commercial landings. Longline gear is more capable of having larger landings per trip than hook-and-line gear. Hence, it is more likely that small businesses with unlimited pound permits would use longline gear, while those with a 225-lb permit would be more likely to use hook-and-line gear.

The 100-lb trip limit would not just lower dockside revenue per trip. It would also increase trip-related costs. Specifically, it would prevent larger vessels from experiencing traditional economies of scale. Consequently, it is expected that small businesses with vessels that have unlimited pound permits would incur larger increases in average unit costs per pound of blueline tilefish landed than those with vessels that have 225-lb permits.

Dockside revenue from blueline tilefish landings has represented an average of approximately 34% of total dockside revenue per trip (**Table H-8**). A loss of 425 lbs gw of blueline tilefish per trip with a value of $897 would represent a loss of approximately 28% of average dockside revenue per trip.

Table H-8. Dockside revenue (2012 $) and percent of dockside revenue per trip from blueline tilefish and all other species landed from trip with blueline tilefish landings.

Year	Average dockside revenue per trip from blueline tilefish	Average dockside revenue per trip from other species	Average total dockside revenue per trip	Percent dockside revenue per trip from blueline tilefish
2008	$996	$2,049	$3,045	32.7%
2009	$1,028	$2,114	$3,142	32.7%
2010	$1,248	$1,933	$3,181	39.2%
2011	$955	$2,958	$3,912	24.4%
2012	$1,305	$1,993	$3,298	39.6%
Total	*$1,111*	*$2,125*	*$3,236*	*34.3%*

Actions 3 and 5 would set the commercial ACL for blueline tilefish in 2015 at 17,841 lbs ww, which is equivalent to 16,831 lbs gw (ww = 1.12 x gw). From 2008 through 2012, an average vessel had five trips a year with blueline tilefish landings. Without a trip limit, an average of 525 lbs gw per trip would reach the proposed commercial ACL of 17,841 lbs ww or 15,929 lbs gw in 2015 by 30 trips (**Table H-9**). With an average of 124 vessels having blueline tilefish landings annually, an estimated 94 vessels and up to 94 small businesses would have no blueline tilefish landings in 2015 if there were not a trip limit. By increasing the number of trips necessary to reach the commercial ACL, the 100-lb trip limit would improve the likelihood that all of the estimated 124 vessels and small businesses, especially the smallest of the small, would have blueline tilefish landings during the year.

Table H-9. Comparison of number of trips with blueline tilefish landings before and after preferred 100-lb trip limit.

Year	lbs ww	lbs gw	Number 100-lb gw trips	Number 525-lb gw trips
2015	17,841	15,929	159	19
2016	26,766	23,898	239	46
2017	35,785	31,951	320	61
2018	44,048	39,329	393	75
2019	44,048	39,329	393	75
Total	*168,488*	*150,436*	*1,504*	*287*
Average	*33,698*	*30,087*	*301*	*57*

Action 8:

This action would establish recreational bag limits for blueline tilefish. It would not directly affect any small business or any other small entity.

Total Economic Impact of Combined Actions:

The average small business that harvests Deepwater Complex species would have an annual economic benefit up to $1,595 in increased dockside revenue, while the average small business that harvests blueline tilefish would incur an annual economic cost from $9,133 to $9,962 (**Table H-10**). A small business that harvests both could incur a net annual economic cost from $7,538 to $8,367.

Table H-10. Average annual economic impact per small business.

Action	Average Annual Impact (2012 $) per Small Business that Harvests Complex/Species	
	Deepwater Complex	Blueline Tilefish
	Benefit	Cost
1	Up to $1,595	$0
2	$0	$0
3	$0	$0
4	$0	$0
5	$0	$4,648 - $5,477
6	$0	$0
7	$0	$4,485
8	$0	$0
Total	*Up to $1,595*	*$9,133 to $9,962*

Description of significant alternatives

Considered but not adopted alternatives would have established a smaller commercial ACL for the Deepwater Complex. A smaller ACL would result in either a beneficial economic impact smaller than that of the preferred alternative or an adverse economic impact.

Considered but not adopted alternatives that would establish an in-season accountability measure and a larger commercial ACL for blueline tilefish would have a smaller adverse economic impact on small businesses in the short run, but larger adverse economic impacts in the long run.

Considered but not adopted alternatives included those that would have set a higher commercial trip limit for blueline tilefish, which would have smaller adverse economic impacts on small businesses per trip. However, the higher trip limits would shorten the length of the open commercial season, reduce the number of small business with landings of blueline tilefish during the year, and reduce the likelihood that the smallest of the small businesses would have blueline tilefish landings during the year.

Appendix I. Fishery Impact Statement (FIS)

The Magnuson-Stevens Fishery Conservation and Management Act requires a FIS be prepared for all amendments to Fishery Management Plans (FMPs). The FIS contains an assessment of the likely biological and socioeconomic 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.

Actions Contained in Amendment 32 to the Snapper Grouper FMP

The blueline tilefish stock of the South Atlantic was assessed in 2014. The assessment showed blueline tilefish to be undergoing overfishing. The primary purpose of Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery (Amendment 32) is to implement management measures to end overfishing of blueline tilefish. The South Atlantic Fishery Management Council (Council) is proposing implementation or revision of the following items through this amendment. All items listed below apply to just blueline tilefish for the exception of 1, 5, and 6 which apply to both blueline tilefish and species in the Deepwater Complex.

1) composition of the Deepwater Complex
2) maximum sustainable yield (MSY)
3) Annual catch limits (ACL) and optimum yield (OY)
4) recreational annual catch target (ACT)
5) commercial accountability measures (AM)
6) recreational AMs
7) commercial trip limit
8) recreational bag limit

Assessment of Biological Effects

The action to remove blueline tilefish from the Deepwater Complex would make it less likely that an in-season closure of the Deepwater Complex would occur because, other than blueline tilefish, species in the Deepwater Complex are not generally targeted and their landings are minor. Thus, this action would be expected to have positive biological effects for blueline tilefish because AMs would be triggered when the blueline tilefish ACL is met rather than when the Deepwater Complex ACL is met. Furthermore, because this action would set the ACL equal to or below the acceptable biological catch (ABC) recommendations of the Council's Scientific and Statistical Committee (SSC), negative biological effects would not be expected for stocks in the complex.

The actions modifying MSY and OY for blueline tilefish are expected to have positive biological impacts to the environment. The definitions are based on the most recent stock assessment and the best available scientific information reviewed by both Councils' SSC, thereby suggesting the best protection for the resource.

The actions to specify sector ACLs and recreational ACT would have positive effects to the blueline tilefish stock and associated ecosystem. The specification of targets and limits, in the form of ACLs and ACTs, are crucial components of any management program involving natural resources. Without the designation of these components, regulations may not be sufficient to prevent overfishing. The Council would manage towards a biological benchmark based on scientific advice, in the form of an ABC level. The specification of an ABC would protect fishery resources to allow sustainable exploitation. Sustainable exploitation would allow the existence of an appropriate number of older, larger fishes in the population; a robust population provides additional protections against recruitment failure due to several years of poor environmental conditions for eggs and larvae. Conversely, delaying rebuilding could make stocks more susceptible to adverse environmental conditions that might affect recruitment success, or to unanticipated errors in parameter estimates, which could result in excessive fishing.

The actions to specify AMs would have positive effects as the action would prohibit harvest in-season for both sectors if the ACLs are projected to be met. The AMs also specify corrective action if the sector ACLs are exceeded.

The actions to specify management measures would have neutral biological effects because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded.

Assessment of Economic Effects

The increases in the commercial and recreational ACLs for the Deepwater Complex would allow for increases in commercial and recreational landings and associated economic benefits from the Deepwater Complex in the short and long runs. The combined actions to establish the MSY, OY, ACLs, and in-season and post-season AMs for blueline tilefish are expected to reduce annual economic benefits from commercial landings of blueline tilefish in the short run, but increase those benefits in the long run. The combined actions may also reduce annual economic benefits from recreational landings of blueline tilefish in the short run, but increase those benefits in the long run. The action to reduce the commercial trip limit for blueline tilefish would reduce average economic benefits from blueline tilefish landings per trip. An estimated 124 commercial vessels have annual landings of blueline tilefish, on average. Those with an unlimited SG permit are expected to experience a larger adverse economic impact than those with a 225-lb permit. Without a trip limit, the lower ACL and in-season AM would substantially reduce the numbers of trips and vessels with blueline tilefish landings during the year, especially when an average of 525 lbs gw is landed per trip. The trip limit allows for more vessels to have annual landings of blueline tilefish and experience the economic benefits that derive from those landings. The bag limit for blueline tilefish is expected to increase the number of days that the recreational season remains open, which could increase the number of anglers that benefit from fishing for the species annually.

Assessment of the Social Effects

The combined impacts of the amendment are from actions to revise the composition of the Deepwater Complex and its biological targets, and establishing biological targets and accountability measures for blueline tilefish. The effects are described below in summary fashion for all alternatives.

The actions in the amendment stem from a recent stock assessment that indicated the blueline tilefish stock was undergoing overfishing. While the implementation of an emergency rule to reduce the catch of blueline tilefish temporarily was effective in addressing overfishing, a more long term solution is needed to reduce the long-term fishing mortality of blueline tilefish and rebuild the stock.

The suite of actions that will remove blueline tilefish from the Deepwater Complex and set new thresholds for the complex, will make it easier to track blueline landings while avoiding unnecessary closures of the Deepwater Complex. This should have beneficial social effects, although they will be minimal, for fishermen of the Deepwater Complex. Removal of blueline tilefish from the Deepwater Complex will have beneficial effects in that it will be easier to monitor and modify the harvest patterns, but will have negative short term effects as extension of the reduced catch levels from the emergency rule to end overfishing will present challenges to those fishermen who have recently increased their harvest of blueline tilefish. This will be especially true of fishermen from the community of Wanchese, North Carolina who harvest the majority of this species and fishermen from other communities who have increased their landings of blueline tilefish within the past few years. The impacts of implementing these lower harvest levels and AMs may trigger changes in fishermen's targeting behavior, if there are satisfactory substitutes to replace the lost harvest. If there are no substitutes within the snapper grouper fishery, fishermen may have to move into other fisheries and may require changes in gear to accommodate the move. Changing gear can mean an added burden of costs to any fishing operation and would depend upon the vessel modifications required. A shift of effort from one fishery to another also has consequences for those who are currently fishing and can create conflict as new competition appears. The extent to which any of these effects would occur is speculation as we do not have precise analysis of these types of changes to determine when or how they might occur or the magnitude of any change.

Although some short-term adverse social consequences will be expected to result where harvests are reduced or closures are triggered by AMs, the proposed actions in this amendment will result in positive long-term social benefits. These measures are expected to result in improved likelihood of species recovery, where appropriate, and protection, which should provide better safeguards for producing and maintaining a stable resource capable of supporting steady and sustainable social benefits. These actions will allow corrective action, when necessary, to be implemented in a more timely and efficient manner, thereby reducing their severity and the magnitude of associated short term adverse social effects. Negative short-term social impacts on the fishery would likely result from changes in the commercial and for-hire fleets due to closures or subsequent shorter seasons in case of overages.

