

highest chance of rebuilding the stock faster and therefore generating larger future benefits to the fishery.

Under **Action 10**, five other alternatives are considered. **Alternative 1** (status quo) would maintain a 12 inch TL minimum size limit. **Alternative 2** would establish a 40-pound trip limit; **Alternative 3** would increase the size limit to 16 inches FL; **Alternative 4** would increase the size limit to 15 inches FL and establish a 210-pound trip limit; **Alternative 5** would increase the size limit to 14 inches FL and establish a 90-pound trip limit. In terms of economic value losses, **Preferred Alternative 6**, after **Alternative 2**, corresponds to the second lowest loss. **Preferred Alternative 6 is the superior alternative** because it clearly sets a limit to commercial gray triggerfish harvests and accounts for the hardiness of gray triggerfish by adjusting the minimum size limit rather than relying on trip limits.

8. OTHER APPLICABLE LAW

The MSFCMA (16 U.S.C. 1801 et seq.) provides the authority for fishery management in federal waters of the EEZ. However, fishery management decision-making is also affected by a number of other federal statutes designed to protect the biological and human components of U.S. fisheries, as well as the ecosystems that support those fisheries. Major laws affecting federal fishery management decision-making are summarized below.

Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (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, 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 waiting period from the time a final rule is published until it takes effect.

Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act of 1972 (CZMA), as amended, requires federal activities that affect any land or water use or natural resource of a state’s coastal zone be conducted in a manner consistent, to the maximum extent practicable, with approved state coastal management programs. The requirements for such a consistency determination are set forth in NOAA regulations at 15 C.F.R. part 930, subpart C. According to these regulations and CZMA Section 307(c)(1), when taking an action that affects any land or water use or natural resource of a state’s coastal zone, NMFS is required to provide a consistency determination to the relevant state agency at least 90 days before taking final action.

Upon submission to the Secretary, NMFS will determine if this plan amendment is consistent with the Coastal Zone Management programs of the states of Alabama, Florida, Louisiana, Mississippi, and Texas to the maximum extent possible. Their determination will then be

submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management programs for these states.

Data Quality Act

The Data Quality Act (DQA) (Public Law 106-443) effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. Information includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, cartographic, narrative, or audiovisual forms (includes web dissemination, but not hyperlinks to information that others disseminate; does not include clearly stated opinions).

Specifically, the Act directs the Office of Management and Budget (OMB) to issue government wide guidelines that “provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies.” Such guidelines have been issued, directing all federal agencies to create and disseminate agency-specific standards to: (1) ensure information quality and develop a pre-dissemination review process; (2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and (3) report periodically to OMB on the number and nature of complaints received.

Scientific information and data are key components of FMPs and amendments and the use of best available information is the second national standard under the MSFCMA. To be consistent with the Act, FMPs and amendments must be based on the best information available. They should also properly reference all supporting materials and data, and be reviewed by technically competent individuals. With respect to original data generated for FMPs and amendments, it is important to ensure that the data are collected according to documented procedures or in a manner that reflects standard practices accepted by the relevant scientific and technical communities. Data should also undergo quality control prior to being used by the agency and a pre-dissemination review.

Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. Section 1531 et seq.) requires federal agencies use their authorities to conserve endangered and threatened species. The ESA requires NMFS, when proposing a fishery action that “may affect” critical habitat or endangered or threatened species, to consult with the appropriate administrative agency (itself for most marine species, the U.S. Fish and Wildlife Service for all remaining species) to determine the potential impacts of the proposed action. Consultations are concluded informally when proposed actions may affect but are “not likely to adversely affect” endangered or threatened species or designated critical habitat. Formal consultations, including a biological opinion, are required when proposed actions may affect and are “likely to adversely affect” endangered or threatened species or adversely modify designated critical habitat. If jeopardy or adverse modification is found, the consulting agency is required to suggest reasonable and prudent alternatives.

Marine Mammal Protection Act

The Marine Mammal Protection Act (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, and on 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 and marine 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,” and a conservation plan is 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.

Under section 118 of the 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. The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements.

Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure the public is not overburdened with information requests, the federal government’s information collection procedures are efficient, and federal agencies adhere to appropriate rules governing the confidentiality of such information. The PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public.

Executive Orders

E.O. 12630: Takings

The Executive Order on Government Actions and Interference with Constitutionally Protected Property Rights that became effective March 18, 1988, requires each federal agency prepare a Takings Implication Assessment for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal

property. Clearance of a regulatory action must include a takings statement and, if appropriate, a Takings Implication Assessment. The NOAA Office of General Counsel will determine whether a Taking Implication Assessment is necessary for this amendment.

E.O. 12866: Regulatory Planning and Review

Executive Order 12866: Regulatory Planning and Review, 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 RIR for all fishery regulatory actions that either implement a new fishery management plan or significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society of 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 RFA. A regulation is significant if it a) has an annual effect on the economy of \$100 million or more or adversely affects 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 and communities; b) creates a serious inconsistency or otherwise interferes with an action taken or planned by another agency; c) materially alters the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or d) raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. NMFS has preliminarily determined that this action will not meet the economic significance threshold of any criteria.

E.O. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

This Executive Order requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Impacts of commercial and recreational fishing on subsistence fishing are a concern in fisheries management; however, there are no such implications from the action proposed in this amendment.

E.O. 12962: Recreational Fisheries

This Executive Order 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

including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. Additionally, it 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 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. [Sentence removed]

E.O. 13089: Coral Reef Protection

The Executive Order on Coral Reef Protection requires federal agencies whose actions may affect U.S. coral reef ecosystems to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems, and, to the extent permitted by law, ensure actions that they authorize, fund, or carry out do not degrade the condition of that ecosystem. By definition, a U.S. coral reef ecosystem means those species, habitats, and other national resources associated with coral reefs in all maritime areas and zones subject to the jurisdiction or control of the United States (e.g., federal, state, territorial, or commonwealth waters).

Regulations are already in place to limit or reduce habitat impacts within the Flower Garden Banks National Marine Sanctuary. Additionally, NMFS approved and implemented Generic Amendment 3 for EFH, which established additional HAPCs and gear restrictions to protect corals throughout the Gulf. There are no implications to coral reefs by the actions proposed in this amendment.

E.O. 13132: Federalism

The Executive Order on Federalism requires agencies in formulating and implementing policies, to be guided by the fundamental Federalism principles. The Order serves to guarantee the division of governmental responsibilities between the national government and the states that was intended by the framers of the Constitution. Federalism is rooted in the belief that issues not national in scope or significance are most appropriately addressed by the level of government closest to the people. This Order is relevant to FMPs and amendments given the overlapping authorities of NMFS, the states, and local authorities in managing coastal resources, including fisheries, and the need for a clear definition of responsibilities. It is important to recognize those components of the ecosystem over which fishery managers have no direct control and to develop strategies to address them in conjunction with appropriate state, tribes and local entities (international too).

No Federalism issues have been identified relative to the action proposed in this amendment. Therefore, consultation with state officials under Executive Order 12612 is not necessary.

E.O. 13158: Marine Protected Areas

This Executive Order requires federal agencies to consider whether their proposed action(s) will affect 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 or cultural resource within the protected area. There are several MPAs, HAPCs, and gear-restricted areas in the eastern and northwestern Gulf (as described in Section 3.2.1), where the fisheries for greater amberjack and gray triggerfish occur. Measures in this amendment do not have any area specific measures relative to MPAs or HAPCs, and so should not affect this habitat.

Essential Fish Habitat

The amended MSFCMA included a new habitat conservation provision known as EFH that requires each existing and any new FMPs to describe and identify EFH for each federally managed species, minimize to the extent practicable impacts from fishing activities on EFH that are more than minimal and not temporary in nature, and identify other actions to encourage the conservation and enhancement of that EFH. To address these requirements the Council has, under separate action, approved an EIS (GMFMC 2004a) to address the new EFH requirements contained within the MSFCMA. Section 305(b)(2) requires federal agencies to obtain a consultation for any action that may adversely affect EFH. An EFH consultation will be conducted for this action.

9. LIST OF PREPARERS

Name	Expertise	Responsibility	Agency
Dr. Assane Diagne	Economist	Economic analyses	GMFMC
David Dale	Biologist	EFH review	SERO
Dr. Stephen Holiman	Economist	Economic analyses/Review	SERO
Peter Hood	Biologist	Gray triggerfish actions/Affected environment	SERO
Dr. Palma Ingles	Anthropologist	Social analyses	SERO
Frank S. Kennedy	Biologist	Purpose and need/All actions/CEA/Reviews	GMFMC
David Keys	NEPA Specialist	NEPA Review	SERO
Dr. Antonio Lamberte	Economist	Economic analyses	SERO
Jennifer Lee	Biologist	Protected resources review	SERO
Larry Perruso	Economist	Economic analyses	SEFSC
Dr. Josh Sladek Nowlis	Biologist	Scientific analyses	SEFSC
Andrew Strelcheck	Biologist	Scientific analyses/GAJ and GTF actions	SERO

10. LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE AMENDMENT / DSEIS ARE SENT

List of Agencies:

Federal Agencies

Gulf of Mexico Fishery Management Council's

- Scientific and Statistical Committee
- Socioeconomic Assessment Panel

National Marine Fisheries Service

- Southeast Fisheries Science Center
- Southeast Regional Office

U.S. Coast Guard

Environmental Protection Agency

State Agencies

- Texas Department of Wildlife and Fisheries
- Louisiana Department of Wildlife and Fisheries
- Mississippi Department of Marine Resources
- Alabama Department of Conservation and Natural Resources
- Florida Fish and Wildlife Conservation Commission

List of Organizations:

- Coastal Conservation Association
- Fishermen's Advocacy Organization
- Fishing Rights Alliance
- Gulf Fishermen's Association
- Recreational Fishing Alliance
- Southeast Fisheries Association
- Southern Offshore Fishing Association

Responsible Agencies:

Gulf of Mexico Fishery Management Council (Lead Agency for FMP)
2203 North Lois Avenue, Suite 1100
Tampa, Florida 33607
813-348-1630

NOAA Fisheries Service (Lead Agency for NEPA analyses)
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701
727-824-5305

11. PUBLIC HEARING LOCATIONS AND DATES

- Monday, September 10, 2007, W Hotel, 333 Poydras St., New Orleans, LA 70130, 504-525-9444;
- Monday, September 10, 2007, Wingate Inn, 12009 Indian River Rd., Biloxi, MS 39540, 228-396-0036;
- Tuesday, September 11, 2007, Courtyard by Marriott, 3750 Gulf Shores Pkwy., Gulf Shores, AL 36542, 251-968-1113;
- Tuesday, September 11, 2007, Holiday Inn, 5002 Seawall Blvd, Galveston, TX 77551, 409-740-3581;
- Wednesday, September 12, 2007, Edgewater Beach Resort, 11212 Front Beach Road Panama City, FL 32407, 800-331-6338;
- Wednesday, September 12, 2007, Palacios Recreational Center, 2401 Perryman, Palacios, TX 77465, 361-972-2387;
- Thursday, September 13, 2007, Holiday Inn Emerald Beach, 1102 S. Shoreline Blvd., Corpus Christi, TX 78401, 361-883-5731.
- Monday, September 17, 2007, Radisson Hotel, 12600 Roosevelt Blvd., St. Petersburg, FL 33716, 727-572-7800;
- Tuesday, September 18, 2007, Sombrero Cay Club Resort, 19 Sombrero Blvd., Marathon, FL 33050, 305-743-2250;
- Wednesday, September 19, 2007, Clarion Hotel, 12635 S. Cleveland Ave., Ft. Myers, FL 33907, 239-936-4300.

12. SCOPING HEARING SUMMARIES

Reef Fish Amendment 30A was originally part of a larger Amendment 30 which included gag and red grouper as well as greater amberjack and gray triggerfish. The following summaries have been edited to include only those comments pertaining to greater amberjack and gray triggerfish as well as general comments. The summaries are listed in order by city from Texas through Florida

Galveston, Texas – March 21, 2007

Council: Degraaf Adams
Staff: Assane Diagne
Charlotte Schiaffo
Attendance: 8

The scoping meeting was convened at 7:00 pm on Wednesday, March 21, 2007 at the Hilton Hotel in Galveston, Texas. Dr. Diagne gave a presentation on the scoping document. The public was then invited to speak.

It was indicated that, in Texas, greater amberjack is abundant. Similarly, it was strongly noted that there are so many gray triggerfish in Texas waters that it was almost becoming a nuisance. Based on these observations, participants suggested that there may be a need for more regionalization in management measures. The importance of fish populations around artificial reefs in Texas was also noted. Speakers noted that the availability of educational material and training programs on proper fish venting techniques was critical to successful bycatch mortality reduction. The scoping hearing was adjourned at 8:15 pm

New Orleans, Louisiana – March 20, 2007

Council: Harlon Pearce
Staff: Assane Diagne
Charlotte Schiaffo
Attendance: 40+

The scoping meeting was convened at 7:00 pm on Tuesday, March 20, 2007 at the Sheraton Four Points Hotel in New Orleans, Louisiana. Dr. Diagne gave a presentation on the scoping document. The public was then invited to speak.