Overall, the actions in this amendment and the rebuilding strategy for blueline tilefish will likely impact the commercial and recreational sectors by limiting harvest for a portion of the rebuilding schedule, but long-term social benefits will be expected as the blueline tilefish stock biomass increases.

Assessment of Effects on Safety at Sea

The implementation of measures to end overfishing of blueline tilefish would not be expected to affect the current level of safety at sea.

Appendix J. 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 a 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; maintaining 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 the 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 as 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 and presents more complete and detailed information describing the South Atlantic ecosystem and the impact of fisheries on the environment. This FEP updated information on designated Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern; expanded descriptions of biology and status of managed species; presented information that will support ecosystem considerations for managed species; and described the social and economic characteristics of the fisheries in the region. In addition, it expanded 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. It 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 updated EFH and EFH-HAPC information and addressed the Final EFH Rule (e.g., GIS presented for all EFH and EFH-HAPCs). Management actions implemented in CE-BA 1 established 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.

The Fishery Ecosystem Plan, slated to be revised every 5 years, will again be the vehicle to update and refine information supporting designation and future review of EFH and EFH-HAPCs for managed species. Planning for the update is being conducted in cooperation with the Habitat Advisory Panel during the fall and winter of 2013 with initiation during 2014.

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 addressed non-regulatory updates for existing EFH and EFH- HAPC information and addressed the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs). Actions in this amendment included modifications in the management of the following: octocorals; special management zones (SMZs) off the coast of South Carolina; and sea turtle release gear requirements for snapper grouper fishermen. The amendment also designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs).

CE-BA 2 established annual catch limits (ACL) for octocorals in the South Atlantic as well as modifying the Fishery Management Unit (FMU) for octocorals to remove octocorals off the coast of Florida from the FMU (SAFMC 2011). The amendment also limited the possession of

managed species in the SMZs off South Carolina to the recreational bag limit for snapper grouper and coastal migratory pelagic species; modified sea turtle release gear requirements for the snapper grouper fishery based upon freeboard height of vessels; amends Council fishery management plans (FMPs) to designate or modify EFH and EFH-HAPCs, including the FMP for Pelagic Sargassum Habitat; amended the Coral FMP to designate EFH for deepwater Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deepwater Marine Protected Areas. The final rule was published in the federal register on December 30, 2011, and regulations became effective on January 30, 2012.

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 development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

Integrated Ocean Observing System (IOOS) and Southeast Coastal and Ocean Observing Regional Association (SECOORA)

The Integrated Ocean Observing System (IOOS®) is a partnership among federal, regional, academic, and private sector parties that works to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment. IOOS supplies critical information about our Nation's oceans, coasts, and Great Lakes. Scientists working to understand climate change, governments adapting to changes in the Arctic, municipalities monitoring local water quality, and industries affected by coastal and marine spatial planning all have the same need: reliable, timely, and sustained access to data and information that inform decision making. Improving access to key marine data and information supports several purposes. IOOS data sustain national defense, marine commerce, and navigation safety. Scientists use these data to issue weather, climate, and marine forecasts. IOOS data are also used to make decisions for energy siting and production, economic development, and ecosystem-based resource management. Emergency managers and health officials need IOOS information to make decisions about public safety. Teachers and government officials rely on IOOS data for public outreach, training, and education.

SECOORA is one of 11 Regional Associations established nationwide through the US IOOS whose primary source of funding is through a 5-year cooperative agreement titled "Coordinated Monitoring, Prediction, and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools". However, SECOORA was recently awarded funding via a NOAA Regional Ocean Partnership grant through the Governors' South Atlantic Alliance. SECOORA is the regional solution to integrating coastal and ocean observing data in the Southeast United States to inform decision makers and the general public. The SECOORA region encompasses 4 states, over 42 million people, and spans the

coastal ocean from North Carolina to the west Coast of Florida and is creating customized products to address these thematic areas: Marine Operations; Coastal Hazards; Ecosystems, Water Quality, Living Marine Resources; and Climate Change. The Council is a voting member and Council staff was recently re-elected to serve on the Board of Directors for 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 assessments 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 with information included in the Council's Habitat and Ecosystem Web Services and Atlas to facilitate model and tool development.
- Expanding Map Services and the Regional Habitat and Ecosystem Atlas in cooperation with SECOORAs Web Services that will provide researchers access to data or products including those collected/developed by SA OOS partners.

SECOORA researchers are developing a comprehensive data portal to provide discovery of, access to, and metadata about coastal ocean observations in the southeast US. Below are various ways to access the currently available data.

One project recently funded by SECOORA initiated development of species specific habitat models that integrate remotely sensed and in situ data to enhance stock assessments for species managed by the Council. The project during 2013/2014 was initiated to address red porgy, gray triggerfish, black seabass, and vermilion snapper. Gray triggerfish and red porgy are slated for assessment through SEDAR in 2014/15 and 2015/16 respectively.

National Fish Habitat Plan and Southeast Aquatic Resource Partnership (SARP)

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted this collaboration by including the Southeast Aquatic Habitat Plan (SAHP) 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. To date, SARP has funded 53 projects in the region through this program. This work supports conservation objectives identified in the SAHP to improve, establish, or maintain riparian zones, water quality, watershed connectivity, sediment flows, bottoms and shorelines, and fish passage, and addresses other key factors associated with the loss and degradation of fish habitats. SARP also developed the Southern Instream Flow Network (SIFN) to address the impacts of flow alterations in the Southeastern US aquatic ecosystems which leverages policy, technical experience, and scientific resources among partners based in 15 states. Maintaining appropriate flow into South Atlantic estuarine systems to support healthy inshore habitats essential to Council managed species is a major regional concern and efforts of SARP through SIFN are envisioned to enhance state and local partners ability to maintain appropriate flow rates.

Governor's South Atlantic Alliance (GSAA)

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 (GSAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The GSAA 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. The Alliance's 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. The GSAA Action Plan was released in December 2010 and describes the four Priority Issue Areas that were identified by the Governors to be of mutual importance to the sustainability of the region's resources: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. The goals, objectives, actions, and implementation steps for each of these priorities were further described in the GSAA Implementation Plan released in July 2011. The final Action Plan was released on December 1, 2010 and marked the beginning of intensive work by the Alliance Issue Area Technical Teams (IATTs) to develop implementation steps for the actions and objectives. The GSAA Implementation Plan was published July 6, 2011, and the Alliance has been working to implement the Plan through the IATTs and two NOAA-funded Projects. The Alliance also partners with other federal agencies, academia, non-profits, private industry, regional organizations, and others. The Alliance supports both national and state-level ocean and coastal policy by coordinating federal, state, and local entities to ensure the sustainability of the region's economic, cultural, and natural resources. The Alliance has organized itself around the founding principles outlined in the

GSAA Terms of Reference and detailed in the GSAA Business Plan. A team of natural resource managers, scientists, and information management system experts have partnered to develop a Regional Information Management System (RIMS) and recommend decision support tools that will support regional collaboration and decision-making. In addition to regional-level stakeholders, state and local coastal managers and decision makers will also be served by this project, which will enable ready access to new and existing data and information. The collection and synthesis of spatial data into a suite of visualization tools is a critical step for long-term collaborative planning in the South Atlantic region for a wide range of coastal uses. The Council's Atlas presents the spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it can be linked to or drawn on as a critical part of the collaboration with the RIMS.

South Atlantic Landscape Conservation Cooperative

One of the more recent collaborations is the Council's 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.

The SALCC developed a Strategic Plan through an iterative process that began in December 2011. The plan provides a simple strategy for moving forward over the next few years. An operations plan was developed under direction from the SALCC Steering Committee to redouble efforts to develop version 1.0 of a shared conservation blueprint by spring-summer of 2014. The SALCC is developing the regional blueprint to address the rapid changes in the South Atlantic including but not limited to climate change, urban growth, and increasing human demands on resources which are reshaping the landscape. While these forces cut across political and jurisdictional boundaries, the conservation community does not have a consistent cross-boundary, cross-organization plan for how to respond. The South Atlantic Conservation Blueprint will be that plan. The blueprint is envisioned to be a spatially-explicit map depicting the places and actions need to sustain South Atlantic LCC objectives in the face of future change. The steps to creating the blueprint include development of: indicators and targets (shared metrics of success); the State of the South Atlantic (past, present, and future condition of indicators); and a Conservation Blueprint. Potential ways the blueprint could be used include: finding the best places for people and organizations to work together; raising new money to implement conservation actions; guiding infrastructure development (highways, wind, urban growth, etc.); creating incentives as an alternative to regulation; bringing a landscape perspective to local adaptation efforts; and locating places and actions to build resilience after major disasters (hurricanes, oil spills, etc.). Integration of connectivity, function, and threats to river, estuarine and marine systems supporting Council managed species is supported by the SALCC and enhanced by the Council being a voting member of

its Steering Committee. In addition, the Council's Regional Atlas presents spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it be linked to or drawn on as a critical part of the collaboration with the recently developed SALCC Conservation Planning Atlas.

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). 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 evolved, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services provided through the regional SAFMC Habitat and Ecosystem Atlas (http://ocean.floridamarine.org/safmc_atlas/) and the SAFMC Digital Dashboard (http://ocean.floridamarine.org/safmc_dashboard/). The Atlas integrates services for the following:

Species distribution and spatial presentation of regional fishery independent data from the SEAMAP-SA, MARMAP, and NOAA SEFIS systems; SAFMC Fisheries: (http://ocean.floridamarine.org/SA_Fisheries/)

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern; SAFMC EFH: (http://ocean.floridamarine.org/sa_efh/)

Spatial presentation of managed areas in the region; SAFMC Managed Areas: (http://ocean.floridamarine.org/safmc_managedareas/)

An online life history and habitat information system supporting Council managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: http://atoll.floridamarine.org/EcoSpecies

Web Services System Updates:

- Essential Fish Habitat (EFH) – displays EFH and EFH-HAPCS for SAFMC managed species and NOAA Fisheries Highly Migratory Species.
- Fisheries - displays Marine Resources Monitoring, Assessment, and Prediction (MARMAP) and Southeast Area Monitoring and Assessment Program South Atlantic (SEAMAP-SA) data.
- Managed Areas - displays a variety of regulatory boundaries (SAFMC and Federal) or management boundaries within the SAFMC's jurisdiction.
- Habitat – displays habitat data collected by SEADESC, Harbor Branch Oceanographic Institute (HBOI), and Ocean Exploration dives, as well as the SEAMAP shallow and ESDIM deepwater bottom mapping projects, multibeam imagery, and scientific cruise data.
- Multibeam Bathymetry - displays a variety of multibeam data sources and scanned bathymetry charts.
- Nautical Charts – displays coastal, general, and overview nautical charts for the SAFMC's jurisdictional area.

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 tools including Special Management Zones. Pursuant to development of the Comprehensive Ecosystem-Based Amendment, the Council has taken 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 in 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 a source document to the CE-BAs. NOAA should support and build on the 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, which has served as the source document for CE-BAs, could also meet some of the 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;
5. Marine aquaculture;
6. Marine Ecosystems and Non-Native and Invasive Species: and
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. 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.