It was further indicated that separating the amendment into two documents; one with red and gag related issues and another with greater amberjack and gray triggerfish management measures would benefit the process. Meeting participants indicated that, to address the overfishing of the greater amberjack, size limit adjustments would be preferable to season closures. An increase in the minimum size limit to 30 or 32 inches was suggested. Participants noted that many for-hire operators rely on amberjack during difficult periods and thus, seasonal closures would really hurt their bottom line. This observation was reinforced by participants who commented that every time a species becomes inaccessible due to restrictive management measures, effort is shifted towards other available species. Concerning the management of gray triggerfish, an increase in the size limit to 12” was the preferred course of action for participants. It was also noted that gray triggerfish was not favored by most recreational anglers and that, if there were a problem, it may be linked to commercial operations. In response to a question from Mr. Pierce, for-hire operators present repeatedly indicated that they would be ready to participate in additional data collection efforts through a for-hire trip ticket program.

Several speakers indicated that management measures could account for the fact that spearfishermen generate a negligible, if any, amount of bycatch. In effect, several participants spoke in favor of special programs for divers. Participants also suggested the possibility of keeping the first 4 or 5 fish in lieu of size limit restrictions and season closures.

Several participants strongly emphasized that management needed to fully account for fish around oil rigs and other artificial structures. In addition, expansions of existing artificial reef were suggested. The scoping hearing was adjourned at 9:30 pm

Biloxi, Mississippi - March 19, 2007

Council: Tom McIlwain
Corky Perret
Staff: Assane Diagne
Charlotte Schiaffo
Attendance: 2

The scoping meeting was convened at 7:00 pm on Monday, March 19, 2007 at the Imperial Palace Hotel in Biloxi, Mississippi. Dr. Diagne gave a presentation on the scoping document. The public was then invited to speak. Public comments emphasized the critical role that educational material and training programs could play in improving anglers' knowledge concerning proper venting techniques. The scoping hearing was adjourned at 7:30.

Orange Beach, Alabama - March 19, 2007

In attendance: Bobbi Walker
Steven Atran
Tina Trezza
4 members of the public

Greater Amberjack comments:

- Participants agreed that greater amberjack are a hardy fish and that release mortality is not a problem.
- Instead of vessel limits, participants suggested considering fractional bag limits. For example, set the limit at ½ amberjack per person or at one amberjack for every two people. It was felt that this would be a fairer method than setting a single vessel limit for all vessels regardless of how many people are aboard.
- One participant suggested banning commercial harvest of greater amberjack.
- Another suggestion was to allow commercial harvest of greater amberjack, but under the same limits as recreational harvest, similar to the regulations for cobia.

Gray Triggerfish comments:

- All of the participants questioned the 1.5% release mortality rate used in the scoping document. While it was agreed that triggerfish are a hardy fish, release mortality is caused by the surface interval.
- One participant felt that the best approach to reduce harvest would be to consider size limits first followed by closed seasons. However, he noted that this was his personal preference and felt that other charterboat operators might not support this position.

General comments:

- One participant expressed concern with how any new regulations would be enforced. It was noted that NOAA Enforcement has a limited number of field agents, and that the Coast Guard and state marine enforcement agencies share responsibility for on the water enforcement, but that much of the enforcement depends on voluntary compliance and educating fishermen as to the regulations.
- Education should be at the forefront in order to keep people informed about new regulations. The Gulf Council's regulation pamphlets are rarely seen at bait and tackle shops. It was suggested that a copy of the regulations be given with every fishing license.
- Fines should be increased in order to encourage compliance.

Panama City, Florida - March 20, 2007

In attendance: Bill Teehan
Steven Atran
Tina Trezza
22 members of the public

Jim Clements, Carabelle, FL – Charterboat and commercial grouper fisherman:

General comments:

- MRFSS data is hearsay and should be thrown out.
- Minimum size and bag limits are not working and should be thrown out.

Walter Akins, Panama City – retired charterboat fishermen, former wildlife statistician:

Pat Green, Panama City – recreational spearfisherman, also some experience as a commercial greater amberjack fisherman:

Greater Amberjack comments:

- Recreational fishermen are already down to a 1 amberjack bag limit, and it would be unduly harsh to put more regulations on them.
- A commercial trip limit should be used to achieve any necessary greater amberjack reductions in harvest.

General comments:

- Reallocate all fisheries based on economic impact.
-

Scott Robson, Miramer Beach – recreational fisherman:

Greater Amberjack comments:

- Questioned the accuracy of statements on page 38 that the highest greater amberjack catches per trip were 50 for headboats, 10 for charterboats, and 7-8 for TPWD and MRFSS private recreational vessels. Given the 1-fish bag limit, these numbers seem too high.
- If anything needs to be done, the February-March closed season and 30-inch minimum size limit would be the way to go.

Gray Triggerfish comments:

- Felt that fish caught on artificial reefs are not being counted.
- 12-inch size limit was just implemented last year. There has not been time to evaluate its impact.

Mike Eller, Destin – charterboat captain:

Greater Amberjack comments:

- Could not survive a 2 greater amberjack per vessel limit.

Gray Triggerfish comments:

- Since the 12-inch size limit was implemented, he has thrown a lot of triggerfish back. However, he is not opposed to a 13-inch size limit.

General comments:

- Does not know what to believe in information provided. Does not trust government.
- The data collection system is flawed, and the data comes in a year later than needed.
- The loss of seagrass habitat is not being addressed.

Tim Edwards, Carabelle – commercial fisherman

General comments:

- He and many commercial fishermen do not have computers and are not getting the documents or timely notice of meetings such as this, or are not being notified at all.

Ricky Millender, Carabelle – commercial fisherman

General comments:

- He does not have a computer at home to get meeting notification.
- He and many commercial fishermen do not have computers and are not getting timely notice of meetings such as this, or are not being notified at all.
- If commercial fishermen are required to have VMS, then so should recreational fishermen.
- If commercial fishermen are required to fill out trip reports, so should recreational fishermen.
- Grass beds that are juvenile habitat for gag need to be protected. Condo development is tearing the grass flats up. Grass beds need to be protected from all boating activity.

Henry Hunt, Panama City – charterboat operator.

Greater Amberjack comments:

- questioned that the stock is in any in of trouble, given that the bag limit is down to one fish.
- Commercial sector needs a trip limit. Without one, a vessel may stumble across a large concentration of fish and target them extensively.

Gray Triggerfish comments:

- Recommended no changes. Triggerfish changes are good one yea, not good another. This suggests that triggerfish move about.

General comments:

- The charterboat industry is dependent on red snapper season.
- The charterboat industry has seen a 25% percent reduction in its economy due to the closed seasons.

Madeira Beach, Florida - March 22, 2007

In attendance: Bob Gill
Steven Atran
Tina Trezza
43 members of the public

Dennis Ohern, FRA: (Note: 8 subsequent speakers supported the FRA position)

General comments:

- Called for another round of scoping meetings. Having scoping meetings right before the Council meeting does not give the Council adequate time to review the comments and adds to the perception that public input is not given consideration.
- The amendment should be split into a grouper amendment and an amberjack/triggerfish amendment.
- The Council should adopt realistic levels of OY rather than precautionary levels.

Marianne Cufone, Gulf Restoration Network (submitted written comments):

General comments:

- Council should consider using ecosystem based management. Amendment 30 is a good place to begin.
- A stable, transparent regulatory process is needed for public understanding.
- IPT meetings should be public meetings and should be publicly noticed. The IPT should not change a document between the public comment period and Council review, which has happened in the past.
- Council should comply with NEPA and with the Magnuson Act.

Bob Spaeth, SOFA:

Greater Amberjack comments:

- Greater amberjack do not seem to be in any trouble in the southern Gulf of Mexico, but fishermen cannot sell as much as they can catch due to a loss of market. Conditions might be different in the north and west.
- Consider splitting the Gulf amberjack stock into southern and northwestern stocks, similar to kingfish.

Gray Triggerfish:

- The commercial hook and line fishermen don't get too many triggerfishes.
- However, fish trappers had caught lots of triggerfish. Has that (fish trap phase out) been taken into consideration?

Mark Hubbard, West Coast Partyboat Association:

Greater Amberjack comments:

- Has not seen any decline in greater amberjack.
- Vessel possession limits won't work for party boats where 30% - 50% of the catch is sometimes greater amberjack. Stay with 1 fish/person.
- If anything needs to be done, raise the size limit. Greater amberjack have a low release mortality.
- Opposed to closed seasons.

Gray Triggerfish:

- Will catch a handful of triggerfish but not a lot, fishing between the Suwanee River and Fort Myers,
- Has seen neither a decline nor increase in triggerfish.
- Triggerfish are very resilient when released.
- Would not mind that much if triggerfish were closed down, but prefers no action in eastern Gulf of Mexico.

General comments:

- Consider allocating a budget to "seeding" the Gulf of Mexico through egg releases. This approach has been used with snook, redfish and trout in the Tampa Bay area.

Libby Featherstone, Ocean Conservancy (will submit a written letter):

Greater Amberjack comments:

- A hard TAC is needed to end overfishing immediately.
- Alternatives should restore the stock within the original 7 year time frame.
- Bycatch needs to be accounted for.

Gray Triggerfish:

- Alternatives should immediately end overfishing.

General comments:

- Alternatives should consider a range of ABC that is consistent with ending overfishing and rebuilding stocks.

- TACs should transition from a landed yield TAC to a total mortality TAC
- Implement capacity reduction programs
- Protect areas where spawning occurs
- Set appropriate size limits, taking into account bycatch mortality.
- There should be mandatory data collection systems such as electronic logbooks, observers, and enhanced MRFSS.
- Consider options that allow in-season management, and that account for overages.
- Consider holistic approaches to managing the resources.

Tom Hartone, Cedar Key – commercial, charter and spearfisherman:

General comments:

- Goliath grouper have come back in last 15 years. There are at least 1 to 12 on every site.

Bob Bryant, Recreational Anglers Cooperative Research

Greater Amberjack comments:

- Should be separated out and given its own amendment.

Gray Triggerfish comments:

- Should be separated out and given its own amendment.

General comments:

- He is setting up a data collection system designed after MRFSS but without the biases. The Council should work with him as he registers anglers to participate.

Raymond Oder (submitted written comments):

Gray Triggerfish comments:

- Feels that the triggerfish assessment is ridiculous.

General comments:

- Questioned accuracy of landings data, felt that only 3% of landings get counted. Wants no new regulations until it can be proven how many fish are in the Gulf.
- Suggested that managers go diving in the Gulf to see how many goliath grouper are out there.

Chris Hudgens:

Greater Amberjack/Gray Triggerfish comments:

- These stocks should not be considered together with the grouper. They should be separated out and given their own study.
- Northern Gulf seems different from southern Gulf.

John Schmidt, President – Florida Skin Divers Association:

Greater Amberjack comments:

- In 20 years, he does not recall having an undersized greater amberjack that he releases die.

Gray Triggerfish comments:

- Triggerfish are his last choice for fish to target.
- Cannot see why any triggerfish rules would be changed.

General comments:

- He would be willing to take a government official on his boat. His bycatch is less than 5%.
- Supports eliminating wasted fish by any means necessary.

Jose Pais, Jr. – recreational fisherman and diver:

Greater Amberjack comments:

- Amberjacks that he sees are usually pretty big. The stock seems to be healthy.

Gray Triggerfish comments:

- To demonstrate hardness of triggerfish, he told a story about his son spearing a triggerfish and putting it on his stringer, but the fish still attacked and bit his son on the leg.
- Doesn't usually target triggerfish. It takes a large fish to get some meat.

General comments:

- Agrees with the others regarding goliath grouper. They are all over the place.
- In a spearfishing tournament once, he had to shoot 4 greater amberjack before he was able to keep one. Goliath grouper ate the first three.
- Suggested opening goliath grouper, maybe using a kill tag.

Sahrab Jaber – recreational fisherman no partnered with commercial fishermen.

General comments:

- We need hatcheries and fish farms. Two acres of shrimp farms can provide more shrimp than all the trawlers.
- The main reason for depletions is the commercial fishery. Let them harvest fish from hatcheries.
- Ban all commercial fishing from the Gulf of Mexico.
- Ban longline fishing immediately. They are the main reason for depletions.
- Ban shrimp trawls immediately. They kill baby fish.
- Implement a fishing license or tag fee on recreational fishermen, and use the proceeds to fund commercial buy-outs.

Paul Kerr, recreational fisherman and spearfisherman:

Greater Amberjack comments:

- Greater amberjack stocks appear healthy.

Gray Triggerfish comments:

- Has not seen much change in triggerfish in last 20 years,

Naples, Florida - March 21, 2007

Council

Julie Morris

Staff

Rick Leard

Lela Gray

22 Members of the Public were in attendance.

The scoping meeting was convened at 7:00 p.m. on Wednesday, March 21, 2007 at the Best Western – Naples Plaza Hotel in Naples, Florida.

Barry Nicholls, a recreational fisherman, spoke against regulations effecting recreational fishermen if commercial longline fishermen remain unaffected. He also indicated that he was concerned with the science involved in this process, particularly the sampling. He felt that sampling based on interviews, phone or dockside, lead to bad data due to memory loss. He concluded that he is a proponent of fishing regulations when they are needed, but not when they are based on bad information or when they unfairly target recreational fishermen and ignore the numbers of fish killed by longliners.