The Habitat and Environmental Protection Advisory Panel, as part of their role in providing continued policy guidance to the Council, is during 2013/14, reviewing and proposing revisions and updates to the existing policy statements and developing new ones for Council consideration. The effort is intended to enhance the value of the statements and support cooperation and collaboration with NOAA Fisheries Habitat Conservation Division and State and Federal partners in better addressing the Congressional mandates to the Council associated with designation and conservation of EFH in the region.

South Atlantic Bight Ecopath Model

The Council worked cooperatively with 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, only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

The latest collaboration builds on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight with a focus on beginning a dialogue on the implications of potential changes in forage fish populations in the region that could be associated with environmental or climate change or changes in direct exploitation of those populations.

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 was 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 2,000 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) designated 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.
>
> Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

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 and 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) 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 waters 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) designated 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, and 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 at that time).

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 at that time).

Pelagic *Sargassum* Habitat FMP

The Council through CEBA 2 (SAFMC 2011) designated 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; bottom longlines in the wreckfish fishery; 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.
- Established 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

- 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 gillnets 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 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 five deepwater CHAPCs:
    - Cape Lookout Lophelia Banks CHAPC;
    - Cape Fear Lophelia Banks CHAPC;
    - Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace) CHAPC;
    - Pourtales Terrace CHAPC; and
    - Blake Ridge Diapir Methane Seep CHAPC.
- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear are 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 a number of habitat policy statements which are available on the Habitat and Ecosystem section of the Council website (http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx).

References:

SAFMC (South Atlantic Fishery Management Council). 1998a. Habitat Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998b. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2009a. Fishery Ecosystem Plan for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Comprehensive Ecosystem-Based Amendment 1 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

SAFMC (South Atlantic Fishery Management Council). 2011. Comprehensive Ecosystem-Based Amendment 2 for the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Suite 201; North Charleston, SC 29405.

Wenner, E. L., G. F. Ulrich, and J. B. Wise. 1987. Exploration for golden crab, Geryon fenneri, in the south Atlantic Bight: distribution, population structure, and gear assessment. Fishery Bulletin 85:547-560.

Appendix K. Blueline Tilefish Commercial Trip Limit Analysis

This appendix presents the requested analyses for **Action 7** (Establish Management Measures for Blueline Tilefish for the Commercial Sector), **Alternative 2**. All analyses are in pounds gutted weight (lbs gw); gutted pounds were calculated as whole weight divided by 1.12. The ABC used for all analyses was 32,463 lbs gw (36,359 lbs ww). The commercial sector gets 50.07% of the ABC (18,205 lbs ww = 16,254 lbs gw). Analyses were done for each of three different scenarios relating to **Action 2** (Establish an Annual Catch Limit for Blueline Tilefish). These scenarios were:

- Alternative 2: ACL = ABC (ACL = 16,254 lbs gw)
- Alternative 3: ACL = 98% of ABC (ACL = 15,929 lbs gw)
- Alternative 4: ACL = 90% of ABC (ACL = 14,629 lbs gw)

Each scenario had a variety of trip limits analyzed. These included:

- Year round 100 lbs gw trip limit
- Year round 200 lbs gw trip limit
- **Year round 300 lbs gw trip limit**

Table 1. Trip Limit Scenarios

Alternative	ACL	Comm. ACL (lbs gw)	Trip Limit (lbs gw)
2	ACL= ABC	16,254	100
			200
			300
3 (Preferred)	ACL = 98% ABC	15,929	100
			200
			300
4	ACL = 90% ABC	14,629	100
			200
			300

Trip limit analyses were done using trip level information for 2013 from the Coastal Logbooks, updated as of 4/28/14. While the Coastal Logbook data may still be incomplete, it was deemed that this was the best data to use, as it was the most recent time frame that had a full year of blueline tilefish fishing without closures. Data from 2012 was not used because of the restriction on possession or harvest of deepwater snapper grouper species in waters greater 240 ft from Jan – May 10th and the closure of the deepwater complex on Sept 9th due to exceeding the ACL. The trip limit analysis produced a total fishing season length and the predicted end date for the season for each alternative and trip limit sub-

alternative. In addition, an analysis was completed to determine the estimated reduction in landings by gear for each alternative and trip limit sub-alternative.

Table 2. Trip Limit Analysis – Fishing Season length result.

Alternative	Commercial ACL	Trip Limit	Days Fishing	Predicted End Date
2 ACL = ABC	16,254 lbs gw	No Limit	22	22-Jan
		100 lb gw	161	10-Jun
		200 lb gw	118	28-Apr
		300 lb gw	102	12-Apr
3 (Preferred) ACL = 98% ABC	**15,929 lbs gw**	**No Limit**	**20**	**20-Jan**
		100 lb gw	**156**	**5-Jun**
		200 lb gw	**116**	**26-Apr**
		300 lb gw	**101**	**11-Apr**
4 ACL = 90% ABC	14,629 lbs gw	No Limit	13	13-Jan
		100 lb gw	149	29-May
		200 lb gw	108	18-Apr
		300 lb gw	86	27-Mar

Table 3. Estimated Landings Percent Reductions by Gear Type

Month	Handlines			Longlines		
	100 lbs	200 lbs	300 lbs	100 lbs	200 lbs	300 lbs
1	57%	37%	28%	93%	87%	82%
2	29%	12%	6%	89%	79%	71%
3	73%	56%	44%	93%	87%	80%
4	62%	44%	33%	94%	88%	83%
5	32%	19%	11%	95%	90%	84%
6	21%	7%	3%	91%	84%	77%
7	17%	5%	0%	94%	88%	82%
8	70%	60%	56%	93%	87%	81%
9	49%	32%	22%	87%	75%	62%
10	78%	69%	64%	91%*	81%*	72%*
11	50%	19%	0%			
12	51%	26%	13%			
Total	54%	39%	31%	93%	87%	80%

Appendix L. Blueline Tilefish Recreational Trip Limit Analysis

South Atlantic blueline tilefish are overfished and undergoing overfishing (SEDAR 32 2013). The South Atlantic Fishery Management Council (Council) is developing Amendment 32 to end overfishing and rebuild the stock. Analyses were requested to assess the effects of recreational bag and trips limits. **Action 8** in Amendment 32 establishes recreational management measures for blueline tilefish. This analysis looks at **Alternatives 3-8** in **Action 8**:

Alternative 3. Establish a bag limit of blueline tilefish of 1/person/day.
Alternative 4. Establish a vessel limit of blueline tilefish of 1/vessel/day.
Alternative 5. Establish a vessel limit of blueline tilefish of 1/vessel/day May through August and no retention during the remainder of the year.
Alternative 6. Establish a vessel limit of blueline tilefish of 1/vessel/day year during May and June with no retention during the remainder of the year.
Alternative 7. Establish a vessel limit of blueline tilefish of 1/vessel/day during May with no retention during the remainder of the year.
Alternative 8. Establish a vessel limit of blueline tilefish of 1/vessel/day during June with no retention during the remainder of the year.

The South Atlantic Council's Scientific and Statistical Committee recommended an acceptable biological catch (ABC) of 36,359 lb ww for blueline tilefish, with the recreational sector allocated 49.93% (18,154 lb ww). This analysis uses the Council's preferred annual catch limit (ACL) alternative of 98% of the ABC (17,791 lb ww) for assessing the effects of various bag and trip limits. All results are in pounds whole weight. Blueline tilefish is currently in the aggregate grouper bag limit of 3/person/day. The aggregate group contains the following species: gag, black grouper, snowy grouper, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, golden tilefish, sand tilefish, coney, graysby, red hind, and rock hind. Alternatives 5 through 8 were added to Amendment 32 during the June 2014 Council meeting in order to match alternatives suggested for snowy grouper. Based on Council recommendation, the analyses were compiled using 2013 recreational trip level information since the fishery was closed beyond depths of 240 feet in 2011 and part of 2012. Landings and season lengths resulting from various bag and trip limits were then projected to determine when the recreational sector would close, the percent of the ACL caught, and how long the season would remain open. Sensitivity runs were also performed using more recent data from 2014 as landings during January-February 2013 were unusually high compared to other more recent years.

Methods

Bag and trip limit analyses were conducted to evaluate reductions in overall harvest of blueline tilefish resulting from various bag or trip limit regulations. Headboat Survey (HBS) and Marine Recreational Information Program (MRIP) catch-effort data were used to conduct bag and trip limit analyses. Data were analyzed by mode, and bag and trip limit changes were calculated on a per-month (HBS) or per wave (MRIP) basis. For MRIP data, waves were split proportionally into months for projecting landings. MRIP and HBS landings data for 2013 and

2014 (Jan-Apr) were used to predict closure dates. Bag and trip limit changes in harvest followed the methodology used in Gulf Reef Fish Amendment 37 (SERO LAPP 2012-03). For all analysis, whenever the trips per month/wave was < 3 or the number of fish landed was < 30, that time period was aggregated with the time periods surrounding it (e.g. Wave 2 had less than 30 fish caught, so it was combined with Waves 1 and 3 for analyses) to ensure adequate sample sizes were used for analysis.

Results

Reductions associated with various bag and trip limits were compared to the status quo using the Council's preferred ACL alternative (98% of the ABC). The largest reductions were seen in the vessel limits for all modes (**Table L-1**), particularly for vessel limits that also included a reduced fishing season. The bag limit reductions were largest for private anglers, followed by headboats and charter boats.

The alternative that resulted in the greatest percentage of the ACL landed was the 1 blueline tilefish per vessel per trip, which also had the longest season (**Table L-2**). The bag limit, while projecting 97% of ACL would be landed, had a shorter season that closed in January. Vessel limits that included a short open season (May – Jun, May only, and June only) resulted in very low projected landings and a small portion of the ACL being caught.

Table L-1. Projected reductions of blueline tilefish landings by month for various alternatives for a) HBS, b) MRIP private, and c) MRIP charter. Warmer colors denote higher reductions.

A) Headboat Survey

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/person/day	55%	55%	27%	27%	58%	58%	63%	63%	88%	88%	78%	78%
1/vessel/day	99%	99%	97%	97%	99%	99%	99%	99%	99%	99%	99%	99%
1/vessel/day (May –Aug)	100 %	100 %	100 %	100 %	99%	99%	99%	99%	100 %	100 %	100 %	100 %
1/vessel/day (May –Jun)	100 %	100 %	100 %	100 %	99%	99%	100 %	100 %	100 %	100 %	100 %	100 %
1/vessel/day (May)	100 %	100 %	100 %	100 %	99%	100 %	100 %	100 %	100 %	100 %	100 %	100 %
1/vessel/day (June)	100 %	100 %	100 %	100 %	100 %	99%	100 %	100 %	100 %	100 %	100 %	100 %

B) MRIP private

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/person/day	79%	79%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
1/vessel/day	93%	93%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%
1/vessel/day (May –Aug)	100 %	100 %	100 %	100 %	86%	86%	86%	86%	100 %	100 %	100 %	100 %
1/vessel/day (May –Jun)	100 %	100 %	100 %	100 %	86%	86%	86%	86%	100 %	100 %	100 %	100 %

1/vessel/day (May)	100 %	100 %	100 %	100 %	86%	86%	86%	86%	100 %	100 %	100 %	100 %
1/vessel/day (June)	100 %	100 %	100 %	100 %	86%	86%	86%	86%	100 %	100 %	100 %	100 %

C) MRIP charter

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/person/day	55%	55%	46%	46%	29%	29%	70%	70%	51%	51%	51%	51%
1/vessel/day	88%	88%	87%	87%	87%	87%	94%	94%	89%	89%	88%	88%
1/vessel/day (May –Aug)	100 %	100 %	100 %	100 %	87%	87%	94%	94%	100 %	100 %	100 %	100 %
1/vessel/day (May –Jun)	100 %	100 %	100 %	100 %	87%	87%	100 %	100 %	100 %	100 %	100 %	100 %
1/vessel/day (May)	100 %	100 %	100 %	100 %	87%	100 %	100 %	100 %	100 %	100 %	100 %	100 %
1/vessel/day (June)	100 %	100 %	100 %	100 %	100 %	87%	100 %	100 %	100 %	100 %	100 %	100 %

Table L-2. Estimated projected closures and landings based on 2013 data.

	Projected Closure date	Projected Days Open	Projected Landings (ww)	Percentage of ACL
Status quo	Jan – 5	4	17,791	100%
1/person/day	Jan – 26	25	17,791	100%
1/vessel/day	Jul – 15	195	17,791	100%
1/vessel/day from May – Aug	Sep – 1	123	14,397	80.9%
1/vessel/day from May –Jun	Jul – 1	61	579	3.3%
1/vessel/day in May only	Jun – 1	31	293	1.6%
1/vessel/day in June only	Jul – 1	30	287	1.6%

In 2013, very high landings were reported in Wave 1 that may not be representative of future landings (**Table L-3**). A sensitivity analysis was conducted using the 12 most recent months of data available (**Table L-4**). This included MRIP landings from the ACL datasets for waves 1 and 2 from 2014, and all remaining data was from 2013. The sensitivity analysis lengthened the season length for the 1 blueline per person per day and 1 blueline per vessel per day alternatives, but had no effect on the other alternatives because they are proposed to be closed during wave 1. Under this sensitivity run, both the 1 per person and 1 per vessel alternatives result in the ACL being caught, with the vessel limit having the longer season length. In comparison to the status quo, this would extend the season length by 100 days with the 1 per person limit and 210 days under the 1 per vessel limit.

Table L-3. MRIP landings from the ACL database over time.

Year	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
2014	4,548	18,089	NA	NA	NA	NA
2013	178,302	5,905	4,366	108,849	4,027	43,024
2012	388	3,300	33,190	27,886	19,609	7,711
2011	2,797	326	6,195	26,492	9,084	166
2010	11,453	12,596	30,297	6,293	6,570	3,675

Table L-4. Estimated projected closures and landings using 2014 data for MRIP waves 1 and 2, and 2013 data for all other months/waves.

	Projected Closure date	Projected Days Open	Projected Landings (ww)	Percentage of ACL
Status quo	Apr – 4	93	17,791	100%
1/person/day	Jul – 13	193	17,791	100%
1/vessel/day	Oct – 31	303	17,791	100%
1/vessel/day from May – Aug	Sep – 1	123	14,397	79.3%
1/vessel/day from May –Jun	Jul – 1	61	579	3.3%
1/vessel/day in May only	Jun – 1	31	293	1.6%
1/vessel/day in June only	Jul – 1	30	287	1.6%

Additional information with respect to discards and the bag limit analysis

Using the MRIP website effort queries, we compared the number of trips that caught and landed blueline tilefish to the number of trips that were targeting blueline tilefish as its primary species. In 2013, 83% of all trips catching blueline tilefish were targeting blueline tilefish. This value is variable though when looking at data since 2006, with an average of 37% of the trips targeting blueline tilefish. According to the stock assessment (SEDAR 32 table 2.11) the number of recreational blueline tilefish discarded was low with 12% discarded in 2010 and 3% discarded in 2011. The MRIP website gives an estimate of 1,345 (5%) and 1,200 (2%) blueline tilefish discarded in 2012 and 2013, respectively. Discards would vary depending on whether fishermen continued to target blueline tilefish after their limit was caught or during the closed portions for each alternative. In 2011, during the 240 ft closure, there were reduced discards, which may imply that fishermen were not actively targeting blueline tilefish. This may be an indication that once the season closes or the bag limit is reached fishermen may cease to target blueline tilefish, which would limit the discards. The maximum discards that could be expected would be the differences between the alternatives and the status quo. With the high projected reductions for some alternatives, increased discards should be considered when choosing an alternative.

References

NMFS (2012). SERO-LAPP-2012-03: Gulf Gray Triggerfish Decision Tool Report, 18pp.

Revised Projections for South Atlantic Blueline Tilefish SEDAR 32 Stock Assessment

Sustainable Fisheries Branch, National Marine Fisheries Service,
Southeast Fisheries Science Center,
101 Pivers Island Rd, Beaufort, NC 28516

April 28, 2014

This document responds to an April 21, 2014 request for additional projections following the SEDAR 32 South Atlantic blueline tilefish stock assessment. The request was for (1) a constant F projection at F=75%Fmsy, (2) a constant F projection at F=Fmsy, (3) a P* analysis at P*=0.3, and (4) a P* analysis at P*=0.5. In addition, it was requested that the most recent catch data be used for the interim years (2012 and 2013) and that 2014 landings be set to 224,100 lb. The request is an update to prior requests (see December 16, 2013 and February 14, 2014 memorandums). The methodology for the current request for projections can be found in the assessment report (SEDAR 2013) and in the April 7, 2013 response to the initial request.

2012 and 2013 data

2012 and 2013 blueline tilefish landings and discards were re-computed using the most recent (week of April 21, 2014) available data supplied by the data providers. Where data were supplied in numbers, weights were computed using a mean weight of 5.0 lb, consistent with the assessment. Landings and discard estimates for 2013 are considered preliminary by the data providers.

Commercial landings for the longline, handline, and 'other' fisheries were supplied in pounds whole weight. Total commercial discards were supplied in numbers of fish for 2012 and were converted to weight using a mean weight. Discards were not supplied for 2013 and so were estimated assuming the same ratio of discards: landings (in weight) as was observed for 2012. Commercial discards were a small percentage of the total commercial harvest (< 1%).

MRIP recreational landings (A + B1) were supplied in pounds whole weight using the SEFSC estimation methodology. These landings include Monroe County as well as a proportion (0.23) of unidentified tilefish, consistent with the original assessment. Recreational discards (B2) were provided in numbers of fish. Discard mortality was assumed 100% and discard numbers were converted to discard weights using a mean weight. Headboat landings and discards for areas south of the North Carolina/Virginia border were removed from the MRIP recreational landings because this region is more effectively sampled by the Southeast Regional Headboat Survey (SRHS). A small number of headboat trips north of North Carolina were retained in the MRIP catch estimates. This is also consistent with the methodology used in the assessment.

Headboat landings and discards were provided by SRHS. Landings were provided in pounds whole weight and discards were provided in numbers of fish. Headboat discards were converted to weight using a mean weight.

The estimated landings and discards by fishery for 2012 and 2013 are shown in Table 1. Fig. 1 shows the catch (landings + discards) time series used in the assessment (1974-2011) updated with the 2012 and 2013 data.

Preliminary 2013 Recreational Catch Estimates

MRIP landings in 2013 were high (310,368 lb) compared to 2012 (70,394) and compared to recent years. Proportional standard error (PSE) in 2013 was > 0.7 indicating the estimated landings are highly uncertain. Historically, total blueline landings in the recreational fishery in the South Atlantic have been driven by landings off North Carolina (Fig. 2). In 2013, total blueline recreational landings were driven by landings off Florida. The reason for the rapid increase in blueline landings off Florida in 2013 is unknown. This rapid increase in recreational landings and the shift in spatial distribution of the harvest suggest there may be some issue with the 2013 MRIP data, which are still considered preliminary. In light of this, the requested projections were run in duplicate with the preliminary estimate of 2013 MRIP landings that were provided and with an imputed value for the 2013 MRIP landings.

The imputed value used for 2013 was the mean of the MRIP landings (A+B1) for 2010 and 2012. The 2010 and 2012 MRIP catches (landings + discards) were 65,120 lbs and 77,812 lbs, respectively. The 2011 MRIP catch was low compared to recent years (46,997 lb), probably due to the 2011 deep water closure. Therefore, the MRIP catch in 2010 and 2012 was averaged and used as an alternative estimate of 2013 MRIP landings (71,466 lb). Total landings across all fisheries in 2013 calculated with this change were 317,116 lb compared to 556,018 lb using the MRIP estimate provided, a difference of 238,902 lb (Table 1).

Projections were run in duplicate with the actual 2013 MRIP estimate and with the imputed value for 2013 (average of the 2010 and 2012 MRIP landings).

Projections

Constant F and P* projections were run for the seven years following the terminal year of the assessment (2012-2018). Catch levels for the interim period (2012 and 2013) were set to the values shown in Table 1. The first year of new management was assumed to be 2014. The catch level for 2014 was set to 224,100 lb whole wet weight, the 75% F_{MSY} level at equilibrium.

Two constant F projections were run with F set to 75% of Fmsy and F set to Fmsy. Annual catch (landings + discards) associated with these levels of fishing mortality were computed for 2015-2018. Details of the stochastic projection model can be found in SEDAR (2013).

Two P* projections were conducted with P*=0.3 and P*=0.5. Annual levels of projected landings consistent with these two probabilities of overfishing in any of the remaining years of the projection time period (2015-2018) were computed using the sequential PASCL approach of Shertzer et al. (2010).

For both constant F and P* projections, annual catch was separated into landings and discards using the ratio of total discards to total landings from the assessment.

Results of the constant F projections at 75% Fmsy and Fmsy, and with the observed and imputed MRIP landings are shown in Table 2-5 and Fig. 3-6. Similar results of the P* analysis are shown in Table 6-9 and Fig. 7-10.

Comments on Projections:

- The catch level requested to be used for 2014 (224,100 lb) is the yield associated with 75% of F_{MSY} under equilibrium conditions. The stock is not at equilibrium and, therefore, F in 2014 is higher than the equilibrium 75%Fmsy (0.226) or Fmsy (0.302).

- The difference in equilibrium yield at F=75%Fmsy (224.1 klb) and F=Fmsy (226.5 klb) is small and the difference in ABCs between these two projections is small.

- The difference between the observed and the imputed MRIP landings for 2013 has a large effect on the projections, both in terms of the estimated ABC and the uncertainty in F.

- In general, projections of fish stocks are highly uncertain, particularly in the long-term (> 3-5 years).

- Although these projections included many sources of uncertainty, they did not include structural (model) uncertainty. That is, projection results are conditional on one set of functional forms used to describe population dynamics, selectivity, recruitment, etc.

- Fisheries were assumed to continue fishing at their estimated current proportions of total fishing effort, using the estimated current selectivity patterns. New management regulations that alter those proportions or selectivities would likely affect projection results.

- These projections did not consider any error in implementing regulations (e.g., landings in excess of the ABC). If implementation error were included the projections would be altered.

- The projections assume that the estimated spawner-recruit relationship applies in the future and that past residuals reflect future uncertainty in recruitment. If future recruitment changes, due to environment or harvest effects, then stock trajectories will be altered.