John Biggs, local business owner, urged the Council to split Reef Fish Amendment 30.

Frank Panhuisse, a recreational fisherman and spear fisherman, stated he was not confident in the science either, particularly in surveys. He reported that he was approached by shrimpers while he was out in the Gulf of Mexico and they offered to exchange their bycatch for a few alcoholic beverages. He commented that he was astounded by the amount of bycatch he saw aboard shrimp vessels. He insisted that the scientific numbers were skewed in favor of the commercial sector, particularly shrimpers and longliners, and inflated against the recreational sector.

Adam Wilson, a recreational fisherman and spear fisherman, stated that the science does not concur with what the fishermen are seeing while they are out in the water. He reported that in 2004 the average size of an amberjack he shot was about 25 pounds, but now they are regularly shooting 60 pound amberjack. He reiterated that the fishermen are seeing a tremendous increase in the numbers of fish since 2003.

Carl Gill, a recreational fisherman and spear fisherman, questioned what the Council was doing about the pollution like red tide. He stated that the fishermen see a lot of pollution in the water, and he questioned whether the scientific data took pollution into account.

Ms. Morris asked whether Mr. Gill noticed pollution in a particular area. **Mr. Gill** responded that a lot of it was in the Venice area and much of the pollution came down the Peace River.

Jasmine Workman, questioned what the Council was doing about water purification. She also reported that she had been seeing a lot of dead fish, thousands, hanging on shrimp nets. She also suggested that the Council consider aquaculture of fish species that are depleted.

The scoping hearing was adjourned at 8:08 p.m.

13. ALTERNATIVES CONSIDERED BUT REJECTED

Action: Modifications to Greater Amberjack Allocations

Alternative 1. Status Quo. Maintain the allocation of TAC between the recreational and commercial greater amberjack fisheries as specified in Amendment 1 to the Reef Fish FMP as the average share during the years 1981 through 1987. The recreational fishery would receive 84 percent of the TAC and the commercial fishery would receive 16 percent.

Old Alternative 2. Establish the allocation of TAC between the recreational and commercial fisheries as the average share during the years 2000 through 2004. The recreational fishery would receive 68 percent of the TAC and the commercial fishery would receive 32 percent.

Current Alternative 2. Establish the allocation of TAC between the recreational and commercial greater amberjack fisheries as the average share during the years 1995 through 2004. The recreational fishery would receive 60 percent of the TAC and the commercial fishery would receive 40 percent.

Preferred Alternative 3. Establish the allocation of TAC between the recreational and commercial greater amberjack fisheries as the average share during the years 1981 through 2004. The recreational fishery would receive 71 percent of the TAC and the commercial fishery would receive 29 percent.

Discussion: Old Alternative 2 was removed because it was very similar to **Alternative 3** which would have increased the recreational share of landings to 71 percent and add approximately 54 thousand pounds to the recreational share. The Council considered the range of alternatives for allocation of the greater amberjack resource to be sufficiently broad without Alternative 2.

Action 1 was moved to Considered but Rejected during the November Council meeting in favor of establishing an Allocation AD HOC Committee composed of Council members to study and develop consistent guidelines and principles for establishing allocations between recreational and commercial sectors in the Council's FMPs. The Committee will engage expertise from the SSC and SEP and incorporate requirements of National Standard 4 and other applicable laws. See the text on Action 3 in Section 2 for a more complete discussion of this issue.

Action 2: Modifications to the Greater Amberjack Rebuilding Plan

Alternative 3. Modify the rebuilding plan specified by Secretarial Amendment 2. Directed TAC for 2008 through 2010 and 2011 through 2012 would be set to the first year of each interval as defined by the constant F projection at 60 percent of F_{2004} from the 2006 assessment; 2.2 mp for 2008 through 2010 and 3.6 mp for 2011 through 2012.

Alternative 4. Modify the rebuilding plan specified by Secretarial Amendment 2. Directed

TAC levels for 2008 through 2012 would be set at the directed yield for each year as defined by the constant F projection at 60 percent of F_{2004} from the 2006 assessment. TAC for 2008 would be 2.2 mp, TAC in 2009 would be 2.8 mp, TAC in 2010 would be 3.3 mp, TAC in 2011 would be 3.6 mp, and TAC in 2012 would be 3.9 mp.

Discussion: The two alternatives removed from this action were deemed by the Council to be insufficient to end overfishing and rebuild the stock within the short timeframe (five years) remaining. **Alternative 3** would rebuild the stock by 2012 allowing approximately 10.9 mp total landings during the rebuilding period, 2008 through 2011. **Alternative 4** also rebuilds the stock by 2012 but allows approximately 17 percent more landings (11.8 mp) than **Alternative 3**. Both these alternatives would have provided approximately a 50 percent chance of rebuilding the stock by 2012 with **Alternative 3** more conservative than **Alternative 4**. Since there are only five years left to rebuild the stock in compliance with the rebuilding plan established in Secretarial Amendment 2, the Council only retained alternatives that had better than a 50 percent chance of rebuilding the stock by 2012.

Action 3: Greater Amberjack Recreational Management Alternatives

Alternative 2. Reduce the recreational bag limit for greater amberjack to one fish for every three anglers with an allowance for fewer anglers and eliminate the bag limit for captain and crew. Reduces landings by 31 percent.

Alternative 4. Reduce the recreational bag limit to one fish for every two anglers with an allowance for fewer anglers, increase the recreational size limit to 30-inches FL and eliminate the bag limit for captain and crew. Reduces landings by 35 percent.

These two recreational Alternatives would have reduced the recreational bag limit for greater amberjack to less than one fish per angler per trip. Public hearing and Reef Fish AP comments called fractional bag limits the least acceptable way to manage the recreational fishery. They would be impossible to enforce and would disproportionately affect the for-hire fishery. The Council concurred with these comments and removed all Action 4 fractional bag limit alternatives from consideration.

Action: Modifications to Gray Triggerfish Allocations

Alternative 1. Status Quo, Maintain allocation of gray triggerfish TAC between the recreational and commercial fisheries as the average share during the years 1981 through 1987. The recreational fishery would receive 93 percent of the TAC and the commercial would receive 7 percent.

Old Alternative 2. Set the allocation of gray triggerfish TAC between the recreational and commercial fisheries as the average share during the years 2000 through 2004. The recreational fishery would receive 79 percent of the TAC and the commercial would receive 21 percent.

Alternative 2. Set the allocation of gray triggerfish TAC between the recreational and commercial fisheries as the average share during the years 1995 through 2004. The recreational fishery would receive 78 percent of the TAC and the commercial would receive 22 percent.

Preferred Alternative 3. Set the allocation of TAC between the recreational and commercial fisheries as the average share during the years 1981 through 2004. The recreational fishery would receive 84 percent of the TAC and the commercial would receive 16 percent.

Discussion: The ratio of recreational to commercial allocation in old Alternative 2 is very similar to current **Alternative 2** (78:22). The Council considered the range of alternatives for allocation of the gray triggerfish resource to be sufficiently broad without the old Alternative 2.

Action 9 was moved to Considered but Rejected during the November Council meeting in favor of establishing an Allocation AD HOC Committee composed of Council members to study and develop consistent guidelines and principles for establishing allocations between recreational and commercial sectors in the Council's FMPs. The Committee will engage expertise from the SSC and SEP and incorporate requirements of National Standard 4 and other applicable laws. See the text on Action 9 in Section 2 for a more complete discussion of this issue.

14. INDEX

- ABC, 251, 286
ACL, vii, 242
AM, vii, 21, 22, 51, 52, 53, 54, 55, 209, 210, 211
Bag limit, x, xiii, 1, 3, 5, 12, 13, 24, 25, 26, 28, 29, 30, 31, 32, 34, 50, 53, 54, 55, 60, 61, 63, 64, 65, 66, 75, 131, 151, 153, 155, 156, 157, 158, 163, 164, 170, 177, 178, 179, 180, 184, 185, 186, 187, 188, 189, 201, 205, 209, 210, 211, 212, 215, 221, 222, 223, 225, 226, 228, 229, 230, 231, 241, 243, 246, 248, 249, 251, 252, 256, 259, 270, 271, 272, 282, 283, 284, 285, 291
B_{MSY}, 6, 8, 12, 13, 16, 17, 19, 20, 30, 31, 32, 33, 40, 43, 44, 167, 168, 169, 170, 173, 177, 178, 179, 180, 189, 190, 191, 198, 199, 205, 244
Bycatch mortality, 11, 45, 46, 92, 151, 152, 155, 159, 162, 164, 165, 241, 248, 250, 281, 287, 296
Captain and crew bag limit, xv, 28, 33, 34, 164, 180, 181, 184, 247, 256
CEQ, vii, 239, 240, 242, 244, 252
Circle hooks, 159, 160, 162, 163, 164, 165
Closed season, 1, 3, 24, 26, 27, 30, 31, 32, 34, 37, 39, 40, 41, 42, 156, 157, 163, 164, 179, 180, 183, 185, 188, 189, 191, 192, 193, 194, 195, 212, 241, 243, 248, 251, 256, 257, 271, 283, 284, 285, 286, 316, 323, 324
CPUE, vii, 11, 14, 87
Cumulative effects, 196, 239, 240, 245, 246, 247, 248
Direct effects, xi, xii, 18, 44, 49, 169, 171, 172, 200, 201, 204, 208, 255, 257
Discard, 31, 32, 34, 65, 73, 153, 154, 158, 159, 164, 165, 178, 179, 219, 226, 237, 242, 243, 249, 260
EFH, vii, 74, 75, 77, 80, 86, 277, 278, 279, 296
EIS, vii, viii, xvi, 12, 74, 77, 80, 86, 278
F_{MSY}, xiv, 6, 8, 9, 13, 14, 16, 42, 43, 44, 198, 199, 203, 244, 245, 324
F_{OY}, ix, xi, 9, 12, 14, 15, 16, 17, 30, 31, 32, 33, 39, 40, 41, 44, 46, 47, 48, 49, 50, 51, 54, 63, 66, 67, 70, 71, 160, 167, 168, 177, 178, 179, 180, 189, 190, 191, 193, 197, 203, 204, 207, 209, 210, 223, 225, 226, 232, 236, 238, 242, 247, 319, 320, 323, 324, 325
Hook size, 159, 163, 164, 165
IFQ, 238, 242
Indirect effects, 18, 23, 49, 56, 66, 169, 171, 175, 176, 202, 204, 207, 213, 214, 221, 222, 232, 240, 246, 255, 257, 258
License, 136, 137, 140, 144, 148, 283, 288
M, vii, 8, 9, 10, 13, 31, 40, 43, 45, 48, 62, 64, 69, 133, 134, 138, 142, 146, 203, 244, 245, 295, 298, 299, 300, 302, 303, 324
Marine mammals, 85, 151, 154, 162, 253, 275
MFMT, vii, 8, 9, 11, 13, 42, 43, 44, 54, 64, 197, 198, 199, 200, 201, 202, 211, 244, 245, 257, 324
MRFSS, vii, 1, 4, 7, 22, 25, 26, 32, 61, 62, 64, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 154, 157, 223, 248, 265, 283, 284, 287
MSFCMA, vii, x, xi, xvi, 11, 12, 27, 42, 43, 45, 47, 50, 149, 201, 250, 251, 273, 274, 278
MSST, vii, xi, 8, 9, 11, 13, 42, 43, 44, 45, 48, 49, 64, 84, 198, 199, 200, 201, 202, 203, 205, 206, 207, 222, 223, 244, 245, 257, 271, 324
MSY, viii, xi, 6, 8, 9, 10, 13, 42, 43, 44, 47, 48, 198, 199, 200, 244, 257
NEPA, viii, xvii, 57, 217, 239, 279, 280, 285
Open season, 31, 41, 179, 191

Overfished, vii, ix, x, xi, xii, xiii, xvi, 5, 6, 7, 8, 9, 11, 17, 28, 38, 42, 43, 44, 45, 48, 49, 50, 64, 84, 85, 131, 161, 162, 167, 168, 199, 200, 201, 202, 203, 205, 207, 208, 222, 223, 233, 240, 241, 242, 244, 245, 247, 250, 254, 257, 263, 272

Overfishing, vii, ix, x, xi, xii, xiii, xv, xvi, 5, 6, 7, 8, 11, 12, 16, 17, 19, 22, 28, 30, 31, 32, 33, 34, 38, 40, 42, 43, 44, 47, 48, 50, 51, 53, 55, 57, 58, 59, 63, 64, 65, 66, 67, 70, 71, 72, 84, 85, 131, 156, 159, 160, 161, 162, 165, 167, 168, 173, 177, 178, 179, 180, 182, 185, 189, 190, 191, 192, 194, 197, 198, 199, 200, 201, 202, 203, 208, 209, 217, 218, 219, 220, 221, 222, 223, 226, 229, 233, 234, 235, 237, 238, 240, 241, 242, 244, 245, 246, 247, 249, 250, 253, 254, 256, 261, 263, 281, 286, 291, 296, 297, 306, 320, 324, 325

OY, viii, 8, 9, 11, 13, 42, 43, 44, 73, 197, 198, 199, 200, 202, 223, 235, 244, 253, 257, 285, 324

Rebuilding plan, ix, x, xi, xv, xvi, 5, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 24, 27, 28, 29, 31, 32, 34, 35, 39, 40, 41, 47, 48, 49, 50, 51, 53, 54, 57, 60, 63, 66, 70, 167, 168, 172, 173, 177, 178, 179, 189, 190, 191, 195, 202, 203, 204, 208, 209, 210, 223, 229, 236, 238, 240, 241, 242, 247, 248, 250, 251, 259, 261, 269, 270, 272, 290, 291, 300, 305, 309, 310, 312, 318, 319, 320, 321, 323, 324, 325

RFA, 263

RIR, viii, 12, 13, 254, 261, 263, 276

Sea turtles, 86, 154, 155, 241, 253, 296

SFA, viii, xv, 8, 11, 12, 42, 43, 244, 254, 261, 263

Shrimp fishery, 46, 168

Size limit, x, xiii, xv, 1, 3, 5, 8, 12, 13, 24, 26, 28, 29, 30, 31, 32, 33, 34, 36, 37, 39, 40, 42, 50, 53, 54, 55, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 151, 153, 155, 156, 157, 158, 159, 160, 162, 163, 164, 165, 170, 177, 178, 179, 180, 181, 182, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 196, 205, 209, 210, 211, 215, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 241, 243, 246, 247, 248, 249, 251, 252, 256, 257, 259, 260, 261, 270, 271, 272, 273, 281, 282, 283, 284, 286, 287, 291, 305, 310, 313, 314, 315, 316, 323, 324, 325

SPR, viii, 8, 9, 10, 11, 13, 14, 15, 42, 43, 44, 45, 47, 48, 50, 51, 53, 54, 64, 65, 71, 197, 199, 203, 209, 210, 222, 223, 224, 233, 235, 244, 245, 324, 325

Status determination criteria, xi, 197

Stock assessment, ix, xiv, xvi, 1, 3, 5, 8, 11, 16, 25, 27, 30, 38, 41, 43, 45, 47, 48, 50, 58, 72, 84, 151, 152, 154, 159, 167, 177, 189, 190, 222, 232, 240, 242, 244, 245, 248, 249, 250, 275, 295, 302, 319, 324

Stock recovery, x, 18, 46, 53, 57, 67, 84, 165, 199, 209, 217

TAC, viii, ix, x, xv, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 31, 32, 33, 39, 40, 41, 44, 47, 48, 51, 52, 53, 54, 55, 56, 57, 160, 163, 165, 167, 168, 170, 172, 173, 178, 179, 180, 185, 186, 188, 189, 190, 194, 201, 202, 203, 206, 208, 209, 210, 211, 215, 216, 217, 220, 221, 229, 230, 237, 240, 241, 247, 248, 251, 270, 272, 286, 287, 290, 291, 292, 309, 311, 312, 318, 319, 320, 321, 323, 324, 325

15. REFERENCES

- Ault, J. S., S. G. Smith, G. A. Diaz, and E. Franklin. 2003. Florida hogfish fishery stock assessment. University of Miami, Rosenstiel School of Marine Science, Contract No. 7701 617573 for Florida Marine Research Institute, St. Petersburg, FL. 45 pp.
- Barnette, M. C. 2001. A review of the fishing gear utilized within the Southeast Region and their potential impacts on essential fish habitat. NOAA Tech. Memo. NMFS-SEFSC-449. National Marine Fisheries Service, 263 13th Avenue, South St. Petersburg, Florida 33701. 62 pp.
- Beasley, M. 1993. Age and growth of greater amberjack, *Seriola dumerili*, from the northern Gulf of Mexico. M.S. Thesis, Dept. of Oceanography and Coastal Sciences, Louisiana State University. 85 p.
- Bohnsack, J. 1999. Ethics, no-take marine reserves, and ecosystem management. Proceedings First International Workshop on Marine Reserves, Murcia, Spain. Pp. 1-22.
- Bortone, S. A., P. A. Hastings, and S. B. Collard. 1977. The pelagic-Sargassum ichthyofauna of the eastern Gulf of Mexico. Northeast Gulf Sci. 1:60-67.
- Burch, R.K. 1979. The greater amberjack, *Seriola dumerili*: its biology and fishery off Southeastern Florida. Unpublished M.S. Thesis. University of Miami. 112 pp.
- Cass-Calay, S. L. and M. Bahnick. 2002. Status of the yellowedge grouper fishery in the Gulf of Mexico. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution SFD 02/03 – 172. 67 pp.
- Clapp, R. B., R. C. Banks, D. Morgan-Jacobs, and W. A. Hoffman. 1982. Marine birds of the southeastern United States and Gulf of Mexico. U.S. Dept. of Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C. FWS/OBS-82/01. 3 vols.
- Dooley, J.K. 1972. Fishes associated with the pelagic *Sargassum* complex, with a discussion of the *Sargassum* community. Contrib. Mar. Sci. 16:1-32.
- Eklund, A. M. 1994. (editor) Status of the stocks of Nassau grouper, *Epinephelus striatus*, and jewfish, *E. itajara*- Final Report. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contrib. No. MIA-94/95-15. 170 pp.
- Gillig, D., T. Ozuna and W. L. Griffin, 2000 “The Value of the Gulf of Mexico Recreational Red Snapper Fishery” *Marine Resource Economics*, Vol. 15:127-139.

- GMFMC. 2007. Amendment 27 to the Reef Fish FMP and Amendment 14 to the Shrimp FMP to end overfishing and rebuild the red snapper stock. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 490 pp with appendices
- GMFMC. 2005a. Generic Amendment 3 for addressing EFH requirements, HAPCs , and adverse effects of fishing in the following FMPs of the Gulf: Shrimp, Red Drum, Reef Fish, Stone Crab, Coral and Coral Reefs in the Gulf and Spiny Lobster and the Coastal Migratory Pelagic resources of the Gulf and South Atlantic. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607.
- GMFMC. 2005b. Amendment 18a to the Reef Fish FMP for resolving enforcement of regulations, for updating the framework procedure for setting total allowable catch, and to reduce bycatch mortality of incidentally caught endangered sea turtles and smalltooth sawfish. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 192 pp with appendices
- GMFMC. 2005c. Amendment to the FMPs for: Reef Fish (Amendment 25) and Coastal Migratory Pelagics (Amendment 17) for extending the charter vessel/headboat permit moratorium. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 80 pp. with appendices.
- GMFMC. 2005d. Regulatory amendment to the Reef Fish Fishery Management Plan to set recreational management measures for grouper starting in 2006. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 126 pp.
- GMFMC. 2004a. Environmental Impact Statement for the Generic Essential Fish Habitat Amendment to the following fishery management plans of the Gulf of Mexico (Gulf): Shrimp Fishery of the Gulf of Mexico, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Stone Crab Fishery of the Gulf of Mexico, Coral and Coral Reef Fishery of the Gulf of Mexico, Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic, Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 118 pp.
- GMFMC. 2004b. Amendment 22 to the fishery management plan for the reef fish fishery of the Gulf of Mexico, U.S. waters, with supplemental environmental impact statement, regulatory impact review, initial regulatory flexibility analysis, and social impact assessment. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607.

- GMFMC. 2004c. Final Amendment 23 to the Reef Fish Fishery Management Plan to set vermilion snapper Sustainable Fisheries Act targets and thresholds and to establish a plan to end overfishing and rebuild the stock. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607. 202 pp.
- GMFMC. 1999. Generic sustainable fisheries act amendment to the following FMPs: Gulf Coral and Coral Reef Resources, Coastal Migratory Pelagics, Red Drum, Reef Fish, Shrimp, Spiny Lobster, Stone Crab. Gulf of Mexico Fishery Management Council, Tampa, Florida. 157 p. + tables + app.
- GMFMC. 1981. Fishery management plan for the reef fish fishery of the Gulf of Mexico and environmental impact statement. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607.
- GMFMC and SAFMC. 1982. Environmental impact statement and fishery management plan for Coral and Coral Reef resources of the Gulf of Mexico and South Atlantic. Gulf of Mexico Fishery Management Council, 2203 North Lois Avenue, Suite 1100, Tampa, Florida 33607.
- Harper, D. and D. McClellan. 1997. A review of the biology and fishery for gray triggerfish, *Balistes caprisкус*, in the Gulf of Mexico. NOAA/NMFS/SEFSC Miami Lab. Contrib. No. MIA-96/97-52
- Haab, T. C., J. C. Whitehead, and K.E. McConnell. 2001. The economic value of marine recreational fishing in the southeast United States, 1997 southeast economic data analysis. Final report for contract no. 40WCNF802079, NOAA, NMFS, SERO, 263 13th Avenue, South, St. Petersburg, Florida 33701.
- Hamilton, A. N., Jr. 2000. Gear impacts on essential fish habitat in the Southeastern Region. NOAA, NMFS, SEFSC, 3209 Frederick Street, Pascagoula, Mississippi 39567. 45 pp.
- Harris, P.J. 2004. Age, growth and reproduction of greater amberjack, *Seriola dumerili*, in the southwestern North Atlantic. Analytical Report of MARMAP Program. South Carolina Department of Natural Resources, Charleston, SC.
- Harrison, P. 1983. Seabirds: an identification guide. Houghton Mifflin Company, Boston, MA. Field Notes 48: 976-978.
- Holiman, S. G. 1999. Economic summary of the Gulf of Mexico reef fish recreational fishery. October. SERO-ECON-00-02.
- Holiman, S. G. 2000. Summary report of the methods and descriptive statistics for the 1997-98 southeast region marine recreational economics survey. April. SERO-ECON-00-11.

- Holland, S. M., A. J. Fedler and J. W. Milon. 1999. The operations and economics of the charter and Head Boat Fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. Report for NMFS, MARFIN program grant number NA77FF0553.
- Hood, P. B., and A. K. Johnson. 1999. Age, growth, mortality, and reproduction of vermilion snapper *Rhomboplites aurorubens*, from the Eastern Gulf of Mexico. Fish. Bull. 97 (4): 828- 841.
- Hood, P.B. and A.K. Johnson. 1997. A study of the age structure, growth, maturity schedules and fecundity of gray triggerfish (*Balistes capriscus*), red porgy (*Pagrus pagrus*), and vermilion snapper (*Rhomboplites aurorubens*) from the eastern Gulf of Mexico. MARFIN Final Report.
- Impact Assessment, Inc. (IAI). 2005a. Identifying communities associated with the fishing industry in Florida. La Jolla, CA. Volume 1
- Impact Assessment, Inc. (IAI). 2005b. Identifying communities associated with the fishing industry in Texas. La Jolla, CA. Volume 1
- Impact Assessment, Inc. (IAI). 2005c. Identifying communities associated with the fishing industry in Louisiana. La Jolla, CA. Volumes 1-3. 646 p.
- Ingram, G.W. 2001. Stock structure of gray triggerfish, *Balistes capriscus*, on multiple spatial scales in the Gulf of Mexico. PhD Dissertation, Department of Marine Sciences, University of South Alabama. 229 pp.
- Johnson, A.G. and C.H. Saloman. 1984. Age, growth, and mortality of gray triggerfish, *Balistes capriscus*, from the northeastern Gulf of Mexico. Fish. Bull. vol. 82, no. 3, p.485 - 492.
- Keithly, W. R. and T. Martin. 1997. Southeastern finfish processing activities of federally managed species, particularly reef fish, and potential impacts of regulation. Final Report to National Marine Fisheries Service (S-K # NA47FD0290), NOAA, NMFS, SERO, 263 13th Avenue, South, St. Petersburg, Florida 33701. 107 pp. + Appendix.
- Kurz, RC. 1995. Predator-prey interactions between gray triggerfish (*Balistes capriscus* Gmelin) and a guild of sand dollars around artificial reefs in the northeastern Gulf of Mexico. Bulletin of Marine Science. Vol. 56, no. 1, pp. 150-160.
- Legault, C. M., and A. M. Eklund. 1998. Generation times for Nassau grouper and jewfish with comments on M/K ratios (revised). NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution: SFD-97/98-10A. 5 pp.