References

SEDAR, 2013. SEDAR 32 Stock Assessment Report for South Atlantic Blueline Tilefish.

Shertzer, K.W., M.H. Prager, and E.H. Williams. 2010. Probabilistic approaches to setting acceptable biological catch and annual catch targets for multiple years: Reconciling methodology with National Standards Guidelines. Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science 2:451-458.

Table 1. 2012 and 2013 removals (pounds whole weight) of South Atlantic blueline tilefish. The "Alternative" column re-computes total 2013 landings using the average of MRIP landings in 2010 and 2012 for 2013.

Fishery	2012 Removals	2013 Removals	2013 Removals (Alternate)
Com Handline landings	32,726	46,969	46,969
Com Longline landings	309,320	157,195	157,195
Com 'Other' landings	25,197	22,195	22,195
Com Discards	197	121	121
MRIP landings	70,394	310,368	71,466
MRIP discards	7,418	6,107	6,107
Headboat landings	18,462	11,014	11,014
Headboat discards	1,260	2,049	2,049
Total:	**464,974**	**556,018**	**317,116**

Table 2. Constant F projection at F=75%F_{msy}. F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in mt), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values are medians. Assumed 224.1 klb caught in 2014. Observed MRIP estimate for 2013 (556,018 lb).

Year	F	SSB	Pr(SSB> SSB_{msy})	R	ABC landings (1000 lb)	ABC discards (1000 lb)	ABC landings (1000 fish)	ABC discards (1000 fish)
2012	1.094	199.40	0.15	106.645	NA	NA	NA	NA
2013	2.191	140.42	0.05	106.052	NA	NA	NA	NA
2014	1.312	118.55	0.04	92.977	223.858	0.242	51.010	0.127
2015	0.226	133.44	0.06	86.900	**50.011**	**0.054**	**10.980**	**0.012**
2016	0.226	161.16	0.10	90.203	**75.169**	**0.081**	**15.327**	**0.017**
2017	0.226	182.17	0.16	96.404	**98.387**	**0.106**	**19.023**	**0.021**
2018	0.226	197.51	0.23	99.568	**118.424**	**0.128**	**21.955**	**0.024**

Table 3. Constant F projection at F=75%F_{msy}. F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in mt), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values are medians. Assumed 224.1 klb landed in 2014. Imputed MRIP estimate for 2013 (317,116 lb).

Year	F	SSB	Pr(SSB> SSB_{msy})	R	ABC landings (1000 lb)	ABC discards (1000 lb)	ABC landings (1000 fish)	ABC discards (1000 fish)
2012	1.094	199.40	0.15	106.645	NA	NA	NA	NA
2013	0.903	171.64	0.09	106.052	NA	NA	NA	NA
2014	0.683	165.72	0.10	100.128	223.858	0.242	45.568	0.049
2015	0.226	177.96	0.14	98.644	**87.010**	**0.094**	**17.215**	**0.109**
2016	0.226	199.62	0.22	100.735	**110.891**	**0.120**	**21.094**	**0.023**
2017	0.226	216.36	0.30	104.348	**130.885**	**0.142**	**24.016**	**0.026**
2018	0.226	228.21	0.38	105.940	**146.476**	**0.158**	**26.169**	**0.028**

Table 4. Constant F projection at $F=F_{msy}$. F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in mt), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values are medians. Assumed 224.1 klb landed in 2014. Observed MRIP estimate for 2013 (556,018 lbs).

Year	F	SSB	Pr(SSB> SSB_{msy})	R	ABC landings (1000 lb)	ABC discards (1000 lb)	ABC landings (1000 fish)	ABC discards (1000 fish)
2012	1.094	199.40	0.15	106.645	NA	NA	NA	NA
2013	2.191	140.42	0.05	106.052	NA	NA	NA	NA
2014	1.312	118.55	0.04	92.977	223.858	0.242	51.082	0.055
2015	0.302	132.19	0.05	86.901	**65.341**	**0.071**	**14.392**	**0.015**
2016	0.302	156.04	0.08	89.875	**94.755**	**0.102**	**19.467**	**0.021**
2017	0.302	173.23	0.12	95.326	**119.966**	**0.130**	**23.446**	**0.025**
2018	0.302	184.14	0.15	97.915	**140.240**	**0.152**	**26.438**	**0.029**

Table 5. Constant F projection at $F=F_{msy}$. F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in mt), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values are medians. Assumed 224.1 klb landed in 2014. Imputed MRIP estimate for 2013 (317,116 lbs).

Year	F	SSB	Pr(SSB> SSB_{msy})	R	ABC landings (1000 lb)	ABC discards (1000 lb)	ABC landings (1000 fish)	ABC discards (1000 fish)
2012	1.094	199.40	0.15	106.645	NA	NA	NA	NA
2013	0.903	171.64	0.09	106.052	NA	NA	NA	NA
2014	0.683	165.72	0.10	100.128	**223.858**	**0.242**	**45.568**	**0.049**
2015	0.302	175.52	0.13	98.644	**113.214**	**0.122**	**22.437**	**0.024**
2016	0.302	191.98	0.18	100.311	**138.304**	**0.150**	**26.564**	**0.029**
2017	0.302	203.43	0.22	103.398	**157.251**	**0.170**	**29.241**	**0.032**
2018	0.302	210.58	0.27	104.174	**170.636**	**0.184**	**31.091**	**0.034**

Table 6. Acceptable biological catch (ABC) of blueline tilefish based on the annual probability of overfishing P* = 0.3. Landings were set to those observed for 2012 and 2013 and to 224,100 lbs for 2014, with the ABC associated with the specified probability of overfishing calculated for the remaining years (2015-2018). F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in metric tons whole weight), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above the point estimate of SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values presented are medians. Assumed 224.1 klb landed in 2014. Observed MRIP estimate used for 2013 (556,018 lbs). L=landings, D=Discards.

Year	F	Pr(F > Fmsy)	SSB	Pr(SSB > SSBmsy)	R	ABC-L (1000 lb)	ABC-D (1000 lb)	ABC-L (1000 fish)	ABC-D (1000 fish)
2012	1.11	0.97	195.979	0.09	107.814	NA	NA	NA	NA
2013	2.33	1.00	132.292	0.02	105.751	NA	NA	NA	NA
2014	1.49	0.97	107.838	0.02	92.853	NA	NA	NA	NA
2015	0.144	0.30	123.144	0.03	85.277	**28.546**	**0.031**	**6.355**	**0.007**
2016	0.147	0.30	155.085	0.08	89.260	**46.238**	**0.050**	**9.530**	**0.010**
2017	0.148	0.30	180.977	0.17	95.148	**64.768**	**0.070**	**12.593**	**0.014**
2018	0.149	0.30	201.827	0.27	99.421	**82.189**	**0.089**	**15.249**	**0.016**

Table 7. Acceptable biological catch (ABC) of blueline tilefish based on the annual probability of overfishing P* = 0.5. Landings were set to those observed for 2012 and 2013 and to 224,100 lbs for 2014, with the ABC associated with the specified probability of overfishing calculated for the remaining years (2015-2018). F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in metric tons whole weight), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above the point estimate of SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values presented are medians. Assumed 224.1 klb landed in 2014. Observed MRIP estimate used for 2013 (556,018 lbs). L=landings, D=Discards.

Year	F	Pr(F > Fmsy)	SSB	Pr(SSB > SSBmsy)	R	ABC-L (1000 lb)	ABC-D (1000 lb)	ABC-L (1000 fish)	ABC-D (1000 fish)
2012	1.11	0.97	195.979	0.09	107.814	NA	NA	NA	NA
2013	2.33	1.00	132.292	0.02	105.751	NA	NA	NA	NA
2014	1.49	0.97	107.838	0.02	92.853	NA	NA	NA	NA
2015	0.229	0.50	121.805	0.03	85.277	**44.271**	**0.048**	**9.885**	**0.011**
2016	0.227	0.50	150.111	0.07	88.723	**67.118**	**0.073**	**13.943**	**0.015**
2017	0.225	0.50	171.579	0.14	93.956	**89.598**	**0.097**	**17.627**	**0.019**
2018	0.224	0.50	187.246	0.22	97.496	**109.542**	**0.118**	**20.642**	**0.022**

Table 8. Acceptable biological catch (ABC) of blueline tilefish based on the annual probability of overfishing P* = 0.3. Landings were set to those observed for 2012 and 2013 and to 224,100 lbs for 2014, with the ABC associated with the specified probability of overfishing calculated for the remaining years (2015-2018). F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in metric tons whole weight), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above the point estimate of SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values presented are medians. Assumed 224.1 klb landed in 2014. Imputed MRIP estimate used for 2013 (317,116 lbs). L=landings, D=Discards.

Year	F	Pr(F > Fmsy)	SSB	Pr(SSB > SSBmsy)	R	ABC-L (1000 lb)	ABC-D (1000 lb)	ABC-L (1000 fish)	ABC-D (1000 fish)
2012	1.11	0.97	195.979	0.09	107.814	NA	NA	NA	NA
2013	0.935	1.00	164.447	0.02	105.751	NA	NA	NA	NA
2014	0.732	0.97	154.986	0.02	100.128	NA	NA	NA	NA
2015	0.160	0.30	168.162	0.03	97.929	**57.541**	**0.062**	**11.474**	**0.012**
2016	0.161	0.30	195.579	0.08	100.196	**77.075**	**0.083**	**14.698**	**0.016**
2017	0.160	0.30	217.639	0.17	102.753	**95.051**	**0.102**	**17.419**	**0.019**
2018	0.159	0.30	235.903	0.27	106.246	**110.317**	**0.119**	**19.576**	**0.021**

Table 9. Acceptable biological catch (ABC) of blueline tilefish based on the annual probability of overfishing P* = 0.5. Landings were set to those observed for 2012 and 2013 and to 224,100 lbs for 2014, with the ABC associated with the specified probability of overfishing calculated for the remaining years (2015-2018). F = fishing mortality rate (per yr), SSB = mid-year spawning stock biomass (mature female biomass in metric tons whole weight), Pr(SSB > SSB_{MSY}) = proportion of replicates where SSB was above the point estimate of SSB_{MSY} = 246.6 mt, R = recruits (1000 age-1 fish). Annual ABCs are a single quantity while other values presented are medians. Assumed 224.1 klb landed in 2014. Imputed MRIP estimate used for 2013 (317,116 lbs).

Year	F	Pr(F > Fmsy)	SSB	Pr(SSB > SSBmsy)	R	ABC-L (1000 lb)	ABC-D (1000 lb)	ABC-L (1000 fish)	ABC-D (1000 fish)
2012	1.11	0.97	195.979	0.09	107.814	NA	NA	NA	NA
2013	0.935	0.95	164.447	0.04	105.751	NA	NA	NA	NA
2014	0.732	0.91	154.986	0.03	100.128	NA	NA	NA	NA
2015	0.235	0.50	165.975	0.07	97.929	**82.648**	**0.089**	**16.549**	**0.018**
2016	0.234	0.50	188.270	0.15	99.785	**104.862**	**0.113**	**20.189**	**0.022**
2017	0.233	0.50	204.824	0.25	101.347	**124.378**	**0.134**	**23.161**	**0.025**
2018	0.231	0.50	217.756	0.34	104.266	**140.423**	**0.152**	**25.414**	**0.027**

Figure. 1. South Atlantic blueline tilefish landings time series by fishery updated to 2013. Black dot is the imputed value for 2013 landings (317,116 pounds wet weight).