- Lucas, L. E. 2001. " Madeira Beach, Florida and the Grouper Fishery in the Gulf of Mexico: Landings, value and impacts of a one and two-month closure." Unpublished. Eckerd College. 4200 54th Ave. S., St. Petersburg, FL 33711.
- Mace, P. M. 1994. Relationships between common biological reference points used as thresholds and targets of fisheries management strategies. *Can. J. Fish. Aquat. Sci.* 51:110-122.
- Manooch, C.S., III. 1984. Fishermen's Guide. Fishes of the southeastern United States. North Carolina Museum of Natural History, Raleigh, NC. 362 pp.
- Manooch, C.S., and J.C. Potts. 1997a. Age, growth and mortality of greater amberjack from the southeastern United States. *Fish. Res.* 30: 229-240.
- Manooch, C.S., and J.C. Potts. 1997b. Age, growth and mortality of greater amberjack, *Seriola dumerili*, from the U.S. Gulf of Mexico headboat fishery. *Bulletin of Marine Science* 61:671-683.
- McCarthy, K. 2005. Estimates of greater amberjack, vermilion snapper, and gray triggerfish discards by vessels with federal permits in the Gulf of Mexico. SEDAR 9 Data Workshop Report 17. NOAA Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division. 16 p.
- McClanahan, T. R. 1994. Kenyan coral reef lagoon fish: effects of fishin g, substrate complexity, and sea urchins. *Coral Reefs* 13: 231-241.
- Muller, R. G., M. D. Murphy, J. de Silva, and L. R. Barbieri. 2003. Final Report Submitted to the National Marine Fisheries Service, the Gulf of Mexico Fishery Management Council, and the South Atlantic Fishery Management Council as part of the Southeast Data, Assessment, and Review (SEDAR) III. Florida Fish and Wildlife Conservation Commission, FWC-FMRI Report: IHR 2003-10. Florida Fish and Wildlife Research Institute, 100 Eighth Avenue, Southeast, St. Petersburg, Florida 33701. 217 pp. + 2 appendices.
- NMFS. 2005. Endangered Species Act – Section 7 Consultation Biological Opinion. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, Florida. 115 p. + app.
- NMFS. 2002a. Status of red grouper in United States waters of the Gulf of Mexico during 1986-2001, revised. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution No. SFD-01/02-175rev. 65 pp.
- NMFS 2002b. Endangered Species Act section 7 consultation on shrimp trawling in the southeastern United States, under the sea turtle conservation regulations an as managed by the fishery management plans for shrimp in the South Atlantic and Gulf of Mexico. Biological Opinion. NOAA, NMFS, SERO, 263 13th Ave. South, St. Petersburg, Florida 33701. December 2, 2002. 95 pp.

- NMFS. 2002. Secretarial Amendment 2 to the Reef Fish Fishery Management Plan to set greater amberjack Sustainable Fisheries Act targets and thresholds and to set a rebuilding plan. Available from the Gulf of Mexico Fishery Management Council, Tampa, Florida. 95 p.
- Perruso, L. Personal Communication. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149.
- Porch, C. 2001. Another assessment of gray triggerfish (*Balistes capriscus*) in the Gulf of Mexico using a state-space implementation of the Pella-Tomlinson production model. National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division Contribution SFD-00/01-126. 27 p.
- Porch, C. E., A. M. Eklund and G. P. Scott. 2003. An assessment of rebuilding times for goliath grouper. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution: SFD 2003-0018. 25 pp.
- Porch, C. E. and S. L. Cass-Calay. 2001. Status of the vermilion snapper fishery in the Gulf of Mexico. Assessment 5.0. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution: SFD-01/02-129. 42 pp. + Figures.
- Prager, M. H., 2004. User's manual for ASPIC: A Stock-Production Model Incorporating Covariates (ver. 5) And Auxiliary Programs. NMFS Beaufort Laboratory Document BL-2004-01, 25pp.
- Restrepo, V.R., G.G. Thompson, P.M. Mace, W.L. Gabriel, L.L. Low, A.D. MacCall, R.D. Methot, J.E. Powers, B.L. Taylor, P.R. Wade, and J.F. Witzig. 1998. Technical guidance on the use of precautionary approaches to implementing national standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS-F/SPO-31. 54 p.
- SEA (Strategic Environmental Assessment Division, NOS). 1998. Product overview: Products and services for the identification of essential fish habitat in the Gulf of Mexico. NOS, Silver Spring, Maryland; NOAA Fisheries, Galveston, Texas; and GMFMC, Tampa, Florida (available at <http://biogeo.nos.noaa.gov/projects/efh/gom-efh/>)
- SEDAR 3. 2003. SEDAR Peer Review of yellowtail snapper assessment, with comments on goliath grouper. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 12 pp+ appendices.
- SEDAR 6. 2003a. The hogfish in Florida: Assessment review and advisory report. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 12 pp.

- SEDAR 6. 2003b. The goliath grouper in southern Florida: Assessment review and advisory report. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 15 pp.
- SEDAR 7. 2005. Stock assessment report of SEDAR 7 Gulf of Mexico Red Snapper. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 480 pp.
- SEDAR 9. 2006a. Stock assessment report of SEDAR 9: Gulf of Mexico greater amberjack. Southeast Data, Assessment, and Review, Charleston, South Carolina. 178 p.
- SEDAR 9. 2006b. Stock assessment report of SEDAR 9: Gulf of Mexico gray triggerfish. Southeast Data, Assessment, and Review, Charleston, South Carolina. 195 p.
- SEDAR 9. 2006c. SEDAR 9 Gulf of Mexico vermilion snapper assessment report 3. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 231 pp.
- SEDAR 10. 2006. SEDAR 10 review workshop assessment advisory report Gulf of Mexico gag grouper. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina. 13 pp.
- SEDAR 12. 2007. SEDAR12-Complete Stock Assessment Report 1: Gulf of Mexico Red Grouper. SEDAR (<http://www.sefsc.noaa.gov/sedar/>), Charleston, South Carolina.
- SERO 2007a. Analyses of greater amberjack management measures for Amendment 30A. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, Florida. 20 p.
- SERO. 2007b. Analyses of gray triggerfish management measures for Amendment 30A. NOAA Fisheries Service, Southeast Regional Office, St. Petersburg, Florida. 13 p.
- Sladek Nowlis, J. 2007a. Updated projections for Gulf of Mexico gray triggerfish (*Balistes capricus*). NOAA Fisheries Service, Southeast Fisheries Science Center, Miami, Florida. SFD Contribution No. SFD-2006-051. 14 p.
- Sladek Nowlis, J. 2007b. Stock Structure and Distribution of Catches and Fishing Pressure for Gulf of Mexico Gray Triggerfish (*Balistes capricus*). NOAA Fisheries Service, Southeast Fisheries Science Center, Miami, Florida.
- Sladek Nowlis 2006. Further exploration of fishery-dependent indices of abundance for Gulf of Mexico gray triggerfish (*Balistes capricus*). National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division Contribution SFD 2006-049.

- Smith, G. B. 1976. Ecology and distribution of eastern Gulf of Mexico reef fishes. Florida Marine Research Publications. 19, 78 p.
- Sutton, S.G., R.B. Ditton, J.R. Stoll, and J.W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Texas A&M Univ., College Station, TX. Memo. Rpt. 198 p.
- Thompson, B. A., M. Beasley, and C. A. Wilson. 1998. Age distribution and growth of greater amberjack, *Seriola dumerili*, from the north-central Gulf of Mexico. Fish. Bull. 97:362-371.
- Thresher, R.E. 1984. *Reproduction in Reef Fishes*. T.F.H. Publications, Inc., Ltd., Hong Kong. 399 pp.
- Turner, S.C. 2006. Reported commercial and recreational landings of groupers from the Gulf of Mexico, 1979-2004. National Marine Fisheries Service. 13 p.
- Turner, S.C. and G.P. Scott. 2002. Projections of Gulf of Mexico greater amberjack, *Seriola dumerili*, from 2003 through 2012. NMFS/SEFSC, Miami Laboratory. Document SFD 01/01-150. 13 p.
- Turner, S. C., C. E. Porch, D. Heinemann, G. P. Scott, and M. Ortiz. 2001. Status of the gag stocks of the Gulf of Mexico: assessment 3.0. August 2001. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. Contribution: SFD-01/02-134. 32 pp., 25 pp. tables, 85 pp. figures.
- Turner, S. C., N. J. Cummings, and C .P. Porch. 2000. Stock assessment of Gulf of Mexico greater amberjack using data through 1998. NOAA, NMFS, SEFSC, 75 Virginia Beach Drive, Miami, Florida 33149. SFD-99/00-100. 27 pp.
- Valle, M., C.M. Legault, and M. Ortiz. 2001. A stock assessment for gray triggerfish, *Balistes capriscus*, in the Gulf of Mexico. NMFS/SEFSC, Miami Laboratory. Sustainable Fisheries Division Contribution SFD-00/01-124. 50 p. + app.
- Vose, FE; Nelson, WG. 1994. Gray triggerfish (*Balistes capriscus* Gmelin) feeding from artificial and natural substrate in shallow Atlantic waters of Florida. Bulletin of Marine Science. Vol. 55, no. 2-3.
- Waters, J. R. 1996. An economic survey of commercial reef fish vessels in the U.S. Gulf of Mexico. NOAA, NMFS, SEFSC, 101 Piver's Island Road, Beaufort, NC 28516. 63 pp+ tables, figures, and appendices.

- Wells, R.J. D., and J.R. Rooker. 2004a. Distribution, age, and growth of young-of-the-year greater amberjack (*Seriola dumerili*) associated with pelagic *Sargassum*. Fish. Bull. 102:545-554.
- Wells, R.J. D., and J.R. Rooker. 2004b. Spatial and temporal patterns of habitat use by fishes associated with *Sargassum* mats in the northwestern Gulf of Mexico. Bull. Mar. Sci. 74: 81-99.
- Wilson, C.A., D.L. Nieland, and A.L. Stanley. 1995. Age, growth and reproductive biology of gray triggerfish (*Balistes capriscus*) from the northern Gulf of Mexico commercial harvest. Final Report, Coastal Fisheries Institute, Louisiana State University.
- Wilson, D., B. J. McKay, D. Estler, M. Perez-Lugo, J. LaMarque, S. Seminski, and A. Tomczuk. 1998. A Social and Cultural Impact Assessment of the Highly Migratory Species Fisheries Management Plan and the Amendment to the Atlantic Billfish Fisheries Management Plan. The Ecopolicy Center for Agriculture, Environmental, and Resource Issues, Rutgers University, New Brunswick, N.J.
- Zhao, B., J. C. McGovern, and P. J. Harris. 1997. Age, growth and temporal change in size-at-age of the vermilion snapper from the South Atlantic Bight. Fish. Bull. 95 (4): 837-848.

16. APPENDICES

Appendix A

Method and Models Used to Estimate Short-Term Economic Effects of Management Alternatives Proposed for the Commercial Fishery in Amendment 30A to the Gulf of Mexico Reef Fish Fishery Management Plan

Larry Perruso
National Marine Fisheries Service
Southeast Fisheries Science Center
Social Science Research Group
75 Virginia Beach Dr.
Miami, FL 33149
e-mail: Larry.Perruso@noaa.gov

August 2007

Table of Contents

Introduction	1
Method of Analysis	1
Method of Modeling Management Alternatives	5
Analysis of modifications to allocations	5
Analysis of modifications to rebuilding plans	8
Analysis of minimum size limits	8
Analysis of trip limits	10
Analysis of seasonal closures	11
Analysis of quotas	12
Method for Simulation of Proposed Alternatives	13
Data Used in the Analysis	15
References	17
Appendix Table 1: Management alternatives proposed in Amendment 30A.	18

Method and Models Used to Estimate Short-Term Economic Effects of Management Alternatives Proposed for the Commercial Fishery in Amendment 30A to the Gulf of Mexico Reef Fish Fishery Management Plan

Introduction

The Gulf of Mexico Fishery Management Council prepared Amendment 30A to its Reef Fish Fishery Management Plan to reduce the harvest of greater amberjack, *Seriola dumerili*, by 32 percent and gray triggerfish, *Balistis capriscus*, by 49 percent in order to end overfishing and rebuild the stocks. In addition, Amendment 30A proposes to adjust the allocation of catches between recreational and commercial fisheries for both species.

This report describes the methodology and simulation model developed to analyze the short-term economic effects of management alternatives proposed for the commercial harvesting sector of the reef fish fishery in U.S. Gulf of Mexico waters from Texas through the Florida Keys. The model uses logbook trip reports to simulate the short-term economic effects of proposed management alternatives on catches of greater amberjack and gray triggerfish. The simulated fishing incomes net of trip operating costs for specific combinations of management alternatives were compared to historical averages for 2000-2005 to estimate the expected short-term economic effects of the proposed alternatives for commercial fishermen.

Method of Analysis

Commercial fishermen in the Gulf reef fish fishery are required to submit logbook trip reports within seven days of the completion of each trip. The general method of analysis in this study was to hypothetically impose proposed regulations on individual fishing trips as reported to the logbook database. Each reported trip was examined with regard to a combination of

proposed rules for greater amberjack and gray triggerfish, and the effects of the rules on trip catches, revenues and costs were calculated. A six-year average was used to estimate the expected effects of proposed regulations so that anomalies that may have affected fishing success in any one year would be averaged out. Logbook data for the six most recent years, 2000-2005, with reasonably complete data were used to simulate the fishery with the proposed management alternatives.

Logbook trip reports include information about landings by species, but do not include information about trip revenues. Therefore, average monthly prices were calculated from the NMFS Accumulated Landings System and merged with logbook trip reports by year, month, species and state. Trip revenues for each species were calculated as the product of average monthly prices and reported pounds per trip.