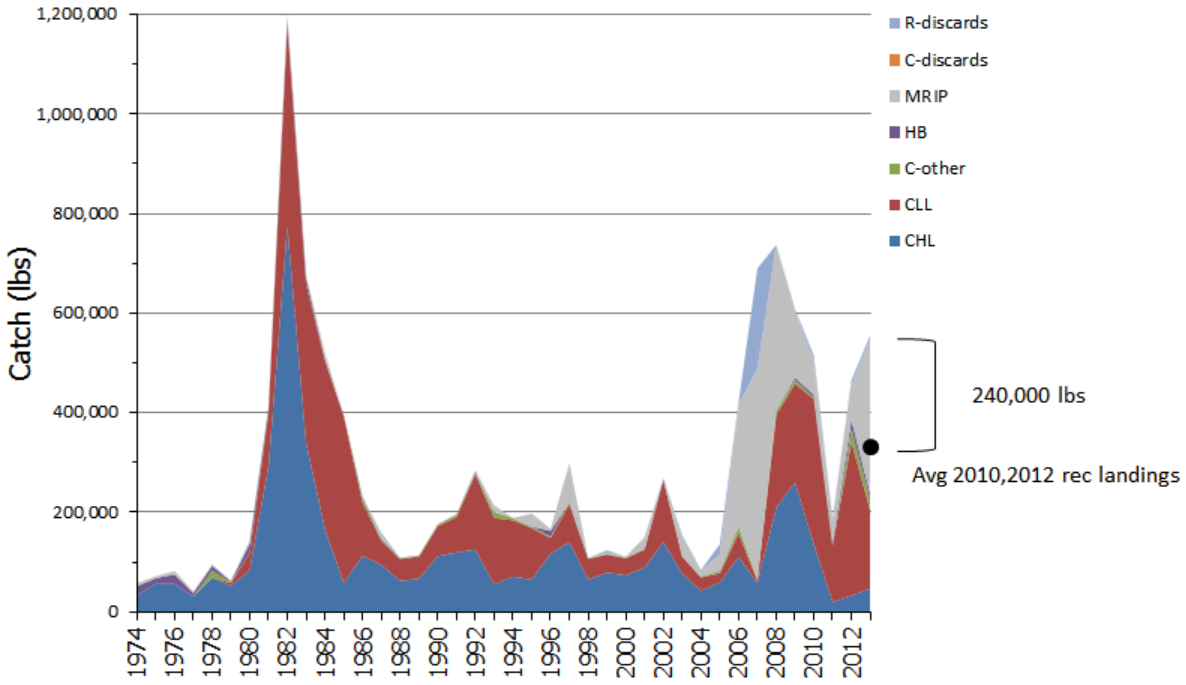


Figure 2. South Atlantic blueline tilefish general recreational (MRIP) landings for the South Atlantic (gray), the east coast of Florida, and North Carolina.

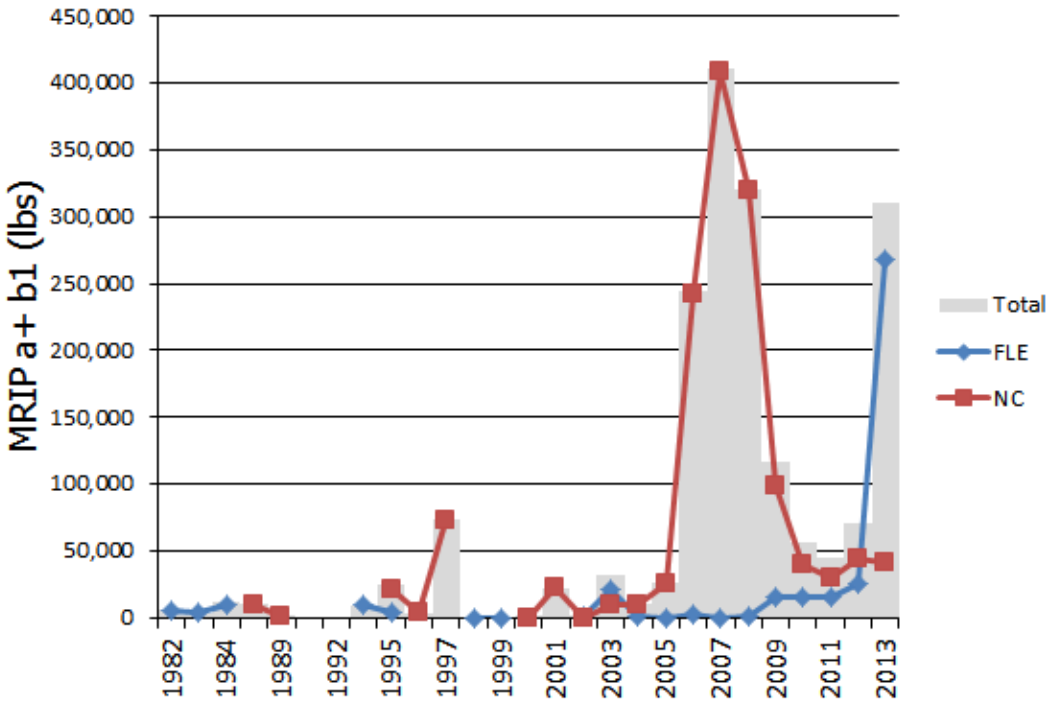


Figure 3. Constant F projection at F=75%F_{msy}. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (landings and dead discards are separated in the associated Tables). Expected values represented by dotted solid lines and uncertainty represented by thin lines corresponding to the 5th and 95th percentiles of the 10,000 projection runs. Observed MRIP estimate used for 2013 (556,018 lbs).

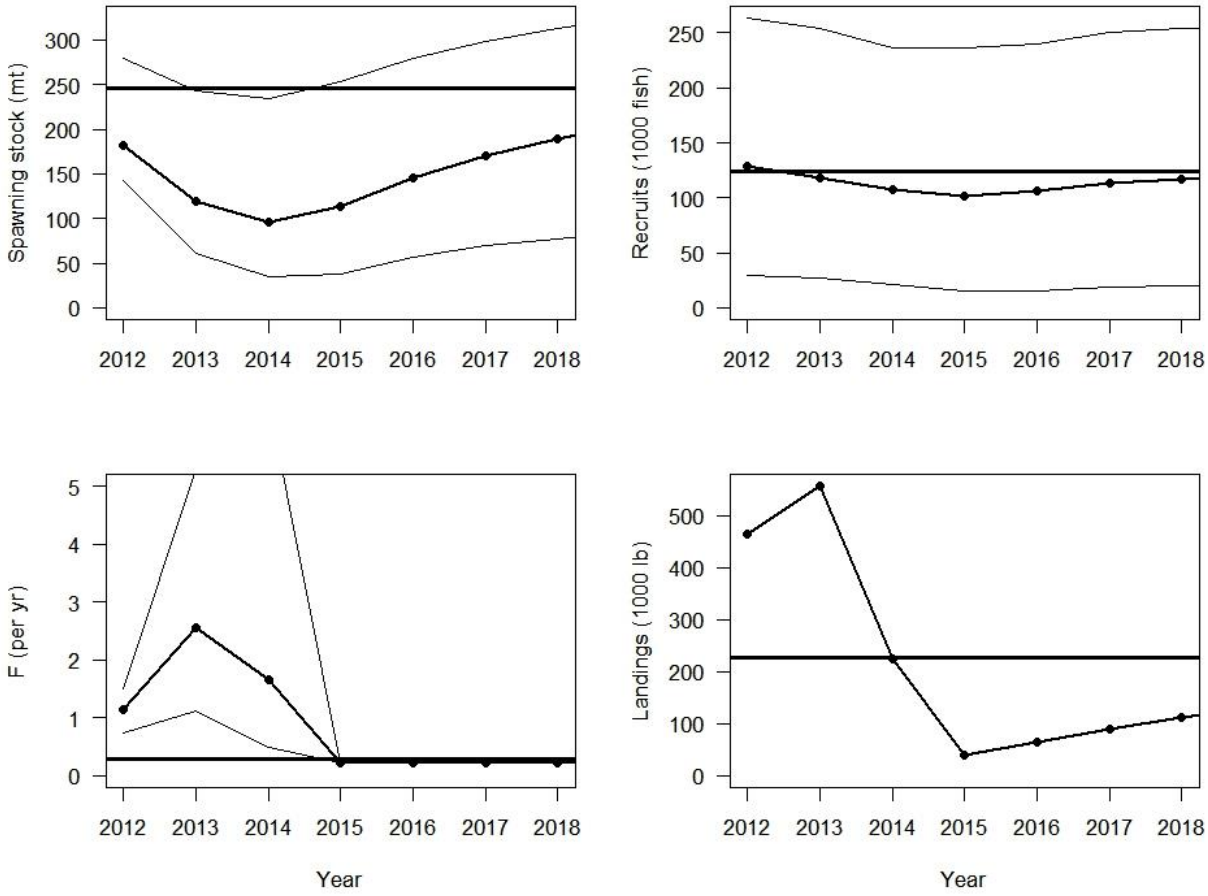


Figure 4. Constant F projection at F=75%F_{msy}. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (landings and dead discards are separated in the associated Tables). Expected values represented by dotted solid lines and uncertainty represented by thin lines corresponding to the 5th and 95th percentiles of the 10,000 projection runs. Imputed MRIP estimate used for 2013 (317,116 lbs).

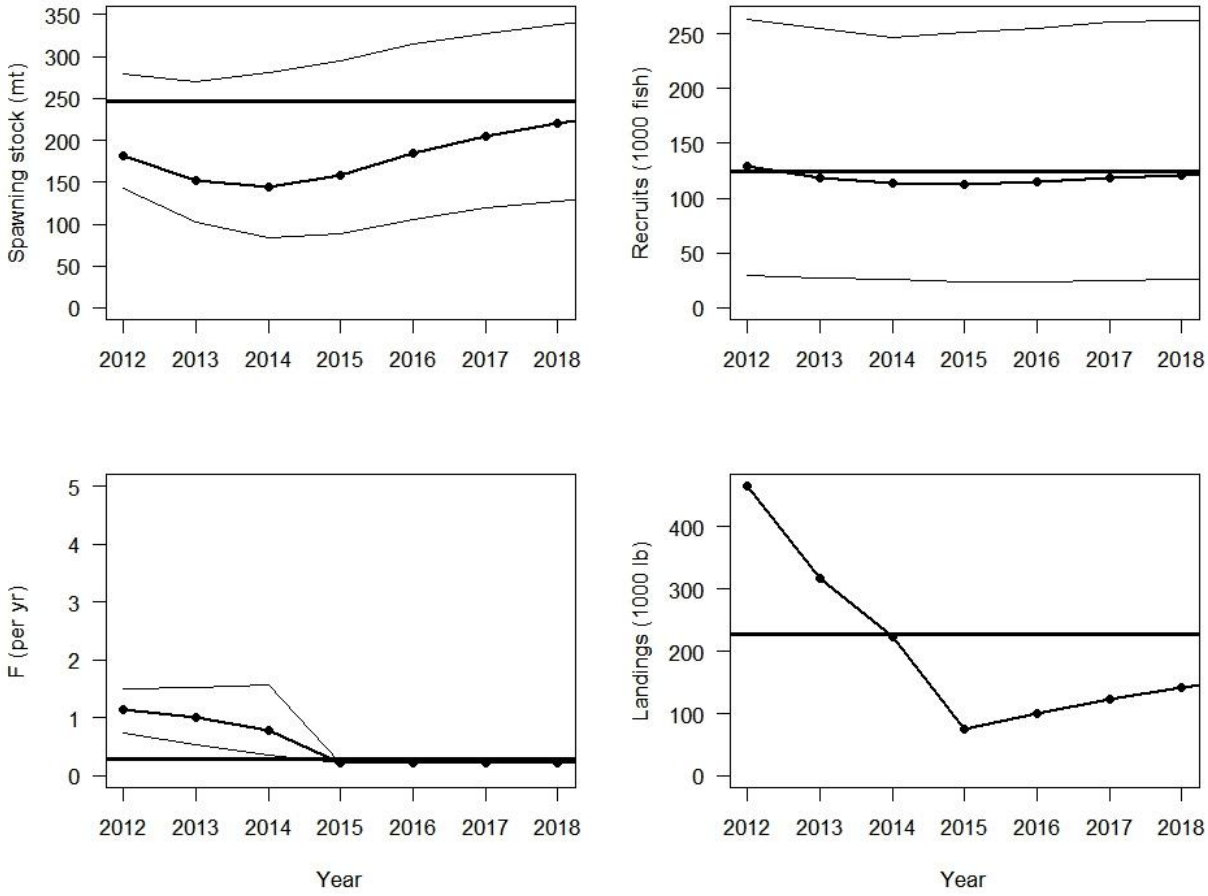


Figure 5. Constant F projection at $F=F_{msy}$. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (landings and dead discards are separated in the associated Tables). Expected values represented by dotted solid lines and uncertainty represented by thin lines corresponding to the 5th and 95th percentiles of the 10,000 projection runs. Observed MRIP estimate used for 2013 (556,018 lbs).

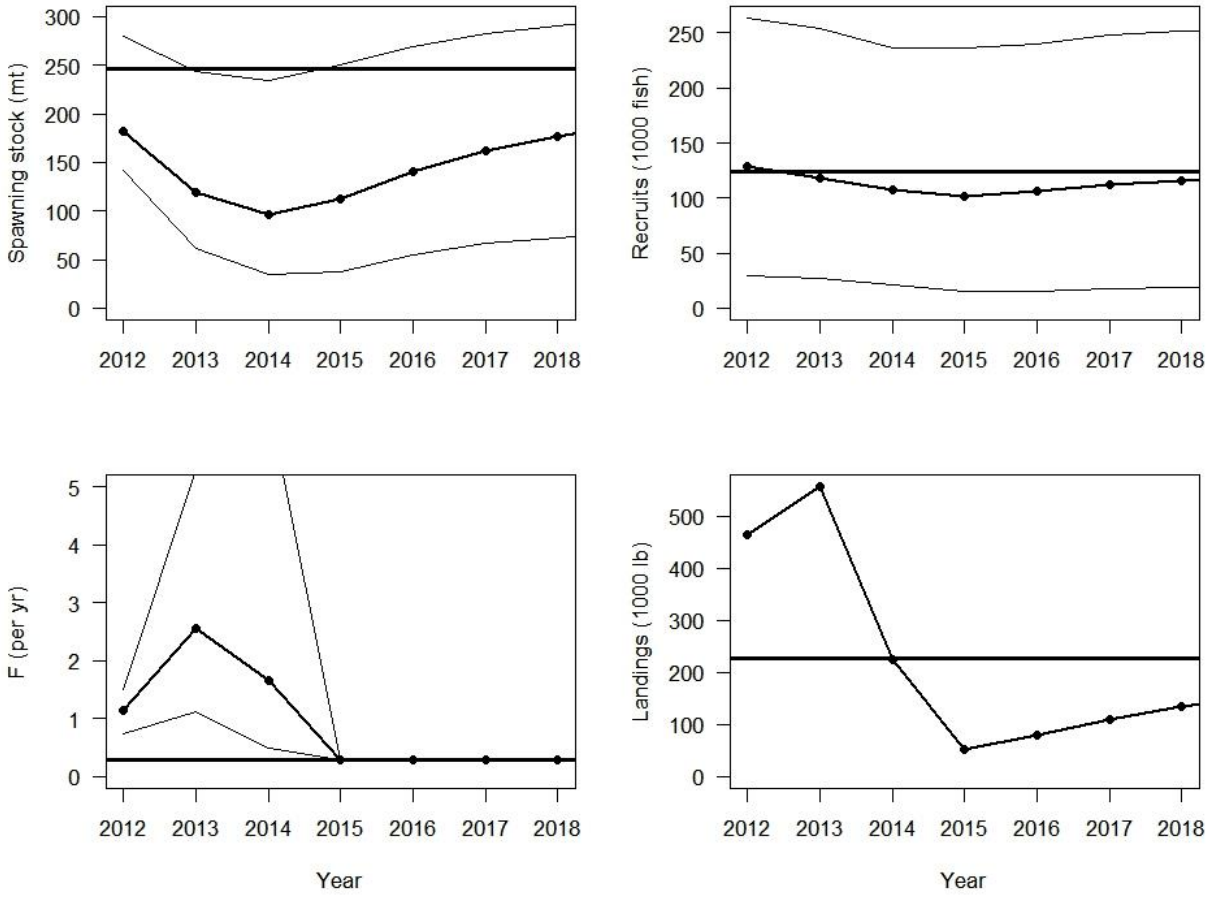


Figure 6. Constant F projection at $F=F_{msy}$. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (landings and dead discards are separated in the associated Tables). Expected values represented by dotted solid lines and uncertainty represented by thin lines corresponding to the 5th and 95th percentiles of the 10,000 projection runs. Imputed MRIP estimate used for 2013 (317,116 lbs).

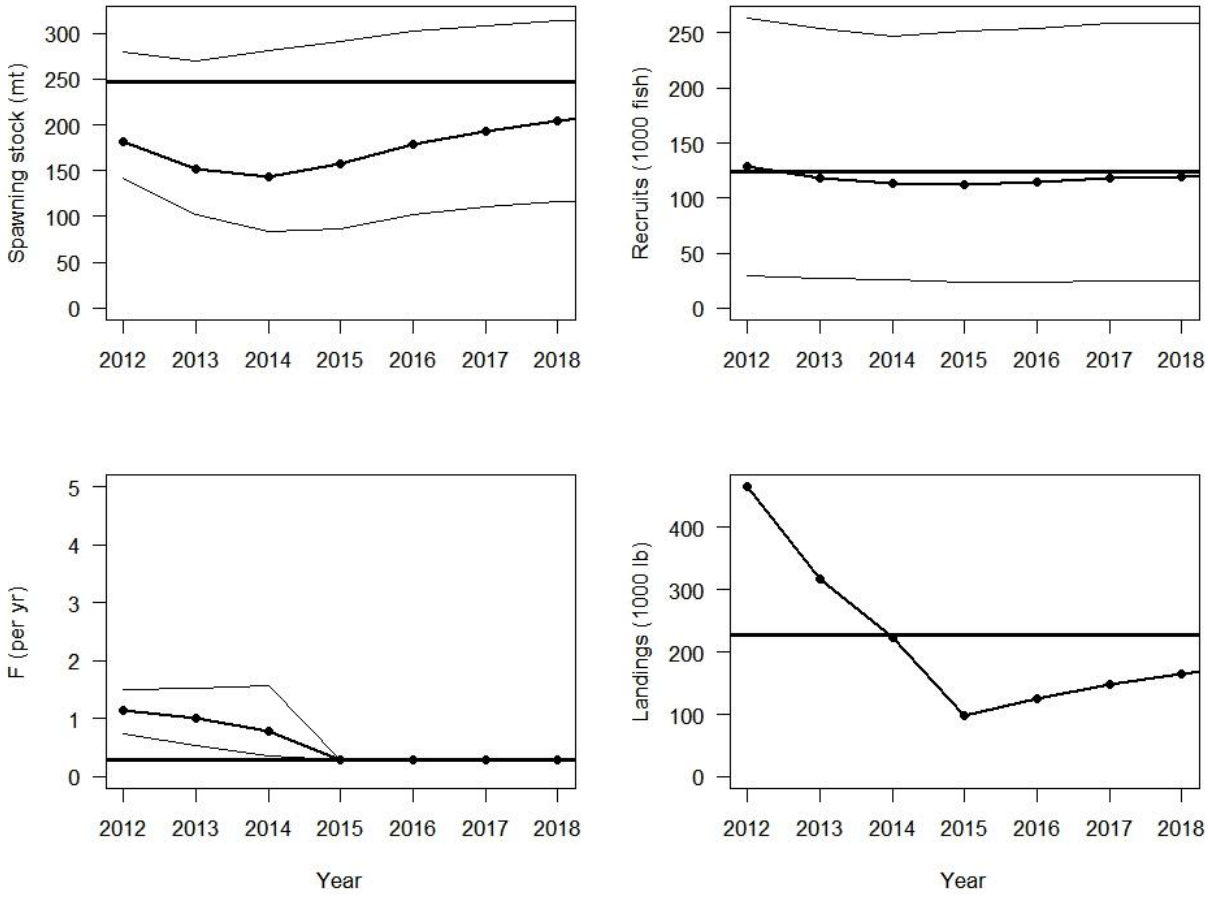


Figure 7. P* = 0.3 projection results. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (i.e., Landings = Catch). Annual ABCs (panel E) are a single quantity while other values presented are medians. Error bars represent the 5th and 95th percentiles of the 10,000 projection runs. Observed MRIP estimate used for 2013 (556,018 lbs).