Information about trip costs was obtained from a sample of reef fish boats that were required to report trip costs in 2005 in conjunction with their normal logbook reporting requirements. Data that were collected included their costs per trip for major variable inputs such as fuel, bait, ice, food and other disposable supplies. Trip costs were estimated for each major gear type as a function of effort, pounds landed, days per trip away from port, crew size and other trip characteristics, with the explanatory variables chosen to match the types of information reported for each trip in the logbook database. Then, the estimated coefficients from the trip cost equations were used to calculate expected trip costs for each trip in the logbook database for 2000-2005.

Net operating revenues for trip j in year t were calculated as trip revenues from all species s , $TR_{j,t} = \sum R_{s,j,t}$, minus predicted trip costs, $TC_{j,t}$, which include fuel, oil, bait, ice, and other

supplies, and exclude labor and fixed costs. Thus, net operating revenues were interpreted as the combined gross incomes to boat owners, captains and crew members all of whom have an interest in maximizing profits under an assumed share system of compensation.

If trip revenues exceeded trip costs after accounting for the likely effects of proposed regulations on trip-level harvests, then short-term economic losses were measured as the resulting reduction in trip revenues. Conversely, if the combination of proposed alternatives would cause trip revenues to fall below trip costs, then the trip was recorded as not taken, and losses were measured as a reduction in net operating revenues, which included the loss in revenues from all species minus the savings of trip costs not incurred.

The net present value of the difference between net operating revenues for the combination of proposed rules denoted by a and net operating revenues for the base fishery is interpreted as the expected short-term economic effect that would result if combination a were implemented. This difference was predicted for the years 2008-2012, and the net present value of the sum of these economic losses over this five year rebuilding period was used to rank management alternatives. A discount rate of seven percent was used.

Net operating revenues in year t for rule combination a , $NR_{a,t}$, were calculated by simulating the effects of the proposed rules on the commercial fishery based on logbook data for 2000-2005. This time frame encompasses the period of current regulations in the reef fish fishery and covers dates used in the latest SEDAR assessments. Net operating revenues were totaled for all trips within each logbook year, with the annual totals averaged across all six years.

$$NR_{a,t} = \frac{\sum_{t=2000}^{t=2005} \sum_{j=trips} (TR_{a,j,t} - TC_{a,j,t})}{6}$$

The base fishery without the proposed combination of rules was evaluated as the historical six-year average with extra information from predicted biomass growth. Estimates of biomass growth rates were factored into the base model depending on the rebuilding plan being analyzed. Estimates were based on the ratios of rebuilding TACs which were assumed to be proportional to growth in biomass. If biomass was assumed to remain constant over the rebuilding period (i.e., no rebuilding plan was specified), the base model was the same as the status quo fishery. In general, the difference between the base fishery and the status quo fishery is the biomass growth related to the rebuilding plan assumed for the base model.

Three types of regulatory analyses were implemented. Ranking of alternatives in these analyses were based on changes in net operating revenues due to the marginal effect of a proposed regulation from Amendment 30A when compared to a base fishery. The base fishery always incorporated an estimation of biomass growth and different assumptions regarding allocation schedules and rebuilding plans. The first analysis examined losses resulting from modifications to greater amberjack and gray triggerfish allocations (Actions 1 and 9). Alternatives were ranked based on comparisons of the net present value of losses associated with changing the allocation strategy from the current distribution to a different split among the commercial and recreational sectors. These comparisons were made after assuming a rebuilding strategy, which resulted in estimated biomass growth rates factored into the simulation model, and annual commercial quotas that were derived by multiplying the assumed TAC by the

appropriate allocation percentage to the commercial sector.

The second analysis examined losses that resulted from modifications to the greater amberjack and gray triggerfish rebuilding plans and by comparing alternatives from Actions 5 and 12. In this analysis a particular allocation schedule was assumed for the base fishery.

The third analysis compared individual regulations associated with Actions 5 and 12. These alternatives included trip limits, seasonal closures, quotas and minimum size limits. In this analysis a particular allocation schedule and rebuilding plan were assumed for the base fishery. In all three cases net present value of the sum of projected losses over the rebuilding period was used to rank alternatives for each Action under consideration.

Method of Modeling Management Alternatives

The proposed management alternatives included modifications to allocations between the recreational and commercial fisheries and species-specific rebuilding plans, minimum size limits, limits on catch per trip (a.k.a., trip limits), seasonal closures, regional landings reductions and quotas. Each type of regulation was modeled by restricting the ability to catch and/or keep fish that were reported on a logbook trip report. Only when minimum size limits were decreased were landings allowed to increase.

Analysis of Modifications to Allocations (Actions 1 and 9)

Rent in a vertically coordinated commercial fishery (processors and harvesters) can be defined as the total revenues from sales in the downstream consumer market less the sum of harvesting and processing costs. Denote the aggregate processing and harvesting cost functions

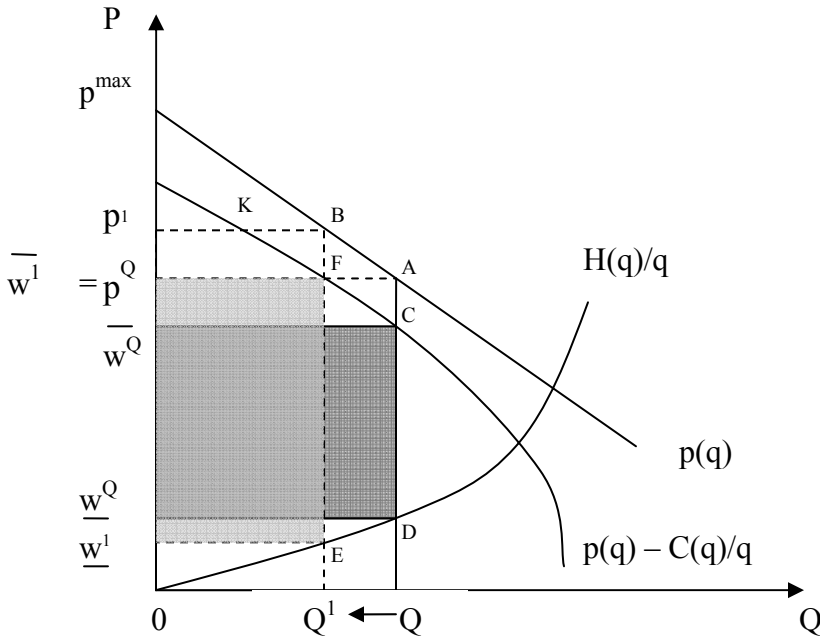
as $C(q)$ and $H(q)$, respectively, where $C(\cdot)$ and $H(\cdot)$ are nondecreasing functions of the per-period harvest level, q . Assume a fixed proportions processing and harvesting technology and zero processing and harvesting waste. Per-period rent in the fishery is, $\Phi^* = p^Q Q - C(Q) - H(Q)$, where p^Q is the downstream consumer price and Q is the commercial quota resulting from the proposed TAC.

Graphically, rents can be defined as in Figure 1. Denote the maximum ex-vessel price that would ensure nonnegative processing sector earnings as $\overline{w^Q}$. This price just covers average processing costs. Similarly, let $\underline{w^Q}$ denote the minimum ex-vessel price needed to cover average harvesting costs. Thus, total resource rent is equivalently written as $\Phi^* = (\overline{w^Q} - \underline{w^Q}) \cdot Q$, and is represented by area $\underline{w^Q} DC \overline{w^Q}$ in Figure 1. Consumer surplus is represented by area $p^Q Ap^{\max}$. Processor surplus is $\overline{w^Q} CF p^Q$, and harvester surplus is $OD \underline{w^Q}$.

Changing the allocation between the commercial and recreational sectors will affect this equilibrium situation, assuming the commercial quota and allocation scheme are strictly related. If management wants to allocate more catch to the recreational sector, this will necessarily cause a reduction in the commercial quota from $Q \rightarrow Q^1$, causing prices to rise for consumers from $p^Q \rightarrow p^1$. The minimum price processors require to cover average costs rises ($\overline{w^Q} \rightarrow \overline{w^1}$) while the minimum ex-vessel price that harvesters require to cover average costs drops ($\underline{w^Q} \rightarrow \underline{w^1}$). Total resource rent changes to $\underline{w^1} EF \overline{w^1}$. The amount of consumer surplus lost is $p^Q AB p^1$ while the change in processor surplus is $\overline{w^Q} CF p^Q - \overline{w^1} FK p^1$. Harvesters lose $\underline{w^1} ED \underline{w^Q}$ with the new

commercial quota, Q^1 .

Figure 1. Resource rent in a TAC-managed fishery (adapted from Weninger 1999).



Theoretically we have shown what losses in welfare the commercial sector will incur due to a decrease in commercial quota resulting from a reallocation. Empirically, the simulation model estimates these welfare losses to the commercial sector by predicting changes in the net present value of the losses in net operating revenue to harvestors over the rebuilding period while incorporating estimates of biomass growth.

Analysis of Modifications to Rebuilding Plans (Actions 2 and 7)

Alternatives proposed to modify the rebuilding plans for greater amberjack and gray triggerfish specify different TACs during the rebuilding period of 2008-2012. If hard

commercial quotas accompany the proposed TACs, welfare changes are described theoretically in Figure 1. Welfare losses to the commercial sector resulting from these modifications were examined in the simulation model by predicting changes in the net present value of the losses in net operating revenue over the rebuilding period while incorporating estimates of biomass growth and assumptions about allocation schedules.

The following discussion describes methods of modeling the management alternatives associated with Actions 5 and 12.

Analysis of minimum size limits:

Larger minimum size limits were modeled by assuming that an additional (when compared to the base fishery) percentage, ρ_s^{msl} , of species s on each trip are undersized and must be culled from the catch and discarded.

$$q_{s,j,t} = h_{s,j,t} (1 - \rho_s^{msl})$$

Smaller minimum size limits were modeled by assuming that an additional (when compared to the base fishery) percentage, $-\rho_s^{msl}$, of species s on each trip would be caught; thus, the quantity of species s caught on trip j in year t , $h_{s,j,t}$, is multiplied by a factor greater than one. Variable $q_{s,j,t}$ denotes quantity kept after accounting for the effects of the modified minimum size limit. In the case of larger size limits, each trip is assumed to catch the same quantity of species s as without the size limit, but that undersized fish would be discarded and subject to release mortality. Revenues for species s on trip j , $R_{s,j,t} = p_{s,j,t} q_{s,j,t}$, are based on quantities kept, $q_{s,j,t}$, and price per pound, $p_{s,j,t}$. The harvest of other species on trip j , $h_{sp,j,t}$ for $sp \neq s$, is assumed not to be

affected by the proposed modified size limit for species s . If trip revenues exceeded trip costs after accounting for the proposed increased (decreased) minimum size limit and other jointly-proposed rules, then the expected losses (gains) for trip j due to a modified size limit were calculated as a reduction in (addition to) trip revenues for species s , $p_{s,j,t} (q_{s,j,t} - h_{s,j,t})$. However, if the trip became unprofitable with the proposed combination of rules, then losses were measured as a reduction in net operating revenues, which included the loss in revenues from all species minus the savings of trip costs not incurred because the trip would not be taken, $\sum_s p_{s,j,t} h_{s,j,t} - TC_{j,t}$.

In the simulation model, trip costs are a function of total catch, including discards, and are not changed by the minimum size limit. Data were not available with which to estimate the potential additional costs of culling and discarding undersized fish.

The percentages that define the additional fish associated with each proposed minimum size limit and release mortality rates were held constant throughout the analysis regardless of the alternatives proposed for other species in the fishery. When effective biologically, minimum size limits gradually change the age and size distribution of the resource and the percentage of undersized fish landed. However, this analysis is static and does not include a biological component with which to endogenously determine changes in the proportion of undersized fish that would be landed each year.

These percentages refer to numbers of fish smaller (larger) than the proposed increased (decreased) minimum size limits. However, the simulation model works with quantities of each species landed as reported on logbook trips rather than numbers of fish. Hence, this method of simulating the effect of minimum size limits is an approximation for the preferred method that

would use numbers of fish, and is likely to overestimate the effect of the minimum size limit when the average weight per fish for species s exceeds 1 pound.

Analysis of trip limits:

Trip limits for species s impose a maximum allowable catch per trip, and trips with catches of species s in excess of the trip limit, TL_s , were modeled by restricting their catches to the trip limit. Some proposed management actions combine trip limits and minimum size limits. For increased (decreased) minimum size limits, the simulation model reduced (increased) catches according to the percentage, ρ_s^C ($-\rho_s^C$), of undersized (newly available) fish on trip j before determining if the trip limit would be restrictive.

$$q_{s,j,t} = TL_s \quad \text{when } h_{s,j,t} (1 - \rho_s^C) \geq TL_s$$

Losses attributable to the trip limit were measured as the value of the difference between catches for species s that would have occurred with and without the trip limit, $p_{s,j,t} [TL_s - h_{s,j,t} (1 - \rho_s^C)]^1$. Please note that losses due to the trip limit would be equal to the difference between the trip limit and reported catches, $p_{s,j,t} [TL_s - h_{s,j,t}]$, only when there were no proposed minimum size limits. The portion of the overall loss measured by $[p_{s,j,t} h_{s,j,t} \rho_s^C]$ is attributable to the minimum size limit rather than the trip limit. The quantity of species s in excess of the trip limit, after accounting for the effects of minimum size limits, is assumed to have been caught, discarded, and subject to release mortality because the trip would continue in search of other species. In this event, trip costs would not change due to implementation of trip limits.

¹ For decreased size limits, $-\rho_s^C$ is substituted for ρ_s^C for the remainder of the methodological discussion.

Trips with catches less than the trip limit, after accounting for the effects of minimum size limits, would not incur additional losses due to the trip limit.

$$q_{s,j,t} = h_{s,j,t} (1 - \rho_s^C) \quad \text{when } h_{s,j,t} (1 - \rho_s^C) < TL_s$$

Trip limits create an incentive for fishermen to take shorter, but more frequent fishing trips. However, this behavioral response has not been modeled for this analysis.

Analysis of seasonal closures:

Seasonal closures for species s were modeled by defining variable $open_s = 0$ when the season is closed for species s and $open_s = 1$ when it is open, and then multiplying by the reported catch of species s on trip j . Therefore, catch of species s would be affected by a seasonal closure policy only during the closed season; *i.e.*, $q_{s,j,t} = 0$ only when $open_s = 0$.

$$\begin{aligned} q_{s,j,t} &= h_{s,j,t} (1 - \rho_s^C) open_s && \text{when } h_{s,j,t} (1 - \rho_s^C) < TL_s \\ q_{s,j,t} &= TL_s open_s && \text{when } h_{s,j,t} (1 - \rho_s^C) \geq TL_s \end{aligned}$$

Seasonal closures create an incentive for boats to re-schedule trips to minimize the likely effect of the closure. However, the model does not accommodate this type of behavioral adaptation to regulation. Logbook data record the month and day landed for each reported trip, and the duration of each trip so that start dates could be calculated. The model uses landed date to identify the trips that would be subject to the closure.

Analysis of quotas:

Fishery-wide quotas were modeled in a similar way as seasonal closures. The primary difference between seasonal closures and quotas is that seasonal closures have fixed beginning

and ending dates, whereas quotas may or may not result in fishery closures. When quotas are filled, the closure dates vary annually depending on the speed at which the fishery lands its quota for species s . The closure extends through the end of the fishing year once the quota is filled.

The equations that describe the short-term economic effects of quotas are the same as already presented for seasonal closures. The model sets variable $open_s = 0$ to reflect a no-harvest rule resulting from seasonal closures or fishery closures after the quota is filled. Otherwise, it sets $open_s = 1$ to indicate that the fishery for species s is open and that trips are unaffected by either quota or seasonal closure.

The model compares the accumulated fishery landings of species s with its quota to determine if and when the fishery would be closed. This is accomplished by sorting logbook trip reports by year, month and day landed, and then performing a chronological trip-by-trip accumulation of landings that likely would occur given the selected combination of proposed management alternatives. The model sets $open_s = 1$ at the beginning of each fishing year, and sets $open_s = 0$ as soon as accumulated landings exceed the quota for species s .

Quotas tend to promote a race for fish as fishermen compete to maximize their shares of the overall catch before the fishery is closed. The model does not include the possibility that fishermen might accelerate their trips in anticipation of a fishery closure, or that dockside prices might fall if market gluts occur due to the accelerated harvesting activity. More work is needed on these issues since they are two of the primary outcomes of quota management.

Method for Simulation of Proposed Alternatives

The list of proposed alternatives appears in Appendix Table 1. Ideally, the effects of proposed management alternatives for greater amberjack and gray triggerfish would be evaluated simultaneously to account for potential joint effects on the fishery. However, the total number of combinations of proposed alternatives was too numerous to be evaluated. The method adopted in this analysis was to simulate the effects of the different alternatives that were proposed for a particular species while holding the alternatives proposed for the other species at their status quo levels, which do not include adjustments for growth in biomass. Biomass growth was incorporated into the base model for the simulated species based on the ratios of TAC proposed by Actions 2 and 7 (Table 1). Thus, comparisons of the net present value of economic losses associated with proposed alternatives always assumed a particular rebuilding path for the simulated species but not the other species. In all simulations, growth in biomass was assumed to be proportional to growth in projected TAC; however, since no rebuilding plan is offered for Alternative 1 in Action 7, comparisons of economic displacement are based on the assumption of no growth in biomass.

Each combination of proposed alternatives is reported as a comparison between the simulated outcomes for the proposed alternative and the base model. When alternatives associated with Actions 5 and 12 are evaluated, the parameters for the simulation model change as different rebuilding and allocation plans are assumed. A summary of these parameters for greater amberjack and gray triggerfish are described in Tables 2 and 3, respectively. Results are reported in thousands of nominal dollars and sums were discounted at a rate of 7%.

Table 1. Management rebuilding alternatives that determine biomass growth in the Base Model for greater amberjack and gray triggerfish.

Species	Action	Description of Proposed Alternative
Greater Amberjack	2	<i>(Alternative 1)</i> Status Quo. Maintain the three-year stepped rebuilding plan based on a constant F _{OY} projection as specified in Secretarial Amendment 2. Directed TAC for 2008 through 2010 and 2011 through 2012 would be set to the first year of each interval as defined by the constant F _{OY} projection from the 2006 assessment; 1.9 mp for 2008 through 2010 and 3.5 mp from 2011 through 2012.
		<i>(Preferred Alternative 2)</i> Modify the rebuilding plan specified by Secretarial Amendment 2. Directed TAC levels for the 2008 through 2012 would be set at the directed yield for each year as defined by the constant F _{OY} projection from the 2006 assessment. TAC for 2008 would be 1.9 mp, TAC in 2009 would be 2.5 mp, TAC in 2010 would be 3.1 mp, TAC in 2011 would be 3.5 mp, and TAC in 2012 would be 3.7 mp.
Gray Triggerfish	7	<i>(Alternative 1)</i> Status Quo. Do not establish a rebuilding plan for gray triggerfish.
		<i>(Alternative 2)</i> Establish a constant F rebuilding plan for gray triggerfish defined by the constant F _{OY} projection from the 2006 assessment. Directed TAC levels for the 2008 through 2012 would be set at the directed yield for each year; TAC for 2008 would be 0.5 mp, TAC in 2009 would be 0.58 mp, TAC in 2010 would be 0.66 mp, TAC in 2011 would be 0.73 mp, and TAC in 2012 would be 0.79 mp.
		<i>(Alternative 3)</i> Establish a three-year stepped rebuilding plan for gray triggerfish based on the constant F _{OY} projection specified in the 2006 stock assessment. Directed TAC for 2008 through 2010 and 2011 through 2012 would be set to the first year of each interval as defined by the constant F _{OY} projection; 0.5 mp for 2008 through 2010 and 0.73 mp from 2011 through 2012.

Table 2. Alternatives for reducing landings of greater amberjack in the commercial fishery. The shaded column represents landings reductions based on the preferred Alternative 3 in Action 1, Allocation and the Alternative 2 rebuilding plan in Action2.

	Foy Rebuilding plan		
Allocation Basis	81-87 (Allocation 1)	95-04 (Allocation 2)	81-04 (Allocation 3)
Percent Reduction	67%	15%	38%
trip limit	300 pounds 67% reduction	3,400 pounds 15% reduction	1,100 pounds 38% reduction
Season	Add Feb & 6/1 - 9/25 67% reduction	Add 6/1 - 6/24 15% reduction	Add 6/1 - 8/9 38% reduction
Size reduction / Trip	N/A	32" & 1,700 #s 15% reduction	33" & 700 #s 41% reduction
Quota	294,000 67% reduction	747,000 15% reduction	547,000 38% reduction

Table 3. Alternatives for reducing landings of gray triggerfish in the commercial fishery based on the F_{OY} rebuilding plan in Action 7. Management measures necessary to end overfishing based on the preferred alternatives selected in Actions 7, 9, and 10 are shaded in gray.

No Regional Management			
Allocation Basis	81-87 (Allocation 1)	95-04 (Allocation 2)	81-04 (Allocation 3)
	82%	48%	61%
Trip Limit	15 pounds 82% reduction	70 pounds 51% reduction	40 pounds 63% reduction
Size Limit	18 inches FL 85% reduction	15 inches FL 48% reduction	16 inches FL 63% reduction
Size & Trip	16" FL & 70 pounds 82% reduction	14" FL & 220 pounds 48% reduction	15" FL & 210 pounds 62% reduction
Size & Trip	N/A 36,449	13" FL & 120 pounds 48% reduction	14" FL & 90 pounds 62% reduction
Regional Management			
Allocation Basis	81-87	95-04	81-04
	132%	77%	98%
Trip Limit	Close the	Bycatch Fishery	Close the
Size Limit	eastern Gulf	% by weight of	eastern Gulf
Size & Trip	and take	landings	TAC = 2,000 pounds
Size & Trip	42,000 pounds from the western Gulf.	number of fish TAC=30,000 pounds	

Data Used in the Analysis

On average from 2000-2005, 664 boats made 4,788 trips that landed at least one pound of greater amberjack or gray triggerfish, and produced 10.6 million pounds (whole weight) of all Gulf of Mexico finfish (GOMFF) species combined with a dockside value of \$20.60 million. The predicted trip costs exceeded trip revenues for about 1.5% of these reported trips. Two possible explanations are offered for this outcome. First, the activity of fishing has an uncertain component, and bad-luck trips would have had lower catches and revenues than expected. Therefore, some reported trips probably lost money due to bad luck. Second, the trip cost equations assign median trip costs for each gear type, but some boats actually expend less than

the median, with the result that predicted trip costs may be greater than actual trip costs. The combination of lower than expected revenues and predicted trip costs that may be greater than actual costs can produce simulated trips for which revenues are less than predicted trip costs. Trips were deleted from the simulation analysis if predicted trip costs exceeded trip revenues, regardless of the reason. For instance, many of the deleted trips took place during 2005 when fuel prices increased significantly. If these trips were kept in the analysis, the simulation model would have attributed losses due to increases in fuel price to the implementation of the proposed management alternatives.

The base fisheries for the simulation analysis were derived from the remaining 98.5% of trips for which revenues exceeded predicted trip costs. From 2000-2005, these data consisted of an average of 4,716 trips by 655 boats that landed 768,000 pounds of greater amberjack and 198,000 pounds of gray triggerfish worth \$748,000 and \$231,000, respectively. Revenues from all species landed on these trips averaged \$20.59 million per year, and trip costs were estimated as \$3.16 million, which left approximately \$17.43 million as net operating incomes to boat owners, captains and crew. The species that is not under analysis is set at this status quo level; consequently, net operating revenues are constant during 2008-2012. On the other hand, net present values that show the marginal economic loss due to implementation of a particular regulation are derived as differences from the base model of the species being analyzed. Biomass growth estimates were used to adjust net operating revenues in the years 2009-2012 relative to the TAC proposed in the rebuilding plans for 2008. In other words, comparisons to status quo alternatives in Actions 5 and 12 are done by comparing changes in the net present value of net operating revenues predicted by the simulation model to the base value which

includes the status quo fishery, adjustments due to predictions in biomass growth, and possible assumptions about allocation schedules or methods of regulation. However, the results of comparisons of Alternatives 2 and 3 to the status quo in Action 7 are differences in predicted net value of losses in relation to the status quo fishery (with no biomass growth) since Alternative 1 explicitly states that no rebuilding plan for gray triggerfish is to be adopted.

References

Weninger, Quinn. 1999. Equilibrium Prices in a Vertically Coordinated Fishery. *Journal of Environmental Economics and Management*, Vol. 37, pp. 290-305.

Appendix Table 1: Management actions and alternatives proposed in Amendment 30A affecting the Gulf of Mexico commercial greater amberjack and gray triggerfish fisheries.

Action	Alt.	Description of Proposed Alternative
1- Modifications to Greater Amberjack Allocations	1	Status Quo. Maintain the allocation of TAC between the recreational and commercial greater amberjack fisheries as specified in Amendment 1 to the Reef Fish FMP as the average share during the years 1981 through 1987. The recreational fishery would receive 84 percent of the TAC and the commercial fishery would receive 16 percent.
	2	Establish the allocation of TAC between the recreational and commercial greater amberjack fisheries as the average share during the years 1995 through 2004. The recreational fishery would receive 60 percent of the TAC and the commercial fishery would receive 40 percent.
	3	Preferred: Establish the allocation of TAC between the recreational and commercial greater amberjack fisheries as the average share during the years 1981 through 2004. The recreational fishery would receive 71 percent of the TAC and the commercial fishery would receive 29 percent.
2- Modifications to the Greater Amberjack Rebuilding Plan	1	Status Quo. Maintain the three-year stepped rebuilding plan based on a constant F_{OY} projection as specified in Secretarial Amendment 2. Directed TAC for 2008 through 2010 and 2011 through 2012 would be set to the first year of each interval as defined by the constant F_{OY} projection from the 2006 assessment; 1.9 mp for 2008 through 2010 and 3.5 mp from 2011 through 2012.
	2	Preferred: Modify the rebuilding plan specified by Secretarial Amendment 2. Directed TAC levels for the 2008 through 2012 would be set at the directed yield for each year as defined by the constant F_{OY} projection from the 2006 assessment. TAC for 2008 would be 1.9 mp, TAC in 2009 would be 2.5 mp, TAC in 2010 would be 3.1 mp, TAC in 2011 would be 3.5 mp, and TAC in 2012 would be 3.7 mp.
3- Accountability measures for the Greater Amberjack Rebuilding Plan	1	No action. Do not establish an accountability measure for the greater amberjack rebuilding plan.
	2	Preferred: If annual landings for any sector as estimated by the SEFSC exceed the annual share of TAC for that sector, the Regional Administrator shall issue a notice reducing the length of the fishing season for that sector for the time necessary to recover the overage by the following fishing year. If, however, the Council establishes a commercial quota (see Action 4), the Regional Administrator shall issue a notice reducing the commercial quota in the following year by the amount the quota was exceeded in the previous year(s).
	3	If annual landings for any sector as estimated by the SEFSC are 20 percent greater than the TAC for that sector in 2008, 10 percent greater than the cumulative TAC for that sector in 2008-2009, or greater than the cumulative TAC for that sector in 2008-2010, the Regional Administrator shall issue a notice reducing the length of the fishing season for that sector for the time necessary to recover the overage by the following fishing year. If, however, the Council establishes a commercial quota (see Action 4), the Regional Administrator shall issue a notice reducing the commercial quota in the following year by the amount the quota was exceeded in the previous year(s) as calculated above. During 2011 and 2012, no landings overages will be allowed.