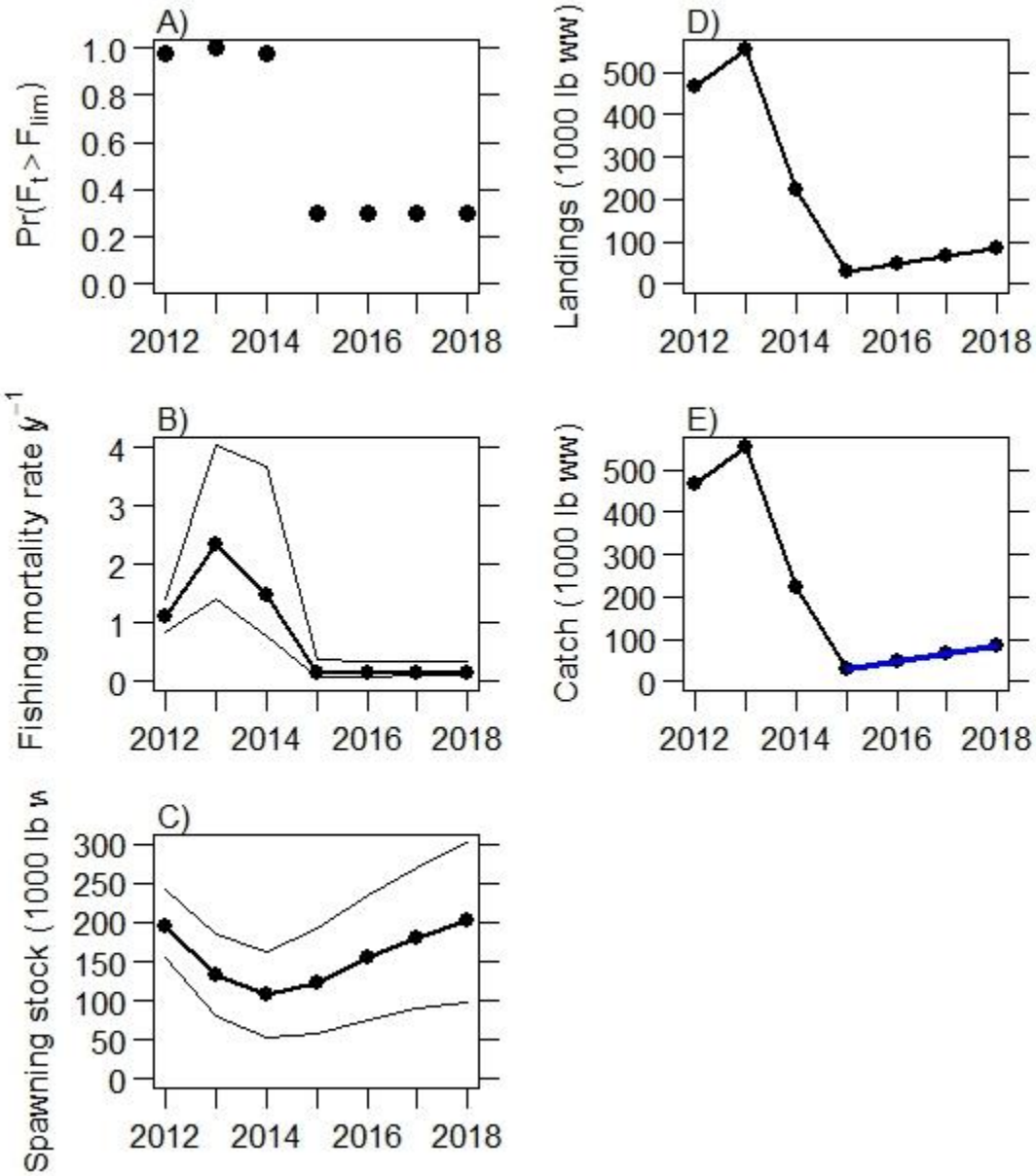


Figure 8. P* = 0.5 projection results. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (i.e., landings = catch). Annual ABCs (panel E) are a single quantity while other values presented are medians. Error bars represent the 5th and 95th percentiles of the 10,000 projection runs. Observed MRIP estimate used for 2013 (556,018 lbs).

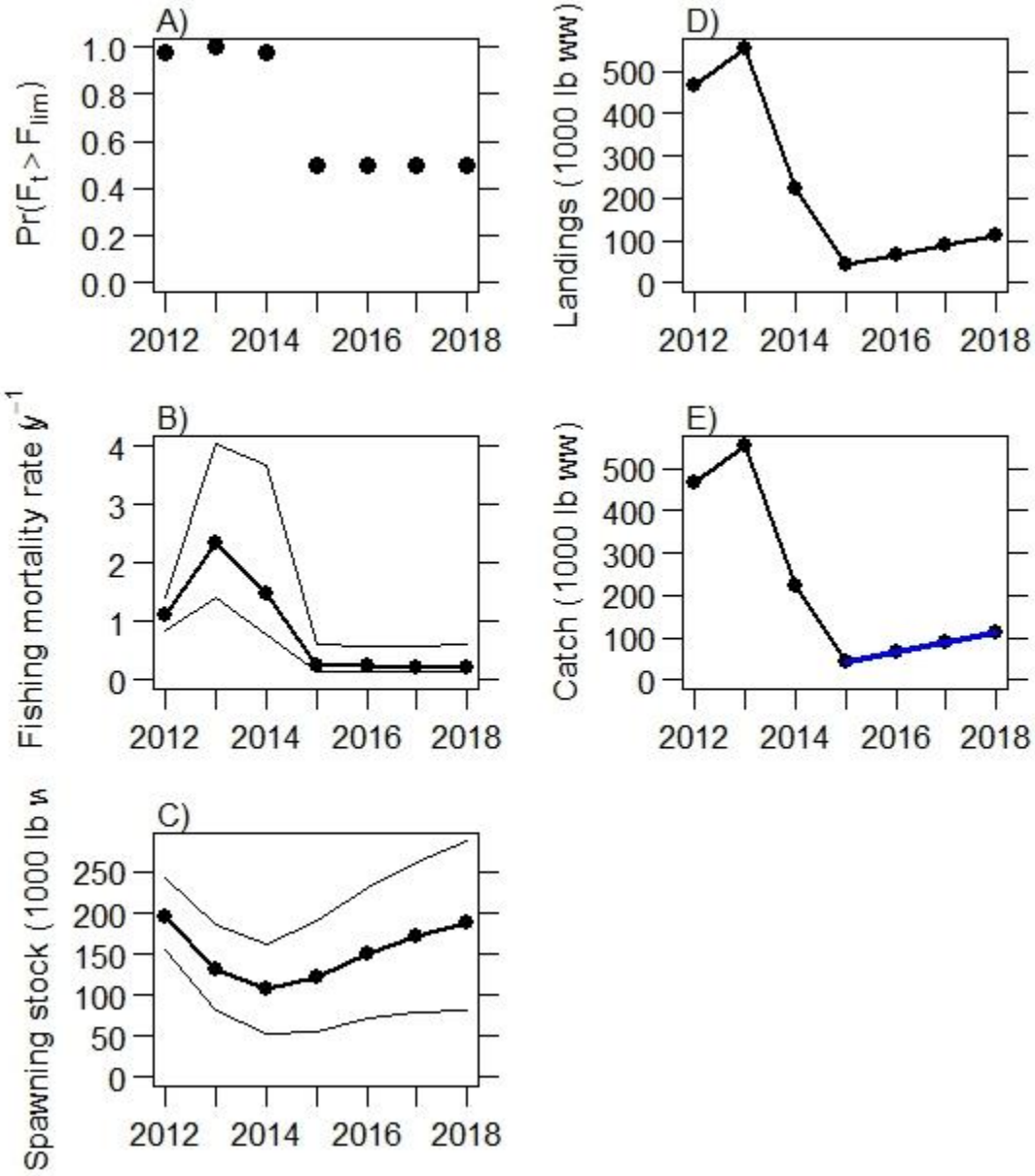


Figure 9. P* = 0.3 projection results. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (i.e., landings = catch). Annual ABCs (panel E) are a single quantity while other values presented are medians. Error bars represent the 5th and 95th percentiles of the 10,000 projection runs. Imputed MRIP estimate used for 2013 (317,116 lbs).

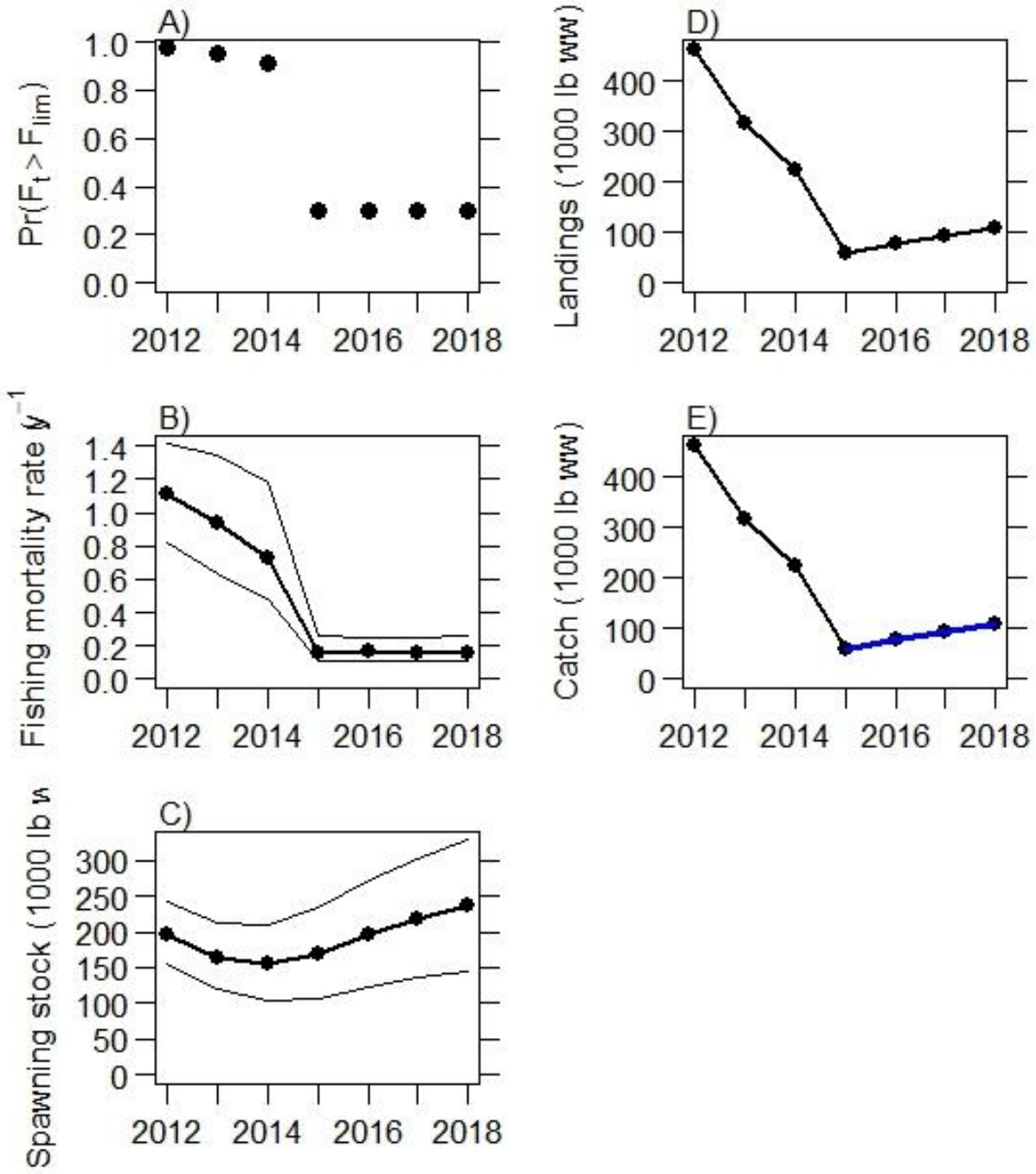


Figure 10. P* = 0.5 projection results. For this assessment, discards were combined with landings so the ABC reflects both landings and dead discards (i.e., landings = catch). Annual ABCs (panel E) are a single quantity while other values presented are medians. Error bars represent the 5th and 95th percentiles of the 10,000 projection runs. Imputed MRIP estimate used for 2013 (317,116 lbs).