5- Greater Amberjack Commercial Management Alternatives		No action. Maintain the greater amberjack commercial minimum size limit of 36 inches FL and the closed season from March through May.
	2	Establish a commercial greater amberjack trip limit of 1,100 pounds. Reduces landings by 38 percent.
	3	Reduce the commercial greater amberjack minimum size limit to 33 inches FL and the commercial trip limit to 700 pounds. Reduces landings by 41 percent.
	4	Preferred: Establish a quota for the commercial fishery (Reduces landings by 38 percent). The annual commercial quota under a constant F_{OY} rebuilding plan TAC for 2008 would be 547,000 pounds, TAC in 2009 would be 744,000 pounds, TAC in 2010 would be 907,000 pounds, TAC in 2011 would be 1.02 mp, and TAC in 2012 would be 1.09mp.
	5	Add June 1 through August 9 to the current three-month closed season. Reduces landings by 38 percent.
6- Thresholds and Benchmarks for Gray Triggerfish	1	No Action: Do not establish a minimum stock size threshold (MSST), maintain optimum yield (OY) as the yield associated with $F_{20\%SPR}$, and maintain the maximum fishing mortality threshold (MFMT) at $F_{30\%SPR}$
	2	Preferred: Set MFMT equal to F_{MSY} (proxy = $F_{30\%SPR}$); set MSST equal to $(1-M)*SSB_{MSY}$ (proxy = $(1-M)*SSB_{30\%SPR}$); and set OY as the yield associated with: <u>Preferred Option a:</u> 75 percent of F_{MSY} (proxy = $F_{30\%SPR}$) when the stock is at equilibrium. <u>Option b:</u> 90 percent of F_{MSY} (proxy = $F_{30\%SPR}$) when the stock is at equilibrium.
	3	Set MFMT equal to F_{MSY} (proxy = $F_{30\%SPR}$); set MSST equal to $0.5*SSB_{MSY}$ (proxy = $0.5*SSB_{30\%SPR}$); and set OY as the yield associated with: <u>Option a:</u> 75 percent of F_{MSY} (proxy = $F_{30\%SPR}$) when the stock is at equilibrium. <u>Option b:</u> 90 percent of F_{MSY} (proxy = $F_{30\%SPR}$) when the stock is at equilibrium.
7- Gray Triggerfish Rebuilding Plan	1	Status Quo. Do not establish a rebuilding plan for gray triggerfish.
	2	Establish a constant F rebuilding plan for gray triggerfish defined by the constant F_{OY} projection from the 2006 assessment. Directed TAC levels for the 2008 through 2012 would be set at the directed yield for each year; TAC for 2008 would be 0.5 mp, TAC in 2009 would be 0.58 mp, TAC in 2010 would be 0.66 mp, TAC in 2011 would be 0.73 mp, and TAC in 2012 would be 0.79 mp.
	3	Establish a three-year stepped rebuilding plan for gray triggerfish based on the constant F_{OY} projection specified in the 2006 stock assessment. Directed TAC for 2008 through 2010 and 2011 through 2012 would be set to the first year of each interval as defined by the constant F_{OY} projection; 0.5 mp for 2008 through 2010 and 0.73 mp from 2011 through 2012.
8- Accountability measures for Gray Triggerfish	1	No action. Do not establish an accountability measure for the gray triggerfish rebuilding plan. The Council could address landings overages and implement management measures to constrain harvest to TACs specified in the preferred rebuilding plan by developing a regulatory amendment to the Reef Fish FMP.

	2	If annual landings for any sector as estimated by the SEFSC exceed the yield associated with fishing at $0.9 * F_{30\%SPR}$ (overfishing level) for that sector, as specified in Table 2.2.2, the Council shall request the Regional Administrator implement temporary regulations in the following year to return landings to the target annual TAC level (annual catch limit) as specified in the preferred rebuilding plan in Action 6. However, if the cumulative sum of landings for all sectors does not exceed the maximum allowable yield for rebuilding the stock, then no accountability measures would be required.
	3	If annual landings for any sector as estimated by the SEFSC exceed the yield associated with fishing at $0.9 * F_{30\%SPR}$ (overfishing level) for that sector, as specified in Table 2.2.2, the Regional Administrator shall issue a notice reducing the length of the fishing season for that sector in the following year to return landings to the target annual TAC level (annual catch limit) as specified in the preferred rebuilding plan in Action 6. However, if the cumulative sum of landings for all sectors does not exceed the maximum allowable yield for rebuilding the stock, then no accountability measures would be required.
	4	If commercial and/or recreational gray triggerfish landings, as estimated by the SEFSC, exceed the three-year running average TAC associated with fishing at F_{OY} (Table 2.2.3), then the Regional Administrator shall issue a notice reducing the length of the fishing season for the sector experiencing the overage by a percentage equal to the average percentage overage during the previous three years. In year-1 of the rebuilding plan, the accountability measure will be the same as for Alternatives 2 and 3, in year-2 of the rebuilding plan overages will be based on average landings during 2008 and 2009, thereafter, a three year running average will be used.
10- Gray Triggerfish Regional Management	1	Preferred: No Action. Manage gray triggerfish on a Gulf wide basis. Implement Gulf wide management measures to reduce gray triggerfish landings by 49 percent overall to end overfishing and rebuild the stock.
	2	Manage gray triggerfish on a regional basis. Reduce the eastern Gulf (Fishing Statistical Areas 1 – 12, Mississippi through Florida) landings of gray triggerfish by 59 percent to end overfishing Gulf wide.
12- Gray Triggerfish Commercial Management Alternatives	1	Status Quo. Maintain the 12-inch TL minimum size limit.
	2	Establish a commercial trip limit of 40 pounds. Reduces landings by 63 percent.
	3	Increase the commercial size limit to 16 inches FL. Reduces landings by 63 percent.
	4	Increase the commercial size limit to 15 inches FL and establish a commercial trip limit of 210 pounds. Reduces landings by 62 percent.
	5	Increase the commercial size limit to 14 inches FL and establish a commercial trip limit of 90 pounds. Reduces landings by 62 percent.
	6	Increase the commercial size limit to 14 inches FL and establish a commercial quota of 80,440 pounds.

APPENDIX B: RESPONSE TO COMMENTS ON DSEIS

Including comments from the EPA, comments on the DSEIS were received from 6 individuals and organizations during the 45-day comment period. This appendix includes NMFS' response to these comments. The EPA classified the DSEIS and proposed action as an "LO," i.e., the EPA has "Lack of Objections" to the proposed alternative (see Appendix C). Alternatives considered but rejected through the development process of the DSEIS with an explanation of why they were rejected can be found in Section 13.

The following are responses to comments received from individuals and organizations.

Comment: Two comments asked NMFS not to implement increases in the recreational minimum size limits for greater amberjack and gray triggerfish. The comments indicated these species would be more difficult to catch, thus increasing the recreational cost to go fishing. Another comment cited increased bycatch and discard mortality as a reason to why size limits in general may not be the best way to reduce the harvest for these species.

Response: Decreases in targeted fishing effort required to achieve reductions in greater amberjack and gray triggerfish recreational landings would be expected to result in short-term consumer surplus losses to participating anglers and net revenue losses to charter and headboat operators. It is expected that, as the stock recovers in the long run, economic benefits would result from future increases in recreational landings. For greater amberjack, Preferred Alternative 4 uses a modest increase in the size limit combined with an elimination of for-hire captains and crew to achieve the required reductions in harvest. This alternative minimizes the anticipated annual losses in economic value (see Section 5.3.3) relative to the other alternatives considered to meet the management objectives. For gray triggerfish, Preferred Alternative 2 does not minimize losses in economic value as well as some of the other considered alternatives (see Section 5.9.3). However, this alternative was found superior because it achieves greater reductions in gray triggerfish recreational landings, thereby improving the probability of success of the rebuilding plan.

For greater amberjack, increasing the recreational minimum size limit to 30 inches FL would increase discard mortality, but it also allows slightly more than 50 percent of all females to mature before being landed. Preferred Alternative 4 is expected to allow dead discards to increase from about 12 percent by weight of current recreational landings to about 18 percent by weight of recreational total landings. Although the percentage of dead discards to landings is estimated to increase, the magnitude of dead discards is actually estimated to decrease by 13 percent because of the large reduction in recreational landings. Additionally, anglers can avoid targeting and catching greater amberjack as bycatch, unlike other species of reef fish, and increases to the minimum size limit may benefit yield-per-recruit (see Section 4). Also, greater amberjack grow quickly (i.e., it takes less than six months for a greater amberjack to grow from 28 to 30 inches FL) and have a relatively low release mortality rate (~20 percent, although anecdotal information suggest it may be less), so any changes in the proportion or magnitude of dead discards may be short-lived.

For gray triggerfish, an increase the minimum size limit from 12 inches TL (10.44 inches FL) to 14 inches FL (16.2 inches TL) is not expected to significantly increase discard mortality and is expected to benefit the stock. As discussed in Section 5.9.2, unlike nearly all other reef fish species managed by the Gulf Council, gray triggerfish are hardy fish that have a very low release mortality rate. Only a small percentage (1.5 percent) of gray triggerfish die after release. The number of eggs produced by a gray triggerfish increases exponentially by size and age, allowing for increased spawning potential. Additionally, increasing the minimum size limit to 14 inches FL would delay harvest of gray triggerfish by two years, allowing gray triggerfish to spawn two additional seasons before becoming susceptible to fishing mortality.

Comment: One comment was against reducing the greater amberjack bag limit.

Response: In selecting its preferred alternative, the Council maintained the existing 1-fish bag limit. They did consider fractional bag limits, but rejected alternatives using this management strategy because they would be difficult to enforce and would disproportionately affect the for-hire fishery (See Section 13).

Comment: One comment suggested the Gulf of Mexico should be divided up into regional management zones. This would allow fisheries managers the ability to better fit regulations with the specific needs of fishermen in specific regions of the Gulf.

Response: The Council did consider regional management for gray triggerfish in Action 8 by dividing the Gulf of Mexico into an eastern and western zone; however, this strategy was rejected. Monitoring and enforcement problems would occur, particularly in areas around the Mississippi River, which would divide the eastern from western Gulf. Fishermen could harvest fish from the same area, but dependent of where they landed their fish (e.g., Louisiana vs. Mississippi), they could be subject to different regulations. Additionally, the most recent assessment of gray triggerfish indicated there was little evidence to support more than one biological stock in the Gulf of Mexico (SEDAR 9, 2006c).

APPENDIX C: EPA COMMENTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733
January 17, 2008

NEPA Processing _____
AO: _____
Document Type: EIS/EA CE FNSI ROD
Doc Control #: NR021-008
Type Review: Lead or Coop Agency or Interested Party
Date In: 1-29-08 Date Out: 1-29-08
TO SER(x): 10334 G S C FMC JJK → JTM

Mr. Roy E. Crabtree, Ph.D.
Regional Administrator
Southeast Regional Office
National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, Florida, 33701

Dear Mr. Crabtree:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality Regulations (CEQ) for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Draft Supplemental Environmental Impact Statement (DSEIS) for Final Reef Fish Amendment 30A: Greater Amberjack-Revise Overfishing Plan, Accountability Measures, Gray Triggerfish-Establish Rebuilding Plan, End Overfishing, Accountability Measures, Regional Management, Management Thresholds and Benchmarks (Amendment 30A).

EPA classified your DSEIS and proposed action as "LO," i.e., EPA has "Lack of Objections" to the proposed alternative. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act, to inform the public of our views on proposed Federal actions.

EPA appreciates the opportunity to review the DSEIS. We request that you send our office one (1) copy of the Final SEIS at the same time that it is sent to the Office of Federal Activities (2251A), EPA, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20044.

Sincerely yours,

Michael P. Jansky, PE
Regional EIS Coordinator

Internet Address (URL) • <http://www.epa.gov>

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper (Minimum 25% Postconsumer)